June 2004/$4

AIR FORCE MAGAZINE

JOURNAL OF THE AIR FORCE ASSOCIATION

When Eagles Strike

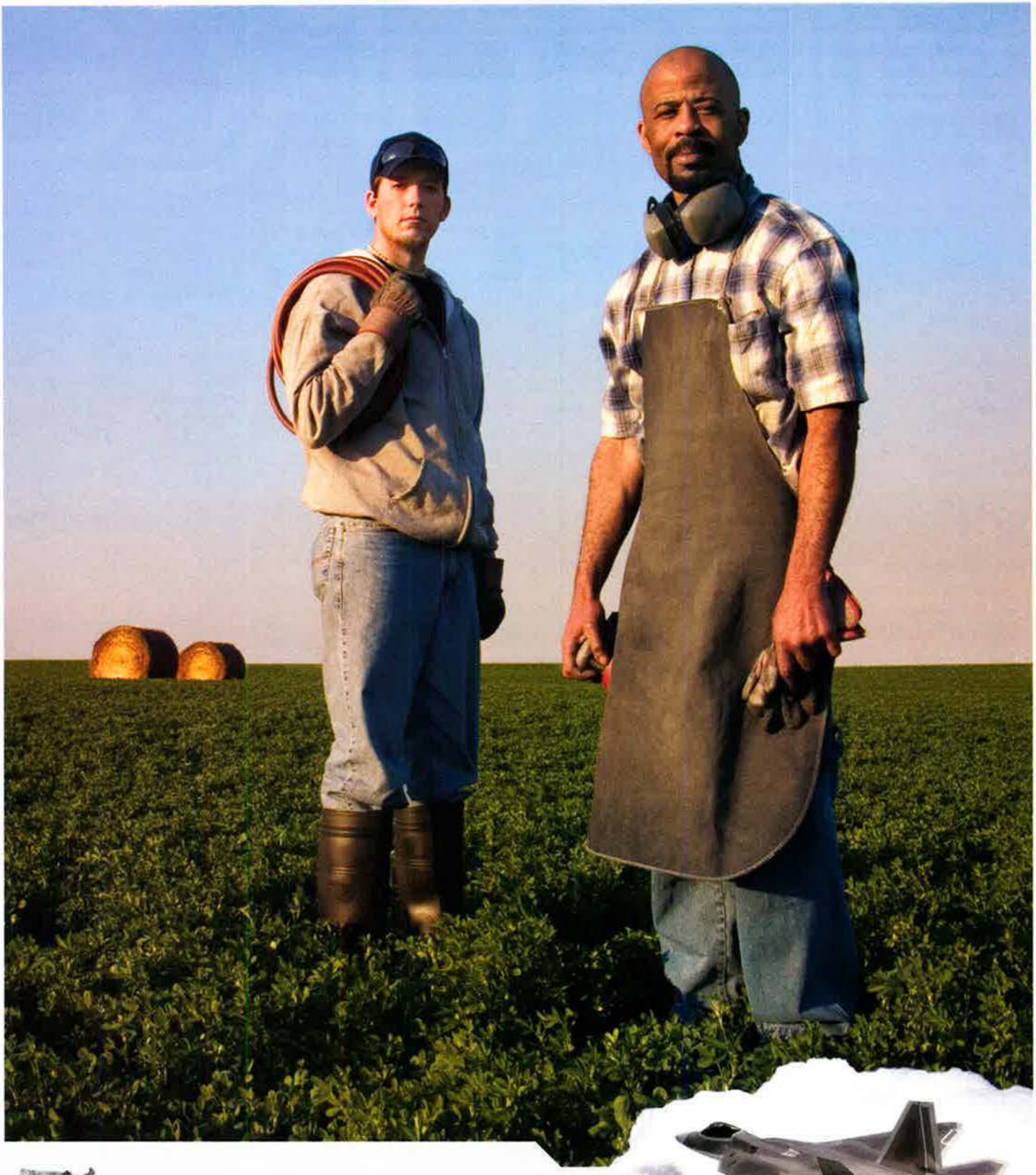
F-15Es of Seymour Johnson

The Force in Korea

50 Years of Space and Missiles

Marine Air in the Mainstream

Blue Force Tracking



OUT HERE THEY GROW WHEAT, LIVESTOCK, AND PRECISION-MACHINED TITANIUM.

Meet some of the folks from Brittain Machine in Wichita, KS. These talented people are a driving force behind the F/A-22, America's newest air dominance fighter. Brittain Machine manufactures 66 complex Raptor sub-assemblies and parts to tolerances as tight as five-thousandths of an inch. They belong to an industry team composed of more than 700 companies in 43 states, who have dedicated themselves to delivering air dominance for America. Kansas is known as "The Sunflower State." Here in the heartland, they're standing tall and proud behind the Raptor.

F/A-22 RAPTOR
LOCKHEED MARTIN • BOEING
PRATT & WHITNEY

www.fa22raptor.com

June 2004, Vol. 87, No. 6

AIR FORCE MAGAZINE

JOURNAL OF THE AIR FORCE ASSOCIATION

www.afa.org

About the cover: Crew of a 335th Fighter Squadron F-15E releases decoy flares during a training sortie. See "When Eagles Strike," p. 46. Staff photo by Guy Aceto.

AIR FORCE Magazine (ISSN 0730-6784) June 2004 (Vol. 87, No. 6) is published monthly by the Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Phone (703) 247-5800. Second-class postage paid at Arlington, Va., and additional mailing offices. **Membership Rate:** $36 per year; $90 for three-year membership. **Life Membership (nonrefundable):** $500 single payment, $525 extended payments. **Subscription Rate:** $36 per year; $29 per year additional for postage to foreign addresses (except Canada and Mexico, which are $10 per year additional). Regular issues $4 each. USAF Almanac issue $6 each. **Change of address** requires four weeks' notice. Please include mailing label. **POSTMASTER:** Send changes of address to Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Publisher assumes no responsibility for unsolicited material.

Editorial

By Robert S. Dudney, Editor in Chief

Long-Range Strike in Two Jumps

AMERICANS used to build bombers—lots of bombers. In World War II, the Army Air Forces took delivery of 34,780 long-range combat aircraft. Each day of that war, the vast "arsenal of democracy" churned out, on average, 26 of these flying heavyweights.

The early postwar Air Force was no slouch, either. It executed several massive Cold War bomber programs, the result of which was 400 B-36s, 2,000 B-47s, 115 B-58s, and 750 B-52s, with most of them committed to the nuclear mission.

Then, in the early 1960s, the big production runs played out. Over the past four decades, in fact, the Air Force has acquired a relative handful of heavy bombers—100 B-1B and 21 B-2 aircraft. Since 1992, it has made no purchases at all. None are planned.

Inevitably, the fleet has aged and shrunk, a development that engenders unease in some quarters. USAF in the 1980s had boasted a force of 360 combat-coded bombers. The Air Force's most recent "Bomber Roadmap," however, calls for making do with 157 bombers, only 96 of which would be kept combat-ready.

At the same time, the requirement for conventional long-range strike has increased. The US overseas base system has contracted. The future promises no easy access to war zones; the enemy could be shielded by a wall of lethal modern defenses, requiring attack launched from afar.

Such realities—plus the fact bombers performed superbly in recent US wars—have stirred pro-bomber partisans in Congress and elsewhere. These advocates—staunch Air Force supporters among them—have been trying to push the long-range strike issue back to center stage, and they are having some success.

The bomber partisans contend that today's small fleet leaves the US with too little margin for error. They have pushed the Air Force to pursue the next generation system with greater urgency.

For years, Air Force leaders answered by making several sound points. One was that, as individual bombers become more powerful (and expensive), fewer are needed. Integration of sophisticated precision weapons makes today's fleet many times more potent than that of a decade ago. Then, several bombers and scores of bombs were required to eliminate a single target.

In recent months, the Air Force has adjusted its position.

In the 1999 Air War Over Serbia, however, a single B-2 hit an average of 15 targets in a single pass. Today, the airplane could attack 80 different targets per sortie. Aircraft of the future might be able to strike hundreds of aim points.

Also, said USAF, today's B-1s, B-2s, and B-52s aren't exactly wheezing along on life support. The roadmap says the three should be structurally sound "for the next four or five decades."

Moreover, the Air Force argued that a new bomber is unaffordable, given other urgent needs. USAF leaders have openly stated that fighter modernization is top priority. Much as it might like to start a new long-range strike system, USAF, given the realities of the budget, can't do that and also put sufficient F/A-22s on the ramp.

Those arguments have never been persuasive to bomber partisans, who warn that a technological surprise—counterstealth systems, directed energy weapons—or unexpected combat losses could spell problems. A small bomber fleet "doesn't give us much margin for surprise," warned Rep. Duncan Hunter (R-Calif.), chairman of the House Armed Services Committee.

In recent months, the Air Force has adjusted its position.

First, the Air Force appears to have moved up the date for acquiring a next generation system. Formerly, USAF planned to bring a new long-range strike platform into operational status in 2037. Now, the new target is 2025-30, declared Gen. T. Michael Moseley, vice chief of staff. Moseley told the House Armed Services Committee on March 3 that USAF had set up two offices to work on the problem, one at Air Combat Command and one at Air Force Materiel Command.

The terms "long-range strike" and "bombers" once were synonymous. No longer. The new long-range system could be a hypersonic craft. Other prospects include unmanned combat vehicles, suborbital, exoatmospheric, and orbital systems, as well as directed energy weapons.

Second, USAF opened the door to possible acquisition of an interim strike system to help ease pressure on the bomber fleet between now and the arrival of the "2025 system." This so-called "bridge bomber" may be an FB-22—a variant of the F/A-22 fighter optimized for strike. Secretary of the Air Force James G. Roche said the aircraft should have a range of about 1,800 miles and payload of up to 30 Small Diameter Bombs. However, the bridge bomber could be a modified B-2 bomber or something else. Development could start next year, with operational status in 2018.

This may be the start of a significant new pursuit of long-range strike capability for the nation. However, the Air Force has quite a bit of work to do if it wishes to convince the skeptics, a group which includes a number of former senior Air Force leaders. These critics note that USAF has provided or promised no actual funding to start serious work on either system and that the "interim system" wouldn't be available for more than a decade.

We think the Air Force deserves the benefit of the doubt. As USAF implicitly concedes with its new plan, however, the nation must pay closer attention to its future long-range strike capabilities. ■

ARRIVE UNANNOUNCED.
LEAVE UNCOMPROMISED.

Bell Helicopter
A Textron Company
The Boeing Company
BAE Systems
Engineered Fabrics Corporation
EFW Inc.
General Dynamics Advanced
Information Systems
Honeywell
ITT Industries
Middle River Aircraft Systems
MOOG
Northrop Grumman
Raytheon
Rolls-Royce
Smiths Aerospace
Vought Aircraft

Twice as fast as a helicopter. Four times the range. Nothing is better than the CV-22 at getting you in, and getting you out.

It inserts and extracts with pinpoint precision. It refuels in the air. It handles at high and low altitudes.

The revolutionary tiltrotor CV-22 Osprey from the V-22 Joint Program. It's time to go full tilt.

Team Osprey

Letters

letters@afa.org

Views on Revisionism

Well done, *Air Force* Magazine, for explaining the Enola Gay controversy in Correll's "Revisionism Gone Wrong," April, p. 40.

I am a retired Marine aviator who teaches National Security Policy at the University of West Florida and air power tasking processes at the Command and Control Warrior School, Hurlburt Field, Fla.

In my university classes, I try to capture the relevance of the atomic bomb in closing World War II. My students write a minimum of four decision papers [one of which] regards the use of atomic weapons against Japan in 1945. We begin research with a general overview of the Pacific campaigns then focus on the Okinawa Campaign. Each student is 'sworn in' by me and provided insight into the Manhattan Project. I tell them that President Truman wants input from middle America in his decision to use or not use the weapon. In addition, the students are told that their brother is a Marine on an amphibious ship near the coast of Japan. From the data, the students extrapolate casualty rates using simple algebraic equations. Our calculations predict a staggering 1,000,000 US/Allied casualties and 5,000,000 Japanese casualties based in part upon Japan's defense of Okinawa. Each student must then prepare a decision paper to the President sketching out the issue, two options, some pros and cons of each option, and a recommendation. No recommendation, no grade. Drop the bomb or do not drop the bomb.

Their logic stands in stark contrast to Mr. Harwit's interpretation. Some student snippets follow:

- No rational person wants to incinerate people, but that is not the issue.
- For the greater good of mankind, the bomb brought to an irrefutable conclusion World War II in the Pacific.
- The threat of nuclear war will always be with us, but may be restrained now because of their use at the end of World War II.
- (From a left wing liberal, and highly ethical, female student) I am deeply upset at my conclusion (to drop). The bomb did not make right what Japan did so wrong, but it did bring the war to a conclusion. I never want to be in a position to make a decision like this.

To me the atomic bomb did bring World War II to a close. In the absence of the bomb, radical Japanese military officers would have kept the Emperor *et al* in political seclusion. Conventional bombing devastated Japan's command and control nodes while our submarines strangled their islands. Yet even then Japan could have mounted a formidable defense. In doing so, Japan's emergence as a global economic power and its stabilizing effect in the region would have been, at best, delayed.

Historical revisionism causes us to misremember the past and to misapply historical lessons in shaping national security policy. More than unethical, it is dangerous. The *Enola Gay* was an instrument of national security policy. That policy was proved correct. My students get it.

Tom Brannon
Gulf Breeze, Fla.

Air Force Magazine needs to lighten up on the Smithsonian Institution's [National] Air and Space Museum.

You are correct in asserting that back in the 1990s the Smithsonian planned to use the B-29 *Enola Gay* as a prop in a revisionist-inspired political horror show, and the AFA and *Air Force* Magazine performed a great public service in exposing their plans, leading to the eventual cancellation of the travesty. Since then, the Smithsonian Institution and [National] Air and Space Museum leaders who planned that horror show have been replaced by much more reasonable men. This new leadership has on several occasions demonstrated its good judgment by politely but firmly rejecting new attempts to inject revisionist dogma into museum displays and exhibits.

Despite this positive step however, for the past several years *Air Force* Magazine has seen fit to bring up the political horror show virtually every time it mentions the air and space museum. The "Revisionism Gone Wrong" article in your April issue is just the latest occurrence. By all means, *Air Force* Magazine should remain springloaded to expose all *external* attempts to force the Smithsonian to re-embrace revisionism. However, to bring up to the new Smithsonian leaders the sins of their predecessors every time you mention the air and space museum is akin to constantly reminding a recovering alcoholic about the embarrassing things he did while he was still drinking—it may be factually correct, but it doesn't recognize the positive steps made so far nor does it particularly inspire him to remain sober.

Lt. Col. Michael Devine,
USAF (Ret.)
Springfield, Va.

I was dismayed by your article. While undoubtedly accurate and factual in historical terms, it recasts an unfavorable light on the Smithsonian Institution's National Air and Space Museum based upon the sins of former management.

This battle was won long ago, *Enola Gay* is on display in an historically neutral context, and current management of NASM and the Udvar-Hazy Center are committed to keeping it

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

that way. Your article comes across as a self-congratulatory victory lap that is as unseemly as it is unnecessary.

Lt. Col. John H. Voss,
USAF (Ret.)
Burke, Va.

I vividly recall the controversy. My impression at the time was that President Clinton missed a golden political opportunity to curry favor with veterans' groups. In my view, he should have personally visited Mr. Harwit in his Smithsonian office and demanded an explanation of why the exhibit was presented in the way that it was. Assuming that Harwit would have provided the same reasons that are recited in your article, the President should have fired him on the spot.

However, there is one very bright spot that emerged from the controversy. That is, it sparked a national dialogue on the question of whether the atomic bomb should have been used to bring the Pacific war to a close. As I recall it, the consensus was that under the circumstances, the use of the bomb was not only defensible, it was advisable and quite necessary. Each of the "what ifs" that have been raised in hindsight are easily dismissed.

To me, one of the most interesting of these is "what if" President Truman had refused to order the bombs' use and thus required an actual invasion of Japan to bring the war to an end? Had that occurred and tens of thousands of Americans and Japanese had died unnecessarily, his "trial" would not have been as a war criminal, but would have been conducted in Congress on his impeachment.

In my many years as a World War II historian, I have interviewed hundreds of veterans and home-front citizens. I have never failed to ask two questions of them: Where were you when you learned of the dropping of the atomic bomb and how do you now feel about that act? Regarding the latter, their opinions have been *unanimously in favor* of ending the war in the way that it was. The lesson to be gleaned from this is that, if your life was directly affected by the ongoing war, a quick end to it was a godsend.

I take an even more definite position: In my view, if someone truly thinks that the use of the atomic bomb was not necessary at the time and under the circumstances, that person has no understanding of World War II.

Donald P. Bourgeois
Portland, Ore.

The article was excellent. Kudos to AFA for its performance throughout that affair. This creeping revisionist cancer must be challenged wherever encountered. It is unfortunate that such is spreading through other museums (public and private) across America and in our schools. The pseudo-historians and revisionists chafe at veteran opposition to their conspiracy theories and misinterpretations. But it is *our* history, the veterans whose contributions and sacrifices made that history.

And we have a right to have a say in how our comrades and our service are portrayed. This problem spans services and veterans groups. I hope this affair serves as a warning—and AFA's pivotal role in challenging revisionism as an example—to all veterans groups.

Mark Scott
Bremerton, Wash.

Of great interest to those of us from the 6th Bomb Group who attended the advance opening of the new Udvar-Hazy Center was the authenticity of the *Enola Gay* display with the emphasis on the insignia of the aircraft. The "Circle R" on the *Enola Gay* is the correct marking for this aircraft as flown on the Hiroshima mission. Behind that tail marking is a story.

When the 509th Composite Group's 10 aircraft arrived on Tinian, their official tail marking was "Circle Arrowhead." The circle indicated a Tinian-based aircraft and the arrowhead in the circle was the 509th Group marking. The 509th aircraft had only two tail guns, in contrast to the 12 guns in five turrets on all other B-29s in the Marianas. When the 509th flew their first practice missions with us, they were noticeably singled out for attack by Japanese fighters. It was apparent that the Japanese were aware of the lack of armament. The first attempt to counter this was the painting on 509th aircraft of gray gun turrets with black barrels. When this proved ineffective, the 509th adopted the tail markings of the 6th for the Hiroshima mission.

On return from the mission, the *Enola Gay* was photographed just before touchdown with the Circle R markings. All later photographs on the ground show her with the Circle Arrowhead markings. These ground photos were not permitted until the "R" was removed and the Arrowhead painted on.

Virgil Morgan
Everett, Wash.

Not Convinced

Your recent editorial supporting the F/A-22 Raptor was unconvincing. The aircraft is not needed and is not affordable. *[See "Editorial: The Raptor Review," April, p. 2.]*

When the program was initiated in 1983, we faced the Warsaw Bloc air-air threat; large numbers of highly capable Soviet-built fighters. The need was real.

Today, we have literally thousands of air-to-air fighter aircraft (F-16s, F-15s, and F-18s). On the other hand there is no nation or combination of nations with anything close to our numbers—much less with capabilities comparable to ours. By incorporating an expensive air-to-ground capability the Air Force tacitly acknowledges the lack of a real air-to-air threat.

Consider the air-to-ground role. Not only do we have the above-listed aircraft, which provide air-to-ground capability, [but] they are joined by hundreds of other platforms—bombers, stealth fighters, A-10s—which can safely launch precision ordnance from stand-off ranges and hit within a few feet of aimpoints.

We plan to procure roughly 3,000 F-35s for the Air Force, Navy, and Marines. So why do we need an attack version of the Raptor?

You speak of the F-15 wearing out, citing its initial entry into service in 1975. Those were As and Bs. Not only is the Air Force upgrading the newer F-15C/D systems—electronically scanned radar and faster, more capable computers, for example—but the F-15E is of much more recent vintage. Hard to maintain and must be replaced? Note that many other air forces are still flying and even buying new F-15s and F-16s, as well as continuing to fly F-4s, F-5s, and even A-4s.

Finally, consider the B-52. It used to fly high-speed, low-level training missions. Those missions were physically very hard on the aircraft. Yet the B-52 continues to demonstrate that it is not yet worn out.

We do not need the Raptor. We cannot afford the Raptor, and we should cancel it and spend the money on real needs.

Col. Morton Eldridge,
USAF (Ret.)
Madison, Ala.

TACP Confusion Again

I don't want this to be another letter just complaining about the status of my job. I am a member of the most deadly and powerful branch of military the world has ever known and, no matter what their AFSC, every man and woman who wears Air Force blue has contributed to that capability. We have banded together and become the tip of the spear. It is the Air Force the world calls upon when it needs an immediate response to a threat. Through our teamwork and leadership we have answered those calls with success. *[See "Battlefield Airmen," April, p. 26.]*

I am a member of the 14th Air Support Operations Squadron. My AFSC is 1C4X1. Our career field is better known as TACP, or Tactical Air Control Party. Some older readers may remember us as ROMADs. Most people don't know who we are and what we do. Even with numerous articles in various magazines and newspapers, in the minds of most people, there is still no clear-cut delineation between my career field and that of Combat Control (1C2X1). Even senior Air Force leadership still seems to confuse our two AFSCs.

Everyone believes that, when ground troops call for close air support, the airmen who call in CAS strikes are combat controllers. Well, everyone is wrong. Many combat controllers can and do call in air strikes, but that is not their primary job. It is the primary job for those of us in the 1C4 career field. We are an entire career field devoted to calling in close air support. We are the experts in CAS. We've been involved in every major engagement since our birth in April 1977, and we have performed with distinction and excellence. Yet when an air strike destroys a vital target, it is always reported as something a combat controller did, not TACPs—and that grates on the entire career field.

Here are some of the recent accomplishments of just the 14th ASOS. Squadron members conducted 653 days of continuous combat operations. We deployed to Afghanistan on June 19, 2002, and stayed there through mid-August 2003. Even while supporting six rotations in Afghanistan, we sent more squadron members to support operations in Iraq, simultaneously covering two separate combat areas of operations until May 10, 2003. Before we could get everyone home from Aghanistan, we sent forces to Iraq again in August 2003 for three more rotations. Among our many decorations, the squadron received two Air Force Outstanding Unit Awards (both with Valor) and individual awards included 70 Bronze Stars, 84 Army Commendation Medals, 25 USAF Commendation Medals with Valor, and two Air Medals.

That is what only one TACP unit has done in the last two years. Is that not worth acknowledging? How much more should one career field have to do when one unit has done everything listed above? There are eight other squadrons in the 18th Air Support Operations Group, alone.

It may seem like a petty grievance, but when I tell people that I call in air strikes for a living and they say, "Oh, you're a combat controller," it infuriates me. When I tell them I am a TACP, they say they've never heard of that job.

It would appear that no one knows the role that my career field plays in

Air Force Association
1501 Lee Highway • Arlington, VA 22209-1198

Telephone: (703) 247-5800
Toll-free: (800) 727-3337

Press 1 *if you know your party's extension.*
Press 3 *for Member Services.*
(For questions about membership, insurance, change of address or other data changes, magazine delivery problems, or member benefit programs, select the "Member Services" option.)
Or *stay on the line for an operator to direct your call.*

Fax: (703) 247-5853

Internet: http://www.afa.org/

E-Mail Addresses

Field Services ..... **fldsvcs@afa.org**
Government Relations ..... **grl@afa.org**
Industry Relations ..... **irl@afa.org**
Information ..... **information@afa.org**
Member Services ..... **service@afa.org**
Policy & Communications (news media) .... **polcom@afa.org**

Magazine

Advertising ..... **adv@afa.org**
AFA/AEF Report ..... **afa-aef@afa.org**
Editorial Offices ..... **afmag@afa.org**
Letters to Editor Column..... **letters@afa.org**

Aerospace Education Foundation ..... **aefstaff@aef.org**
Eaker Institute ..... **eaker@aef.org**
Air Force Memorial Foundation ... **afmf@afa.org**

For individual staff members
first initial, last name, @afa.org
(example: jdoe@afa.org)

AFA's Mission

To advocate aerospace power and a strong national defense.

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

To promote aerospace education to the American people.

AIR FORCE
JOURNAL OF THE AIR FORCE ASSOCIATION MAGAZINE

Publisher
Donald L. Peterson

Editorial afmag@afa.org

Editor in Chief
Robert S. Dudney

Editor
Suzann Chapman

Executive Editor
John A. Tirpak

Senior Editor
Adam J. Hebert

Associate Editor
Tamar A. Mehuron

Managing Editor
Juliette Kelsey Chagnon

Assistant Managing Editor
Frances McKenney

Editorial Associate
Chequita Wood

Art Director
Guy Aceto

Assistant Art Director
Heather Lewis

Production Director
Robert T. Shaughness

Research Librarian
Pearlie M. Draughn

Contributing Editors
John T. Correll
Bruce D. Callander
Rebecca Grant
Peter Grier
Tom Philpott

Advertising adv@afa.org

Advertising Director
Patricia Teevan
1501 Lee Highway
Arlington, Va. 22209-1198
Tel: 703/247-5800
Telefax: 703/247-5855

Industry Relations Manager
Jennifer R. Anderson • 703/247-5800

US and European Sales Manager
William Farrell • 847/295-2305
Lake Forest, Ill.
e-mail: BFarr80708@aol.com

BPA Circulation audited by Business Publication Audit

the success of a battle, and yet we are major players. My career field has a thousand men who are barely acknowledged because they're not members of special operations forces. In the article "Battlefield Airmen," a senior leader is quoted talking about improvements for airmen calling in strikes, which he attributes solely to combat control.

How am I supposed to convince the new airmen who come into my career field that things are going to improve for us when we're hardly acknowledged for our actions and contributions? How do we convince people that have been in our career field for one term to stay in this job when they feel they are not getting the credit they deserve for the hard work that they do?

I'm TACP. I call in air strikes. It's my job. I know it. My boss knows it. My commander knows it. Everyone else should know it too.

SrA. Bertrand S. Fitzpatrick, USAF
Pope AFB, N.C.

About Twentieth Air Force

The [April issue] caused a flood of memories for this ex-staff sergeant B-29 gunner. The great air offensive against Japan of October 1944-Aug. 6, 1945, comes to mind. *(See "The Twentieth Against Japan," April, p. 68.)*

Many times the assembled combat aircrews were told by our commissioned briefing officers that it was the policy of the Twentieth Air Force to use "measured force" against the empire of Japan. We were often told of actions such as dropping leaflets, written in Japanese, which told their populace to clear the cities since [some] were soon to be leveled. This was done to encourage most of the civilian populace to evacuate.

[The point was] to force a complete surrender. We are not here, as General LeMay said, to engage in a reduction of the Japanese civilian population.

One night this translated into what one very fine group of officers aboard the Liberty Belle II of the 39th Bomb Group, decided to do.

Coming away, through flak, night fighters, Baka bombs, and searchlights, from a Japanese industrial target, we all were informed via intercom that a large 500-pound demolition bomb had not released fully and was dangling by one shackle in the forward bomb bay.

[I heard] "Sergeant Vogentiz, come to the forward compartment at once. Bring your lighter chest pack parachute along with your helmet and intercom plug-in jack."

Once forward, I was told that my longer legs might be able to kick loose the dangling bomb—that I should station myself on a four-inch aluminum catwalk and hold on to other parts of the aircraft. I was told further that I would be allowed only one flash of the flashlight provided to locate this item. It was believed that Japanese night fighters were still over our evacuation route.

I entered the screaming, hissing forward bomb bay whose doors were still held open by the bombardier. I stationed myself near an intercom wall jack and held on as I flashed the light. "Can you reach it, Vogenitz?" "Yes, sir," I answered. "We'll tell you when to give it a good kick, we're hoping the shackle will release it."

I waited for several minutes, not feeling much cold nor any possible danger. More time went by, possibly five or six minutes. Finally, over the loud roaring I heard "Go ahead Vogie, kick it away now!" I did and luckily the bomb broke away. The bombardier saw it on his panel and called out, "It's away, all clear." I stood still as he proceeded to close the bomb bay doors.

Task completed.

Ordinarily, I would not ask questions about decisions made by the aircraft commander, however, one officer came to me later after our landing and said "Thanks, Sgt. V, you placed your kick on the bomb just right," and laughingly added, "It sure would have been delicate landing with that thing still with us."

I felt I could ask this officer a question. "I heard on the intercom while in the bomb bay some discussion about delaying the attempt to kick away the bomb. What was that all about, sir?"

"Well," he said, "you and I both know Capt. (Gordon A.) Anderson's approach to all this. He is very much in line with General LeMay's order about the Japanese civilian population. It was Anderson's wish to avoid bombing a line of villages below and a larger village on the coast, probably full of Japanese fishermen and their coworkers. We wanted to drop the d— thing into the ocean."

Richard B. Vogenitz
Oceanside, Calif.

The B-29 was not the only very heavy bomber in the Pacific Theater during World War II. Our squadron, the 386th of the 312th Bomb Group (VH), flew the Consolidated B-32 in combat missions over Japan from

Formosa in the latter days of World War II.

Maj. Claud C. Haisley, USAF (Ret.)
Temple, Tex.

The First Military Airplane

Rebecca Grant's article on the Wright Brothers' frustration in selling their invention to the US government was enlightening. *[See "The First Military Airplane," April, p. 74.]*

As I read it, I recalled my grandfather telling me of his first exposure to an airplane—in a pasture near David City, Neb. He told me the story in 1960, as I was about to enter the Air Force. He said that he was a teenager at the time, about 15 years old. That would have made the year about 1905.

He said that handbills had been put up in and around David City announcing that an airplane would be demonstrated in a pasture near town. On the appointed day everyone for miles around took the day off and gathered at the pasture. My grandfather said that the airplane arrived loaded on a horse-drawn wagon. The airplane was unloaded, and after much tinkering and delay, the engine was finally started. My grandfather said that the airplane made a couple of circuits of the pasture and then crashed; that ended the day's entertainment. As my grandfather and the rest of his family were walking away, my great-grandfather, shook his head and declared that the airplane "wouldn't amount to anything."

For many years I assumed that, somehow, someone had taken a Wright Flier to Nebraska for a demonstration. Much later I learned that a couple of mechanics from Lincoln, Neb., were also busy inventing an airplane. It turned out that it was they who must have given the flight demonstration that day.

Gerald P. Hanner
Papillion Neb.

I thoroughly enjoyed reading "The First Military Airplane." Although I've known about the Wright's history for some time (living in Dayton, it's easy to pick up bits and pieces), the single-thread continuity gave me a perspective on what the brothers went through from beginning to end.

Rich Strong
Dayton, Ohio

Not the 707

Your Washington Watch feature in the April issue *[p. 8]* perpetuates the myth that the KC-135 was derived from the 707. Actually the Boeing model 707 and model 717 were separately and completely re-engineered versions of the prototype model 367-80. They share no structural components and the fuselage of the 717 is four inches narrower and stressed for a 20 ton higher gross weight than the 707. They look alike but are *completely* different airplanes. This information comes from *Boeing Aircraft Since 1918* by Peter M. Bowers, Aero Publishers. The only military designation given to the model 717 is C-135 with several prefixes and an entire alphabet of suffixes. The model 707 is the basis for the C-137 Presidential transport, E-3 AWACS, E-8 J-STARS, and I believe the US Navy has a version.

Boeing has contributed to the confusion by painting 707 on the tail of the prototype and more recently has redesignated the former Douglas DC-9/McDonnell Douglas MD-80 as the Boeing 717. As far as I know Boeing has never explained why and I wonder how they keep the books straight with two entirely different airplanes with the same model number.

TSgt. John R. Radloff, USAF (Ret.)
Rochester, N.Y.

I read with great interest, the article relating to the tanker deal in a holding pattern and the F/A-22 undergoing a further review. It is most important that all of us, as members of the Air Force Association continue to contact members of Congress on these two important platforms for our national defense. In a recent conversation with Congressman Ed Schrock (R-Va.), he informed me that less than 13 percent of the Congress had ever served in the military. Now, more than ever, as vets we need to let our representatives know our strong feelings for the replacement of aging aircraft in the United States Air Force.

George H. Bergdoll Sr.
Newport News, Va.

Need Major Rethinking

In *Air Force* Magazine, "Verbatim," April, p. 87, Secretary of the Air Force James G. Roche said, "I have argued for years that it is only a matter of time before our deployed forces, or our homeland, will be attacked by cruise missiles."

Cruise missiles make fine attack weapons because they present major technical problems in detection and destruction. During the late 1980s, while working as director of long-range planning for the Electronic Systems Division at Hanscom AFB, Mass., I published working papers on the cruise missile defense problem.

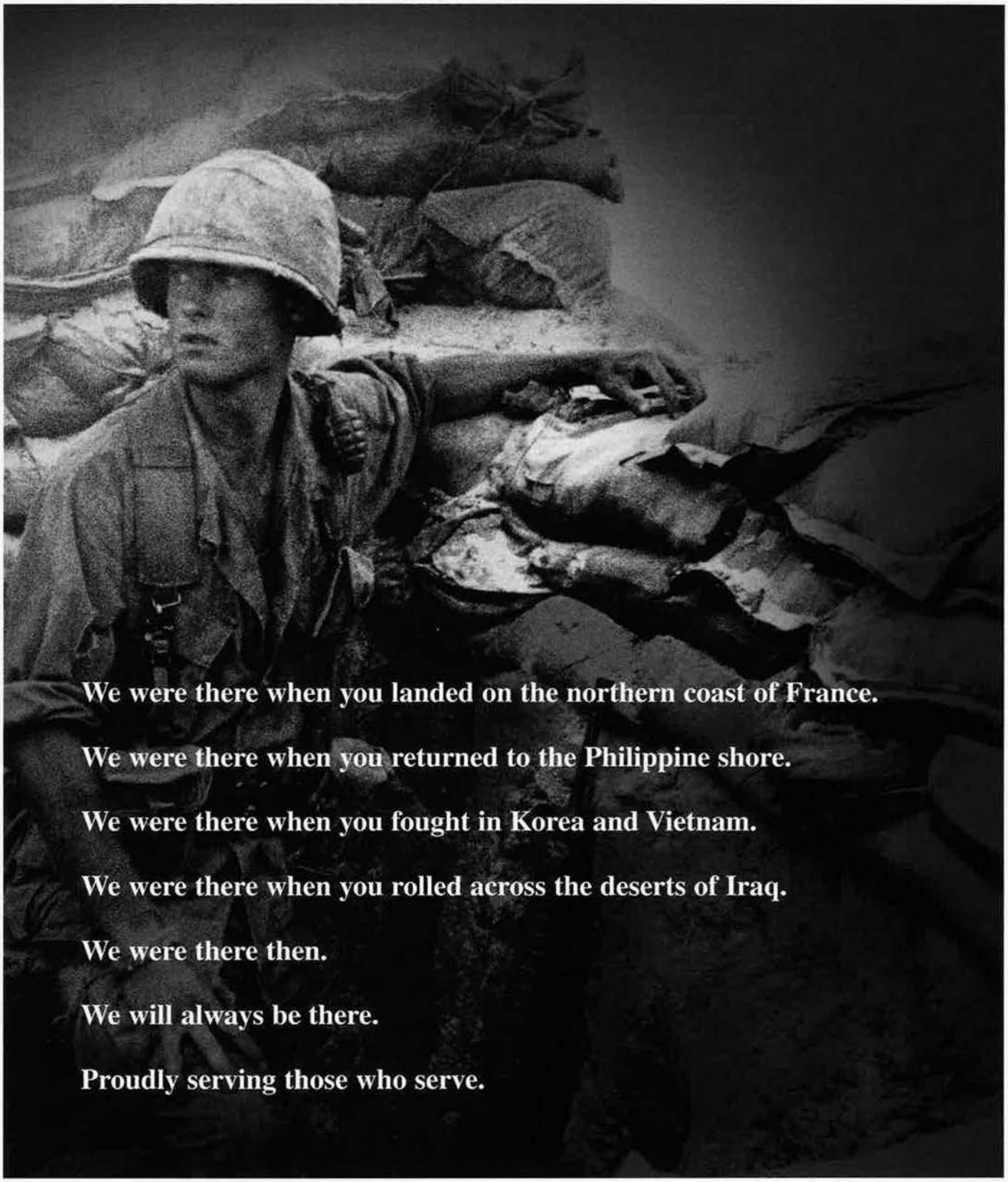
My research indicated that the small physical size produced a low radar cross section and reduced the radar probability of detection. Their low altitude flight and unpredictable route to the target raised problems of radar horizon, target clutter separation, and direction of weapons. In short, the cruise missile and stealth aircraft defense problem required a major rethinking of radar platform and systems integration technology. I estimated that a cruise missile defense system would require:

- Radar using longer radiation wavelengths, (under 1 GHz) to exploit target resonance properties.
- Building multistation radar networks synchronized to pick up the target side-scattered radiation.
- Elevated radar platforms to provide coverage against low flying and terrain following missiles.
- Use of ultra-wideband (UWB) phase coded modulated radar waveforms to identify the side-scattered signal, and to provide fine-range resolution for target background separation and identification.
- Low probability of interception UWB signals to give some defense against attacks by homing anti-radiation missiles.
- Networking and evaluation of multiple information sources through the artificial intelligence techniques.
- High-speed computing to handle the expanded UWB signal processing requirements for ranging and target identification.

Some of my recommendations included using formations of tethered aerostats and airships carrying a multistatic radar system. While the old approach had been to install radar on a conventional aircraft, I studied using the Aereon Dynairship. This triangular lifting body type design could carry three flat phased-radar arrays behind radomes in the leading edges and tail.

After retiring, I co-authored and edited *Introduction to Ultra-Wideband Radar Systems* and *Ultra-Wideband Radar Technology* published by CRC Press in 1995 and 2000. To show the practical military applications, I published a novel called *Signal Chase* to show what happens when the enemy develops a counterstealth air defense system.

Lt. Col. James D. Taylor, USAF (Ret.)
Gainesville, Fla.



1-800-MILITARY
(1-800-645-4827)
geico.com

GEICO® DIRECT

OUR JOB HAS JUST BEGUN.

At Pratt & Whitney we're ready for whatever comes next. We always have been. Our design and manufacturing capabilities are on the leading edge of aerospace technology. And we don't stop working hard once an engine is built. Our customers can count on us for service and support, anytime, anywhere. Dependable engines are more than our heritage, they're the future.

Pratt & Whitney
A United Technologies Company

www.pw.utc.com

Washington Watch

By John A. Tirpak, Executive Editor

New Challenge to Fighter?; Tanker Deal Spins Its Wheels; New Kinds of Strategic Arms ....

McCain and the F/A-22 Raptor

Sen. John McCain (R-Ariz.) has been the chief opponent in Congress when it comes to the Air Force's attempt to aquire new aerial refueling aircraft. Now he may be taking aim at USAF's top-priority F/A-22 fighter.

In an April 11 appearance on NBC's "Meet the Press," McCain shook up USAF leaders with what sounded like the opening shot in a crusade against the F/A-22. McCain said the US will have to expand the size of the Army and Marine Corps if it wants to achieve its objectives in Iraq. To pay for it, he said, "we may have to make some tough choices."

He went on to say, "We may have to cancel this airplane that's going to cost between $250 million and $300 million a copy." The Senator did not identify the aircraft, but a McCain spokesperson confirmed he was referring to the F/A-22.

The figure quoted by McCain includes money spent on research, development, and tooling—basically, the sunk cost. The Air Force says the per copy flyaway cost of each new aircraft, if the service buys 200 or more, is about $120 million. The price will be lower still if the service succeeds in obtaining further cost efficiencies in production.

According to a Senate staff member, McCain was not necessarily trying to target the F/A-22 for cancellation. He was simply trying to highlight the fact that Iraq operations take precedence. The staffer said that, if the funds needed to achieve success in Iraq are competing with "programs that are struggling," then "the immediate military requirement wins, hands down."

The staff member signaled that McCain might seek a reduction in the number of F/A-22s in the Fiscal 2005 budget. One reason, he said, was that Lockheed Martin is behind on deliveries of the Raptor. Reducing next year's buy might "give them time to catch up," said McCain's staffer.

The Air Force declined to comment officially on McCain's remarks, but service officials privately expressed dismay that the Senator seemed to indicate a lack of support for the Raptor.

"He is a tough critic, as the whole tanker issue has shown, and we hoped he would be with us on the F/A-22," a senior USAF official said.

McCain's voting record has been generally supportive of the F/A-22 over the last 15 years. He even defended the program during his bid for the 2000 Republican Presidential nomination. However, at that time he also suggested that he might only support a smaller fleet than that proposed by the Pentagon.

In response to a question put by *The Concord* (N.H.) *Monitor* prior to the 2000 New Hampshire primaries, McCain said USAF's new air superiority fighter is "needed to ensure that the United States will maintain the ability to dominate the skies over a battlefield well into the 21st century. The F-15 has been and remains a fine aircraft, but its edge over foreign aircraft already in production is declining and a new airframe is needed for the initial phase of conflict."

AP photo/Charles Dharapak

McCain's words raised new concerns.

Then McCain said that the F-22 becomes less important once enemy air defenses are defeated. "Thus, as with all other military systems, I would support procurement of only those assets necessary to ensure successful missions," he said.

The Air Force also recognized that it would require the new fighter to go beyond its primary air superiority role. In 2002, it redesignated the F-22, the F/A-22, giving it more of an attack role.

Defense analysts expressed surprise that McCain might want to cut the Raptor.

Loren B. Thompson of the Lexington Institute, a Washington think tank that keeps tabs on issues like tankers, said, "Typically, when an airplane is through development and production has started, that's not the time to start looking for savings."

Tanker Ups and Downs

The Air Force continues to fight an uphill battle to procure new aerial refueling aircraft, but on May 13 the House Armed Services Committee gave the service a shot in the arm. It was a much needed boost following a DOD report that claims replacing current tankers is not urgent.

Defense officials briefed Congressional staffers on May 12 regarding a new Defense Science Board report on USAF's tanker fleet and plans to replace the oldest aircraft. The DSB found, according to news reports, that the KC-135 corrosion problem citec by USAF as a key reason for immediate replacement of some tankers is, in fact, "manageable" because of the service's improved maintenance program. The DSB recommended waiting until USAF could conduct a complete analysis of alternatives—a process that could take up to 18 months.

However, the House committee, in its markup of the 2005 defense budget, noted that "current operational de-

mands" had prematurely shortened the life of the KC-135 fleet and left it vulnerable to grounding. The potential loss of the tanker fleet, emphasized the panel, "puts the nation's long-range strike and resupply capabilities at risk."

The panel allocated $15 million for advance procurement of new KC-767 tankers. It went on to direct the Air Force to enter a multiyear contract to be negotiated after June 1. That contract, it said, would need review by a Defense Secretary-appointed panel of experts.

It seems certain that last year's proposed deal to lease

USAF photo by Sgt. Lance Cheung

House panel says KC-135E tankers need early replacement.

20 Boeing KC-767s and buy another 80 is doomed. In March, the Pentagon inspector general had issued a report criticizing the service for being too creative in its attempts to engineer the streamlined acquisition deal. The IG said the Air Force used an "inappropriate procurement strategy and demonstrated neither best practices nor prudent acquisition procedures to provide sufficient accountability" on the program.

USAF noted that the IG found "no compelling reason" to stop the tanker deal, countering that there are "fundamental differences in interpretation" between the Pentagon IG audit team and the Air Force's lawyers.

Joseph E. Schmitz, the IG, asserted that the Air Force didn't follow "five statutory provisions" regarding acquisition practices. The Air Force, though, said it had addressed all the issues raised by the IG.

"This was an admittedly complex and novel proposal to lease commercial aircraft modified to serve as tanker aircraft," said the Air Force in a written response. The service added that it "believes that ... comprehensive reviews provided by numerous oversight agencies supported this transformational lease program and that its terms provided sufficient taxpayer protections."

The goal all along, the Air Force said, was to get the tankers as quickly as possible "while exercising proper stewardship over taxpayer funds." At the time, the Pentagon had vetted the strategy. Edward C. Aldridge announced the details of the buy/lease plan himself in May 2003 when he was the Pentagon's top acquisition official.

Shortly after the release of the IG report, former USAF top acquisition official, Darleen A. Druyun, pleaded guilty to a federal conspiracy charge. Druyun admitted conspiring with former Boeing official Michael M. Sears to obtain a high-level job with the company before she had recused herself from involvement in Air Force contracts with Boeing. At the time, the Air Force was conducting negotiations with Boeing on the tanker deal. (See "Tanker Twilight Zone," February, p. 46.)

Boeing has already slowed work on the first of the 20 tankers the Air Force expected to lease, pending some definitive decision by Defense Secretary Donald H. Rumsfeld on whether to go ahead with the program.

On May 13, acting Pentagon acquisition chief, Michael W. Wynne, told reporters that Rumsfeld needs more information before making a formal decision. Wynne, according to *Defense Daily,* indicated Rumsfeld would probably follow the DSB recommendation for an AOA but one that is accelerated to meet timing of the 2006 budget deliberations later this year.

DSB Seeks Expanded Strategic Options

The US needs a wider variety of weaponry in its strategic arsenal, according to a panel of the Defense Science Board. The panel, looking 30 years into the future, recommended conventional, electromagnetic pulse, and chemical warheads on intercontinental ballistic missiles; lower-yield nuclear warheads; and so-called "neutron" bombs.

The DSB task force examining future strategic strike forces was chaired by retired Adm. Dennis C. Blair, former head of US Pacific Command, retired USAF Gen. Michael P.C. Carns, former vice chief of staff, and Vincent Vitto, president of Draper Laboratory, a nonprofit research institution.

The task force took a year to examine US strategic forces and determine whether they will still be relevant in the future and to make recommendations for new capabilities that should be developed. The report was released this spring.

The US needs systems that can hit targets precisely from very long ranges, destroy deeply buried targets, and do so more quickly, reliably, and stealthily than is possible with existing systems, the panel found. It recommended converting 50 Peacekeeper ICBMs (now scheduled for decommissioning) to a conventional role and developing a new intermediate-range ballistic missile for the Navy.

The payloads for these missiles would come from existing "successful, special-purpose, non-nuclear weapons." These might include weapon substances described as "calmatives," or knockout gases, that could "neutralize" leadership of a terrorist group, possibly in conjunction with the use of special operations forces. Others might be conventional explosives or devices producing an electromagnetic pulse effect that could disable enemy systems.

The panel believes that the US must maintain and refine its nuclear weapons capability because "there are already open discussions in professional journals in other countries of nuclear attacks on US deployed forces and communications." The panel said the US and its allies will need a nuclear deterrent force indefinitely.

However, the DSB panel stated that the US should stop refurbishing existing nuclear weapons and focus, instead, on producing a stockpile of lower-yield nuclear warheads.

These new warheads, said the DSB report, will have to "produce much lower collateral damage (great precision, deep penetration, greatly reduced radioactivity) ... and produce special effects (enhanced electromagnetic pulse, enhanced neutron flux, reduced fission yield)."

The task force recommended moving toward a "new triad" of strategic systems: passive defenses, active defenses, and retaliation forces. The current nuclear triad of ICBMs, nuclear-capable bombers, and submarine-launched ballistic missiles offers such destructive capabilities that future enemies may feel any limited weapons of mass destruction attack on the US, its allies, or inter-

YOU HAVE TWELVE MINUTES TO ENGAGE YOUR TARGET. WITH OUR BMC2 SOLUTION, THAT'S FIVE MORE THAN YOU NEED.

E-10A BMC2

LOCKHEED MARTIN • RAYTHEON • SAIC
L-3 Communications • ALPHATECH • ZelTech

Speed. Precision. Confidence. On board the E-10A, they'll have all three, thanks to a revolutionary Battle Management Command and Control system. The Lockheed Martin team has the technical capabilities, open architecture experience, and vision to deliver a BMC2 solution that will go far beyond information gathering. We'll accelerate the decision cycle, and give commanders the power to act quickly, accurately, and decisively. And we'll tie in the Air Operations Center and Distributed Common Ground System to create a seamless, distributed battle management enterprise that connects Joint warfighters across the theatre. To deliver a truly integrated BMC2 system, look to a truly integrated team. Lockheed Martin.

ests would fall "below US nuclear response thresholds," according to the report. The panel sees this as a strategic deterrent credibility gap that the US must shore up by developing less-destructive weapons. That would presumably enhance their military utility.

Active defenses would take the form of detection systems and countermeasures, while passive defenses might include such features as "medical protection against a covert biological attack."

With substantial modification, the land-based Minuteman III ICBM could last through 2040 but no longer, and a program assessing the possibilities of replacing it is already under way, the panel said. Likewise, the Navy's inventory of Trident D-5 SLBMs will last no longer than the 2040s, after which the Navy should replace them with a new, more versatile intermediate-range ballistic missile.

The Pentagon should explore a family of stealthy, unmanned, air refuelable global surveillance and strike aircraft—land-based and sea-based versions—that could take over much of the manned bomber mission, the task force said. In peacetime, they could perform intelligence-surveillance-reconnaissance missions and also serve as airborne alert carriers of weapons or nonlethal devices such as powerful lasers or EMP generators.

The panel recommended replacing the existing inventory of air-launched cruise missiles—due to reach the end of their service lives around 2030—"in kind" with stealthier, longer-ranged systems. It suggested the Air Force, by 2015, should relieve a "few hundred" of the stealthy advanced cruise missiles of their nuclear role, rearming them with conventional or "special effects" weapons.

US Strategic Command should take the lead in designing a new command, control, communications ISR architecture "essential for a netted, collaborative strategic strike network," stated the report. It also said that current airborne and space ISR platforms are pushing the limits of what data they can collect about "enemies that are learning to disperse, move, and hide" from them.

The task force recommended that the Defense Advanced Research Projects Agency take the lead in developing sensors and technologies that could be deployed by networked, "close-in" forces.

Finding a Niche

New NATO members must focus their scarce defense dollars on "niche" capabilities to cover alliance shortfalls, said Jaap de Hoop Scheffer, NATO's new secretary general. While the statement is not new, it apparently bears repeating for NATO's newest associates, according to de Hoop Scheffer who made a visit to Washington in March.

NATO's new leader told defense journalists that the alliance's force planning system still needs to be rationalized to achieve a broader spectrum of capability.

Seven new members joined the alliance the day de Hoop Scheffer spoke.

"What is NATO going to advise those nations to do?" he asked rhetorically, answering that NATO officials had told the Baltic countries and Slovenia: "You have no air forces, so please do not buy expensive fighters. NATO is going to provide air cover, but do develop niche capabilities, on the basis of which you can participate in peacekeeping operations."

He noted that Estonia and the Czech Republic, although small and with limited defense funds, are participating in "almost all" of the peacekeeping and out-of-area operations in which NATO is engaged. The reason, he said, is that they have put their limited funds into niche capabilities such as special forces and de-mining squads or, in the Czechs' case, equipment and training to detect nuclear, biological, and chemical agents on the battlefield.

As the new countries were ushered into the alliance, NATO fighters touched down on their runways, he said, to provide the promised air cover.

The secretary general urged NATO countries to invest in capabilities that support the alliance's new needs. "We're not living in the Cold War anymore," he said.

De Hoop Scheffer said that NATO will reaffirm at its meeting this month in Turkey that member countries "should have 40 percent of their total armed forces usable and quickly deployable and eight percent sustainable." The terms "usability" and "deployability" will be the mantra of NATO military power under his tenure, he said. In this, he will pick up where his predecessor, George Robertson of Britain, left off.

De Hoop Scheffer also said that, despite the sometimes glacial pace of consensus decision-making in Operation Allied Force and in subsequent combat operations, NATO will not try to move to a more streamlined form of action.

"We should stick to the consensus rule," he said, adding that the problem really has not grown "more complex" since NATO's membership doubled over the last decade.

"We are not the European Union," he continued. "We are not going to divide into areas where we have some form of majority voting." Countries that don't want to participate have always had, and will always have, "ways and means of not participating," he said. De Hoop Scheffer also defended the current system where any country can exercise its "red card" and veto a particular mission or target.

EPA photo/Yuri Kochetkov

NATO's de Hoop Scheffer upholds consensus approach.

"What I'm saying is that the consensus rule has never caused a problem" in which countries opted out or failed to go ahead with a consensus choice, he asserted.

However, de Hoop Scheffer acknowledged that the NATO Response Force must, by necessity, have the ability to spring into action quickly, and he urged member nations to develop protocols that would streamline their approval of such action.

He tells NATO countries that their national parliaments should develop procedures that will ensure rapid deployment. "The NRF doesn't have a week waiting time before they can act because one or two national parliaments need time to make their decision," said de Hoop Scheffer. "I mean, you can't have hearings before you have to deploy the NRF." ■


www.boeing.com
UNMANNED SYSTEMS. UNEQUALED EXPERTISE.
Unmanned systems are a transformational cornerstone of the future battlespace, reducing risk and cost. To maximize the potential of this technology for J-UCAS, Boeing brings unequaled expertise in network centric systems architecture, complex systems integration, autonomous and adaptive control technologies, precision weapons and payload integration. In other words, unmanned systems developed by the best men and women in the business.
BOEING®
Forever New Frontiers

Aerospace World

By Adam J. Hebert, Senior Editor

Airman Killed, Two Injured

A1C Antoine J. Holt, 20, died from injuries received April 10 when an enemy mortar struck his tent at Balad Air Base in Iraq. Two other airmen in the tent were injured, one seriously.

Holt, who was from Kennesaw, Ga., and the other two airmen were deployed to Iraq from the 603rd Air Control Squadron, Aviano AB, Italy.

A1C Scott Palomino, 19, was severely wounded in the attack. Subsequently, his left leg was amputated below the knee. The other airman, whose name was not released, was treated for minor injuries.

On the day after the attack, an Air Force MQ-1 Predator, the armed version of the unmanned aerial vehicle, was flying with a US flag in Holt's honor when it attacked and killed two Iraqi insurgents who were staging another mortar attack on the base. (See "Predator Kills Insurgents," p. 17.)

The flag will be delivered to Holt's family, US Central Command Air Forces announced.

USAF photo by A1C Edmund Gibbons III

SrA. Luke Scown, of Beale AFB, Calif., shoots during the security forces tactics competition May 4 at Vandenberg AFB, Calif. The event was part of Guardian Challenge, Air Force Space Command's space and missile wartime readiness test.

USAF Redirects JASSM in Flight

The Air Force for the first time has retargeted a Joint Air-to-Surface Standoff Missile in flight. The event took place during a March 26 test shot over a Utah test range, after the JASSM had been launched from a B-1B bomber.

The launch was the final event in the missile's developmental testing program for integration with the B-1B. Operational integration testing began in April.

"The B-1 is the only platform capable of replanning the route of the JASSM in flight and sending it to another target," said Maj. Wim Libby, test pilot with the 419th Flight Test Squadron, Edwards AFB, Calif.

JASSM, a stealthy, medium-range cruise missile, is expected to be fielded with B-1B combat units this summer.

USAF Addresses Poor Housing

Air Force officials announced this spring that they intend to spend roughly $1.6 billion in Fiscal 2005 to help eliminate substandard family housing at bases in the United States. The service wants to fix the housing problem by 2008.

The $1.6 billion housing commitment is more than half of the Air Force's 2005 military construction and family housing budget request, which includes funds for active, Air National Guard, and Air Force Reserve Command facilities.

A 2005 budget request of $128 million for dormitory projects, said officials, keeps the Air Force on track to meet goals to eliminate inadequate housing for unaccompanied junior enlisted personnel. The dormitory master plan calls for replacement of substandard permanent party dormitory rooms by Fiscal 2007. Technical training dorms are due to be replaced by Fiscal 2009.

A-10 Pilots Cleared in Fratricide Case

Two Air Force A-10 pilots were cleared of wrongdoing in a 2003 fratricide event after a US Central Command board determined they had "acted appropriately, based on the information they possessed at the time of the incident."

The incident took place March 23, 2003, when 18 Marines were killed during an intense firefight in Nasiriyah, Iraq. Up to 10 of the Marines may have been killed by friendly fire, though exact causes of death were impossible to determine because of "heavy fighting with the enemy at the time of the incident," stated a CENTCOM news release.

In its investigation, the command found that many factors contributed to the incident, including problematic communications links and a battle plan that changed as the firefight developed.

Ultimately, the Marine Corps forward air controller who called in the air strike was found to be at fault for the friendly fire. The Marine captain believed no friendly forces were in front of his unit, and, although he could not see the target area or the A-10 aircraft, he directed the A-10s to strike.

Airlift Surges for Troop Rotation

Air Force mobility aircraft have played a major role in what officials have termed the largest troop movement since World War II.

Over a 90-day period, US Transportation Command transported some 250,000 troops, either into or out of Southwest Asia, using both air and surface movements. On a typical day, personnel from the Tanker Airlift Control Center (TACC), Scott AFB, Ill., moved more than 400 aircraft—considerably higher than the 300 per day they had averaged during the past two years. Before the 9/11 terrorist attacks, the TACC handled about 200 aircraft per day.

The TACC, which is part of Air Mobility Command's 18th Air Force, coordinated both military and commercial airlifters participating in this massive troop rotation.

Exchange Consolidation Eyed

The Defense Department plans to reform its military exchange system to avoid duplication and increase efficiency, officials said in April.

"Presently, you've got three different organizations that are delivering the same benefit to the same customer," said retired USAF Maj. Gen. Charles W. Wax, who is leading DOD's exchange reform efforts.

Exchanges for the three services currently use separate finance, accounting, human resources, information technology, logistics, and merchandising systems, noted Wax.

Individual troops are the ones "ultimately paying for this duplication," he said. A 1999 Pentagon study estimated that full integration would save up to $200 million annually.

Last year's announcement of the proposed unification met with skepticism among some exchange officials and members of Congress.

The Unified Exchange Task Force is scheduled to produce an integration plan for the Pentagon to deliver to Congress in January 2005. If approved, the Pentagon would expect to implement the plan during spring 2006.

The plan will not include privatization, said officials. The far-flung and specialized nature of the exchanges makes such a move unworkable.

F/A-22 Begins Operational Test

The Air Force on April 29 began initial operational test and evaluation (IOT&E) of the F/A-22 Raptor. Satisfactory completion of IOT&E will lead to full-rate production of the new fighter.

"We would not enter this test unless we believed the Raptor will pass," Marvin R. Sambur, USAF's assistant secretary for acquisition, told reporters at the Pentagon.

He added that the F/A-22 is on a tight schedule to meet its December 2005 initial operational capability (IOC) date, but he did not anticipate problems. If some unforeseen problem does occur, he said, the IOC would slip a few months, not years.

"The development phase" of the F/A-22 is now completed, Sambur said. "This airplane is ready. It's here now. This is not a promise. ... This is real."

IOT&E will assess the F/A-22's deployability, maintainability, survivability, and lethality, as well as directly comparing its performance to that of the F-15C, which it is to replace. The testing will involve multiple dogfights pitting four F/A-22s against twice as many F-15s and F-16s. The Pentagon will review the Air Force's IOT&E findings in the fall.

Sambur said that, although IOT&E will concentrate on the air-to-air role of the airplane, "we will have an air-to-ground capability" when the airplane is declared operational. The attack role will be tested in spring 2005 during follow-on operational testing and evaluation.

The avionics software problems that afflicted the Raptor over the last several years have been resolved, said Sambur. The fighter now demonstrates 10.8 hours average time between component glitches in the software, up dramatically from under three hours earlier this year. Since then, there have been "several software updates," he said.

—John A. Tirpak

Predator Kills Iraqi Insurgents

An armed MQ-1 Predator on April 11 killed two insurgents who had attacked Balad Air Base in Iraq with mortars, said US Central Command Air Forces. The two terrorists were killed by Hellfire missiles fired from the unmanned aerial vehicle.

The men were part of a four-person group "attempting to fire mortars at the base," a CENTAF statement said. A similar attack at the base the previous day (April 10) killed one airman when a mortar hit his tent. (See "Airman Killed, Two Injured," p. 16.)

"A two-person UAV crew on a defensive surveillance mission learned that four Iraqi insurgents were in a field near the base," the CENTAF news release recounted. "Using their targeting pod, they located the enemy team just as the enemy team shot a weapon at the base. While the UAV crew obtained clearance to respond, ... the four insurgents separated and ran in opposite directions."

The Predator team had to pick one pair to track and, as it followed the two men, another mortar was launched into the base. Before a third mortar could be fired, the Predator team got permission to strike and scored a direct hit with a Hellfire missile.

Predator teams successfully engaged enemy forces again the following day, CENTAF added, when they called in an F-16 close air support strike against multiple insurgents.

Airman Dies in Training

TSgt. David Gressett, an AC-130H Spectre gunner based at Hurlburt Field, Fla., died April 1 after collapsing during training in an altitude chamber at Tyndall AFB, Fla.

Gressett, who was assigned to the 16th Special Operations Squadron at Hurlburt, had previously and successfully completed the aerospace physiology training course three times—in 1994, 1996, and 1999. The aerospace physiology flight at Tyndall trains more than 1,800 personnel each year.

USAF officials said a board of officers will investigate Gressett's death.

More US Troops to Afghanistan?

The size of the US force operating in Afghanistan will likely increase as the time draws closer to that country's September elections, said Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff. Afterward, the US force could go "back down to lower numbers," he said.

The US troop level has increased from 11,000 to 15,500 in recent months in a stepped-up hunt for Osama bin Laden and other militants, reported Reuters News Agency.

"We've ramped up our presence here a little bit, anticipating and trying to ensure that we have no more violence as we head toward elections," Myers told reporters traveling with him during a visit to the theater.

The size of the force in Afghani-

stan will be based on requirements, Myers said. Overall levels "ebb and flow," he said.

Airman Named on "The Wall"

The Department of Defense announced in April that it had approved the addition of Air Force Capt. E. Alan Brudno's name to the Vietnam Veterans Memorial in Washington, D.C.—some 30 years after his death.

Brudno had been held by the North Vietnamese as a prisoner of war for more than seven years, during which time he "endured long-term, severe physical and psychological abuse and torture-related wounds," stated a DOD release.

Brudno did not die in Vietnam. He was repatriated in 1973, then took his own life within four months. That made this case controversial.

The Air Force petitioned to have Brudno's name etched into the wall. The service believed that Brudno died as a result of wounds sustained in the combat zone—the criterion for inclusion.

The Pentagon agreed. It said that, because of the "devastating effects of these wounds," Brudno "succumbed within a short time after his release from captivity." Those "particular merits" led to the decision, stated the announcement.

Officials of the Vietnam Veterans Memorial Fund and others raised concern that including Brudno's name would lead to inclusion of the names of thousands of other suicides.

Defense officials maintain that the decision to include Brudno's name "must not be misunderstood to include, broadly, cases involving more attenuated circumstances that may have led to postwar suicides, or those postwar deaths more distantly based on cases of war-related psychological trauma."

CENTCOM Area Expands

As a result of a little-noticed change to the Pentagon's Unified Command Plan, US Central Command's area of responsibility (AOR) now encompasses Syria and Lebanon. An April 22 Pentagon news release stated that President Bush signed the change on March 10.

Syria and Lebanon had long been part of US European Command's AOR.

These two countries, stated the release, "are politically, culturally, and militarily more oriented with the countries in Central Command." CENTCOM stretches from Egypt to Pakistan and from Kenya to Kazakhstan.

This move had been debated for years, according to a DOD official. The Pentagon periodically reviews the plan and, in 2002, made two major changes: creation of US Northern Command and placement of Russia within EUCOM's AOR.

The April release stated that Israel will remain aligned with EUCOM. DOD claimed that Israel is politically, culturally, and militarily more closely aligned with Europe. Keeping Israel in EUCOM, however, also allows CENTCOM officials to avoid dealings with Tel Aviv, which would complicate their work with Arab Nations.

DOD Studies NORTHCOM-SOUTHCOM Merger

The Defense Department is considering whether US Northern Command and US Southern Command should be merged into a single warfighting command that would have responsibility for defense of the entire Western Hemisphere. The new command: Americas Command.

Currently, NORTHCOM's area of responsibility (AOR) is North America, while SOUTHCOM covers Central and South America.

The Pentagon, in 1997, moved SOUTHCOM headquarters from its Panama location to Miami, so physical location may not be much of an issue. However, such a merger would require close coordination with Canada because the commander of NORTHCOM, also serves as commander of NORAD, the binational command the US shares with Canada.

The Americas Command proposal has been around for several years, but Defense Secretary Donald H. Rumsfeld only recently resurrected it. He directed a joint staff study to determine whether a merger would "improve effectiveness and efficiency, enhance the capability to perform ... missions, improve operational focus, eliminate unnecessary redundancies, and reduce resource requirements," according to its terms of reference.

Plans call for Rumsfeld to be briefed on the study's recommendation in June.

USAF photo by MSgt. Jim Varhegyi

Eleven years after it was authorized by Congress, the new World War II Memorial opened for visitors in late April and was slated for official dedication during Memorial Day weekend. See "World War II Memorial Opens," at right.

World War II Memorial Opens

The World War II Memorial on the National Mall opened to the public the last week in April, well ahead of its official dedication ceremony.

The $170 million memorial, paid for almost entirely by private donors, was scheduled for formal dedication on May 29 as part of a four-day Memorial Day weekend celebration.

The memorial, situated on a 7.4-acre site between the Washington Monument and Lincoln Memorial, is the result of an 11-year effort. It was authorized by Congress in 1993. Construction began in September 2001. It is the first national memorial dedicated to all who served in World War II. The

dedication ceremony is expected to draw more than 100,000 visitors.

Eberhart Pushes Maritime NORAD

USAF Gen. Ralph E. Eberhart believes that complete situational awareness of threats approaching the United States will require NORAD to develop a maritime role. Eberhart, who is commander of the binational NORAD and US Northern Command, discussed the possibility at two public forums earlier this year.

Such a proposal has surfaced several times in the last few years. In 2002, a senior Canadian defense official said that Canada would not participate in an expanded role for NORAD that could include land and sea elements.

Eberhart said that discussions with Canada are ongoing. In December 2002, NORAD created a binational planning group to improve defenses against maritime and land-based threats to North America. One focus of the group is reviewing a "naval NORAD" option that would provide support to the Coast Guard for maritime security operations.

Currently, NORAD's primary mission is defense of US and Canadian airspace. NORTHCOM, which was created after the 9/11 terrorist attacks, has the mandate to counter external threats to the US and oversees DOD homeland defense and domestic military assistance operations.

New Personnel System Approved

DOD's senior leaders approved the plan for the new National Security Personnel System in April, said Navy Secretary Gordon R. England, who is leading the effort for the Pentagon.

The new system will "introduce changes in the way the department hires, pays, promotes, disciplines, and fires its civilian employees," a department release stated. Authorization for a new system was approved by Congress in the Fiscal 2004 defense authorization act.

The plan provides for "event-driven schedules," said England. "We won't go to the next step until we finish [the previous one]," he emphasized.

The first milestone, which is set for November, is to publish a draft labor-relations regulation in the Federal Register.

In an April open letter to department employees, England and David S.C. Chu, DOD's personnel chief, said the goal is to "design a transformed system for the department's 700,000 civilian employees that supports our national security mission

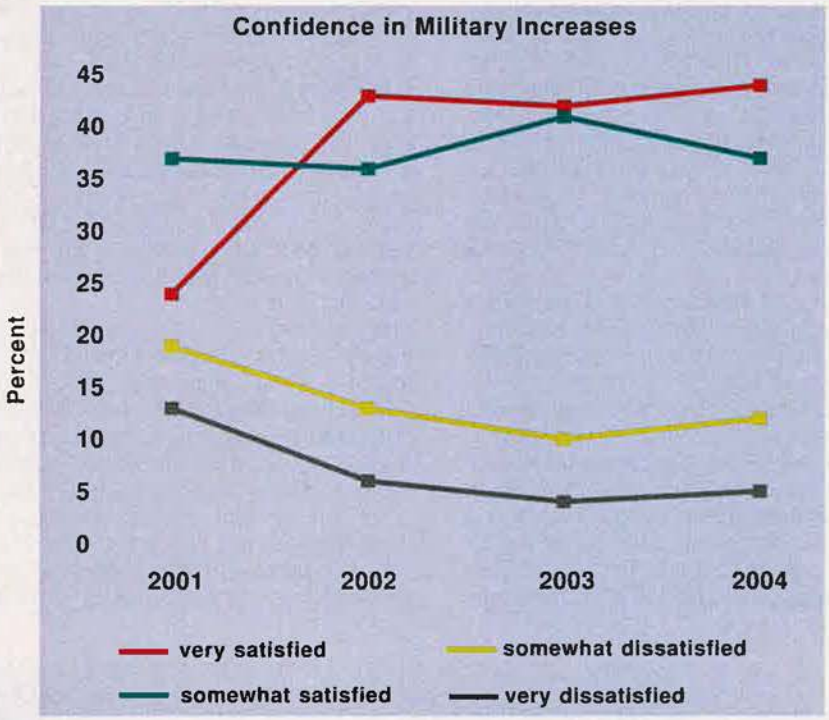
Continued on p. 22.

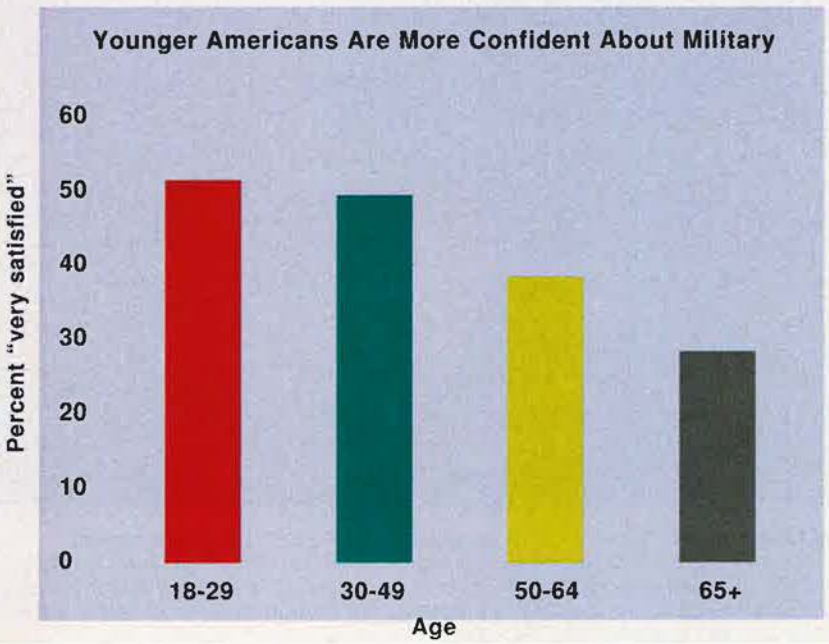
Americans Express Confidence in US Military

The American public believes that the US Military is strong enough to protect its interests despite being heavily tasked—some say stretched too thin—for ongoing operations in the war on terror, according to a recent Gallup poll. The poll showed that a total of about 80 percent were "very satisfied" or "somewhat satisfied" with military strength and preparedness.

The poll also revealed that age is a major factor. Younger individuals are more confident in the strength of the US military than are older Americans. About half of those under age 50 were very satisfied, while only one-third of those 50 and older indicated high satisfaction.

Despite the age difference, Americans overall appear highly confident in the US military. Similar results have been found each year since the 9/11 terrorist attacks. Before Sept. 11, 2001, the number that were very satisfied was less than half what it is today.





News Notes

By Tamar A. Mehuron, Associate Editor

■ Air Combat Command officials on March 30 dedicated the ACC Conference Center at Langley AFB, Va., to Gen. W.L. Creech, head of Tactical Air Command from 1978 to 1984. Creech died Aug. 26, 2003. (See "Aerospace World: Gen. W.L. Creech, 1927-2003," October 2003, p. 20.)

■ The 2003 Mackay Trophy went to the McChord AFB, Wash., C-17 crew "Vijay 10" for their role in planning and executing the March 26, 2003, 15-ship C-17 airdrop of the 173rd Airborne Brigade into northern Iraq during Operation Iraqi Freedom. It was the first combat troop airdrop for the C-17, and the largest formation airdrop since D-Day in World War II. The crew members are: Lt. Col. Shane Hershman, Maj. Bob Colvin, 1st Lt. Matt Clausen, and MSgts. Shawn Brumfield and Chris Dockery.

■ The first class of enlisted students to graduate from the Air Force Institute of Technology, Wright-Patterson AFB, Ohio, had eight Air Force and six Marine Corps noncommissioned officers. Speaking at the March 23 commencement, Air Force Secretary James G. Roche told the NCOs, "I consider your attendance at AFIT long overdue, and I am extremely proud that this program has come to fruition." The eight USAF graduates are: CMSgt. Don Clabaugh, SMSgts. Stephanie Carroll and Francis Szabo, and MSgts. Charlie Cruz, James Kuntzelman, Edward Matthews, Duane Sorgaard, and Dan Swayne.

■ The Special Operations Low Level II mission ended on April 1 for the C-5 airlifters of the 436th Operations Group, Dover AFB, Del. The unit had flown SOLL II missions, often performing in black-out condition using night vision goggles to rapidly move troops and equipment into combat zones, for 22 years. Taking up the SOLL mantle are C-17 airlifters of the 437th Operations Group, Charleston AFB, S.C.

■ Flying from Edwards AFB, Calif., on April 18, the X-45A Joint-Unmanned Combat Air System dropped an inert guided weapon near a truck target at China Lake, Calif. This marked the first time an inert, GPS-guided precision weapon was released from an unmanned vehicle, officials said.

■ On March 19, the first C-130J delivered to an active duty wing arrived at Little Rock AFB, Ark. The 314th Airlift Wing will fly the C-130J, equipped with digital instrumentation and a diagnostic computer that identifies and locates aircraft malfunctions.

■ Pratt & Whitney announced in April that testing has begun for the engine destined for the short take-off and vertical landing (STOVL) variant of the F-35. Testing took place in West Palm Beach, Fla., and ran through May.

■ SI International, Colorado Springs, Colo., received an $800 million contract to provide engineering and technical services for command, control, communications and computers and other systems worldwide to Air Force Space Command, NORAD, US Northern Command, and US Strategic Command. Work is to be completed by September 2007.

■ A new Web-based system that helps airmen prepare for deployment is being tested at Robins AFB, Ga. The deployment readiness service is a single source that tracks and automatically updates multiple records. Other bases are scheduled to get the new system this summer. USAF expects to have all deployable personnel entered in the system by fall.

■ The Air Force awarded Lockheed Martin a $325 million contract for C-130J upgrades. Work is to be completed by March 2009.

■ The Air Force Association's 2004 Team of the Year comprises investigators with the Air Force Office of Special Investigation. The special investigators—Michael Franklin, Kim Gaestel, Jesse Garcia, Justin Rock, and Michael Willoughby—were selected for their "technical expertise, leadership, and inspiration," said AFA officials. Each year's team includes members of a specific enlisted career field; they are not necessarily part of a formal team.

■ Northrop Grumman received two contracts worth a total of $252 million for eight Global Hawks, mission control and launch recovery units, support equipment, and spares. Work on the first contract is to be completed in January 2005 and the second in October 2005.

■ The Air Force, on April 14, said it had selected 52 officers to join the service's test pilot program. Most will attend training at the Air Force Test Pilot School, Edwards AFB, Calif. Two will undergo training with the Navy at NAS Patuxent River, Md., and one test pilot will receive training at the French Test Pilot School, Istres, France. Six will be attending the Air Force Institute of Technology to earn master's in aeronautical or electrical engineering before attending test pilot school.

■ Boeing and Ball Aerospace received a $189 million award from Northrop Grumman to develop and initially operate the Space-Based Space Surveillance System for USAF. The SBSS will detect and track satellites and space debris. It is scheduled for launch in 2007.

USAF photo by SSgt. Aaron Allmon II

One Billion Served. Tankers supporting Combined Forces Air Component Command for Gulf War II started pumping gas Jan. 30, 2003. On April 21, they reaced the one-billion-pound mark. This F-16 approaches an Air National Guard KC-135, which delivered the billionth pound. The refueler fleet comprises USAF KC-135s and KC-10s plus RAF VC-10s.

■ A USAF board recently selected 150 pilot and 10 navigator candidates to attend Specialized Undergraduate Flying Training this year and next. Sixteen of the officers will go to Euro NATO Joint Jet Pilot Training conducted at Sheppard AFB, Tex. The board considered 249 applications for pilot training and 19 for navigator training.

■ BAE Systems received contracts worth almost $60 million to upgrade the C-130H Compass Call aircraft weapons systems. Work is to be completed in 2005.

■ The Air Force Sergeants Association selected SMSgt. Dale Berryhill, an Air Force Reserve Command airborne communications systems operator at Eglin AFB, Fla., for its 2004 Pitsenbarger Award, honoring heroic actions. Berryhill, flying on an MC-130E Combat Talon I over Iraq during Gulf War II, took immediate action to control a fire when flames and smoke engulfed the cargo compartment and flight deck. Upon landing, the aircraft came under small arms fire and Berryhill quickly passed pinpoint targeting coordinates to US forces.

■ Beale AFB, Calif., won the 2004 Commander in Chief's Annual Award for Installation Excellence in the Air Force, officials announced March 30. The award honors one installation from each service.

■ Lockheed Martin received a contract worth nearly $24 million to modernize flight safety and network systems for the East and West Coast spacelift ranges. Work is scheduled to be finished by September 2008.

■ Government employees rate USAF a high 7th overall out of 28 "Best Places to Work in the Federal Government," said a study released April 15 by the Partnership for Public Service and American University's Institute for the Study of Public Policy Implementation. The rankings of federal agencies were the result of a survey of 100,000 government employees conducted by the Office of Personnel Management.

■ The Air Force Academy named Lt. Gen. Hubert R. Harmon, a key founder and the academy's first superintendent, "The Father of the Academy" as part of its 50th anniversary celebration. Harmon, who had retired in 1953 after 38 years of service, came back on active duty to spearhead the establishment of the academy on April 1, 1954. He became the first superintendent in August 1954, serving for almost two years, before retiring a second time, in July 1956. He died of lung cancer in January 1957.

Wald Sees Africa Staying in EUCOM

Military responsibility for the continent of Africa is best accomplished exactly how it is handled today, as part of US European Command, said Air Force Gen. Charles F. Wald, EUCOM's deputy commander.

Calls for the creation of a new unified combatant command for Africa are misguided, Wald said at a speech before the American Enterprise Institute in Washington, D.C. DOD doesn't need to add another headquarters, he said.

The growing strategic importance of Africa is well recognized by EUCOM. "We can handle it," the general said. "We're big boys."

Wald did add, however, that the name European Command is a misnomer. He said the command is trying to determine what the proper name of the command should be, because its area of responsibility is not limited to Europe.

A preferred name might be "Eastern Command," said Wald. "I don't know what the answer is, but it's definitely not just European Command."

Senior Staff Changes

RETIREMENTS: Maj. Gen. Lorraine K. **Potter,** Lt. Gen. James E. **Sherrard III.**

PROMOTION: To **Brigadier General:** Ronnie D. **Hawkins Jr.**

CHANGES: Maj. Gen. Robert D. **Bishop Jr.,** from Dep. Cmdr., SOUTHCOM, Miami, Fla., to Asst. DCS, Air & Space Ops., USAF, Pentagon ... Brig. Gen. Philip M. **Breedlove,** from Cmdr., 56th FW, AETC, Luke AFB, Ariz., to Cmdr., 31st FW, USAFE, Aviano AB, Italy ... Maj. Gen. Richard L. **Comer,** from Dir., Policy & Planning, NORTHCOM, Peterson AFB, Colo., to Dep. Dir., Engagement, Plans, & Policy Directorate, CENTCOM, MacDill AFB, Fla. ... Brig. Gen. Marke F. **Gibson,** from Cmdr., 332nd AEW, ACC, Balad AB, Iraq, to Cmdr., 354th FW, PACAF, Eielson AB, Alaska ... Maj. Gen. (sel.) Perry L. **Lamy,** from Dir., Ops., AFMC, Wright-Patterson AFB, Ohio, to Cmdr., AFRL, AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Kimber L. **McKenzie,** from Dir., Intel., STRATCOM, Offutt AFB, Neb., to Vice Cmdr., 8th AF, ACC, Barksdale AFB, La. ... Maj. Gen. Richard A. **Mentemeyer,** from Asst. DCS, Air & Space Ops., USAF, Pentagon, to Dep. Cmdr., SOUTHCOM, Miami, Fla. ... Brig. Gen. Larry D. **New,** from Cmdr., 325th FW, AETC, Tyndall AFB, Fla., to Dep. Cmdr., CAOC 7, Allied Air Forces Southern Europe, NATO, Larissa, Greece ... Maj. Gen. (sel.) Gary L. **North,** from Dep. Dir., Politico-Military Affairs (Asia-Pacific & Middle East), Jt. Staff, Pentagon, to Dir., Ops., PACOM, Camp H.M. Smith, Hawaii ... Maj. Gen. (sel.) Anthony F. **Przybyslawski,** from Cmdr., Air & Space Expeditionary Force Ctr., ACC, Langley AFB, Va., to Cmdr., AFPC, Randolph AFB, Tex. ... Brig. Gen. Jeffrey A. **Remington,** from Cmdr., 18th Wg., PACAF, Kadena AB, Japan, to Dep. Dir., Politico-Military Affairs (Asia-Pacific & Middle East), Jt. Staff, Pentagon ... Brig. Gen. Jeffrey R. **Riemer,** from Cmdr., AF Security Assistance Ctr., AFMC, Wright-Patterson AFB, Ohio, to Dir., Ops., AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Roy M. **Worden,** from Cmdr., 31st FW, USAFE, Aviano AB, Italy, to Dir., Operational Plans & Jt. Matters, DCS, Air & Space Ops., USAF, Pentagon.

SENIOR EXECUTIVE SERVICE RETIREMENT: Christopher L. **Blake.** ■

Index to Advertisers

The Iraq Story Continues

Casualties

One hundred nine US troops and two US civilians died supporting Operation Iraqi Freedom during the first three weeks of April, OIF's deadliest period of fighting.

By April 21, a total of 707 US troops had died supporting Iraqi Freedom. Of those casualties, 511 were killed by hostile action, while another 196 died in noncombat incidents.

President Bush declared major combat operations in Iraq complete on May 1, 2003. Since that time, 569 troops have died in Iraq: 402 in combat and 167 in nonhostile incidents. Two DOD civilians were also killed in the line of duty.

Tours Extended for 20,000 Troops

Defense Secretary Donald H. Rumsfeld, on April 15, said that 20,000 troops who expected to leave Iraq and Kuwait at the end of one year will instead remain in Southwest Asia for at least three more months.

Gen. George W. Casey, Army vice chief of staff, said at a Pentagon briefing that the decision was not made lightly. "These are tough times," Casey said. "We're asking a lot of our people and of their families."

The affected troops are primarily active duty Army combat and combat support units.

CENTCOM Counters Falluja Uprisings

US Central Command in early April launched Operation Valiant Resolve, in an attempt to quell a surge in violence centered around the city of Falluja. Led by the Marine Corps, Valiant Resolve isolated the city, located in the center of Iraq's volatile "Sunni Triangle."

Roads leading into the city were blocked off and barricaded, and men of fighting age were prohibited from leaving the city. Air strikes targeted enemy positions and ground patrols sought out insurgents.

The crackdown became necessary after the rising violence made April the deadliest month of Operation Iraqi Freedom.

Balad Takes the Reigns From Baghdad

Air Force operations at Balad Air Base have increased in recent months as USAF reduced its presence at Baghdad Airport. The Pentagon expects to have all US troops out of Baghdad Airport by the fall.

Balad, an hour's drive north of Baghdad, already hosts a deployed fighter detachment and will become the primary arrival and departure location for troops traveling to Iraq by military airlifter.

Continued from p. 19.

while treating workers fairly and protecting their rights."

Academy Halts Flying

The Air Force Academy halted flying operations for most of its aircraft after a three-day inspection by outside maintenance experts raised safety concerns. The affected aircraft included Cessna 150 and UV-18 Twin Otter airplanes, as well as the academy's gliders.

According to an April 5 announcement, 45 aircraft were grounded after maintenance technicians from Tinker AFB, Okla., and Wright-Patterson AFB, Ohio, "identified maintenance issues in data management, parts control, and maintenance support."

The release stated that introductory flying training would be unaffected because the DA-20 aircraft used for that mission were deemed safe to fly.

Full flight operations were to resume after Brig. Gen. Johnny A. Weida, academy commandant, certified the other aircraft were safe.

USAF To Pick Second Raptor Base After BRAC

The Air Force will await the results of the 2005 base realignment and closure (BRAC) round before selecting which base will follow Langley AFB, Va., as home for operational F/A-22s. Service officials do not want to prejudice the BRAC process.

Several bases were considered when USAF made its selection of Langley to house the first operational F/A-22 unit. Those other bases will be "likely contenders" in future deliberations, but there could be new ones on the list that meet basing requirements for the new fighter, said Col. Lawrence Wells, chief of F/A-22 requirements for Air Combat Command, at Langley.

Langley is in the last stages of preparations to host the service's first operational Raptors. The first F/A-22s are due at the Virginia base late this year. Air Force leaders expect the Raptor to reach initial operational capability at Langley in December 2005.

The bases that previously lost out to Langley are: Elmendorf AFB, Alaska; Eglin AFB and Tyndall AFB, Fla.; and Mountain Home AFB, Idaho.

The BRAC commission is scheduled to make its recommendations for which bases to close in September 2005.

Foundation Seeks Inscriptions

Air Force Memorial Foundation officials have asked the public to suggest inscriptions to be used in the Air Force Memorial. The official groundbreaking is scheduled for Sept. 15, with construction to be completed by 2006.

The memorial will include two 55-foot-long granite walls and an area called "Walls of Reflection," formed by seven translucent glass panels surrounding a center square. These panels and the two granite walls at the north and south ends of the memorial's parade ground will bear inscriptions. Suggestions will be considered for use.

According to Edward F. Grillo, AFMF president, inscriptions can be quotes or broader suggestions for themes that could be addressed with inscriptions.

Suggestions for inscriptions should be sent via e-mail: afmf@airforcememorial.org.

NNSA Boosts Nuke Security

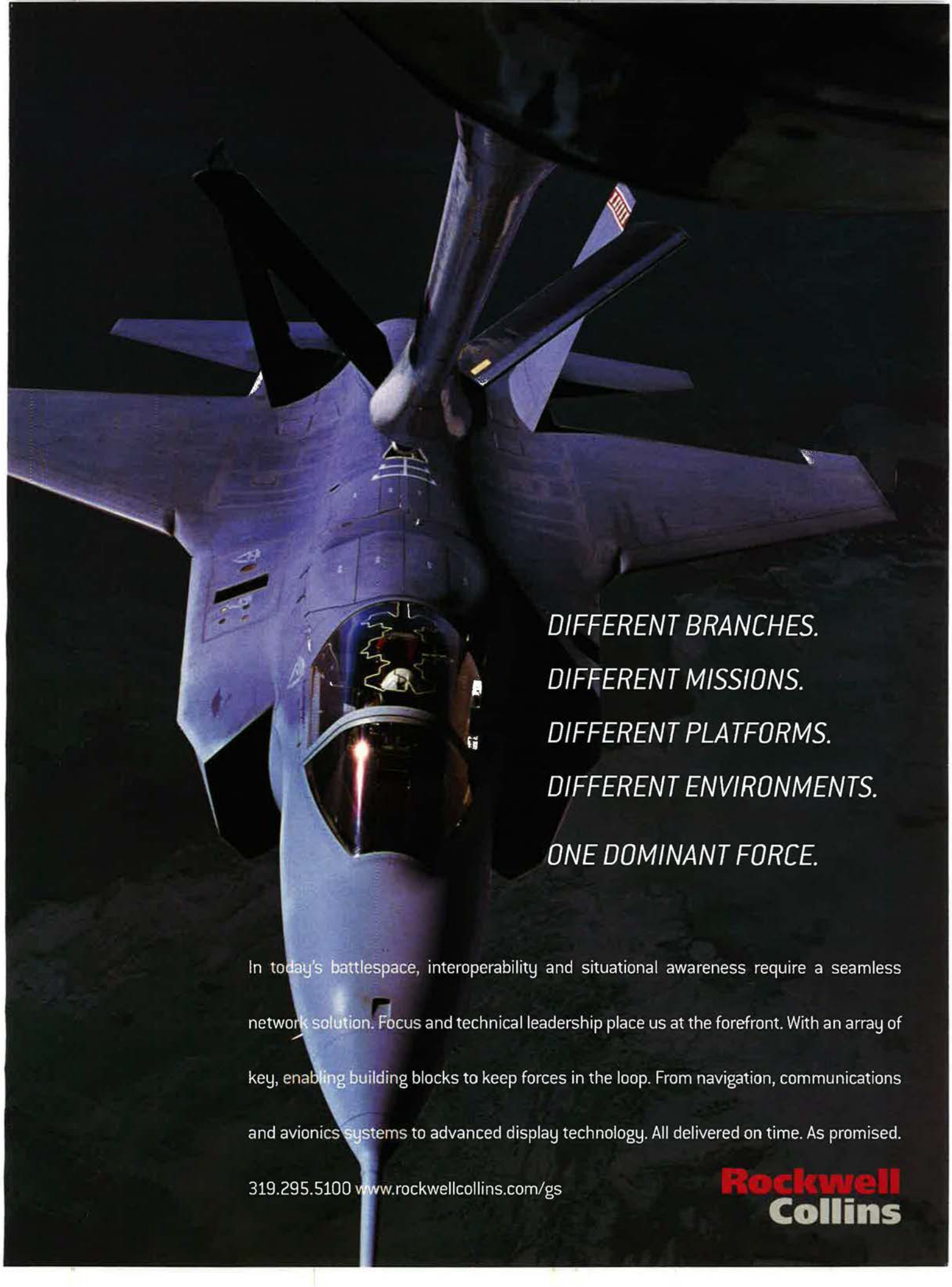
The National Nuclear Security Administration has increased its security funding by $125 million per year to meet "enduring requirements" brought on by the 9/11 terrorist attacks, the NNSA administrator said this spring.

Prior to 2001, NNSA's nuclear weapons security philosophy, said Linton F. Brooks, was based on the premise that "people would try to steal them."

Now, he told defense reporters in April, it is obvious there are individuals who are willing to sacrifice their lives to create a nuclear incident. This awareness has forced NNSA to expand its security perimeters so that potential attackers can be stopped farther away from a nuclear facility.

Some of the changes have been easy to implement, Brooks said. These include changing security rotations and closing roads. Others require new procedures and capabilities.

Despite the new threats, Brooks said, "everything is safe and secure." ■


DIFFERENT BRANCHES.
DIFFERENT MISSIONS.
DIFFERENT PLATFORMS.
DIFFERENT ENVIRONMENTS.
ONE DOMINANT FORCE.
In today's battlespace, interoperability and situational awareness require a seamless network solution. Focus and technical leadership place us at the forefront. With an array of key, enabling building blocks to keep forces in the loop. From navigation, communications and avionics systems to advanced display technology. All delivered on time. As promised.
319.295.5100 www.rockwellcollins.com/gs
Rockwell Collins

Action in Congress

By Tom Philpott, Contributing Editor

Help for Guard and Reserve; DOD Issues CRSC Guidance; Watch Those Entitlements ....

Reserve Income Protection?

A House panel shaping its version of the 2005 defense authorization bill approved new income protection for the Guard and Reserve.

If enacted into law, the "income replacement" provision endorsed by the House Armed Services Committee would allow involuntarily mobilized reservists to receive extra pay—$50 to $3,000 per month—to cover losses in average monthly income. To be eligible, a reservist must have: 12 continuous months on active duty, or 18 months of active duty during the previous 60 months, or been mobilized within six months of a previous active duty tour.

The estimate for the first year's cost of this new provision is $57 million. The high cost, the House panel believes, would encourage the services not to keep reservists mobilized long enough to qualify.

Rep. John M. McHugh (R-N.Y.), chairman of the committee's Total Force Subcommittee, said the income replacement provision was part of the "most significant reshaping of reserve enlistment and retention incentive bonuses and pays in years."

More Total Force Actions

Other Guard and Reserve personnel initiatives in the bill included:

Equal Incentives. The reserve components would have bonus and incentive authorities identical to those for active duty members.

More Full-Time Support. Guard and Reserve slots for full-time support personnel would rise by 2.1 percent and for military technicians by 3.3 percent.

Reserve Health Care. A $300 million increase in health care spending in 2005 would make permanent two temporary gains in reserve health care access approved by Congress last year. One opened Tricare to Guard and Reserve members 90 days before the date they are to report for active duty. Another provides reservists up to 180 days of Tricare coverage following separation from active duty.

Tricare Test. The panel extended by three years a test that opened Tricare to drilling reservists who are unemployed or lack employer-sponsored health care. The intent is to show whether better access to care actually will improve medical readiness, recruiting, and retention.

Compared to active duty members, Guard and Reserve troops are given smaller and fewer re-enlistment bonuses; are ineligible for critical skill bonuses; face tighter payment rules on monthly special pays; and, by law, can't sign re-enlistment contracts while overseas, which denies them a tax advantage many active duty members receive while in a war zone.

"There shouldn't be a difference," said Lt. Gen. James E. Sherrard III, testifying before retiring as head of Air Force Reserve Command. Sherrard and fellow reserve leaders said in April disturbing disparities in treatment exist for mobilized troops serving alongside active duty forces.

Sherrard said the issue is "fair and equitable treatment."

Thomas F. Hall, the Pentagon's point man for reserve affairs, took exception. He maintained, "There is a difference in the type of service, and being unequal is not necessarily unfair."

DOD Wants War-Related Changes

The Bush Administration in April sent Congress a host of new legislative initiatives. Here are two that Pentagon leaders believe would improve management of active and reserve military forces during the global war on terrorism:

Involuntary Call-Up for Training. This proposal would remove a Cold War-era law that prohibits DOD from ordering reservists to active duty solely for training. Under current law, a reservist must be mobilized for deployment before being sent for whatever refresher training is needed. When the law was crafted, the Pentagon expected to have time to call up reservists and train them properly before sending them off to war.

Now, the Administration seeks more open access to Guard and Reserve personnel to provide them individual or collective skill training at any time. The post-mobilization rule, officials say, can slow deployments, harm unit cohesion, and overwhelm training pipelines.

Longer FEHBP Relief. The Administration is attempting to eliminate a health care problem faced by reservists who are employed, as civilians, by a federal agency. The legislation would extend by six months the period during which federal agencies, on behalf of employees called to active duty, may pay premiums under the Federal Employees Health Benefits Program.

Currently the time period is 18 months. With some reservists now serving two years on active duty, that period expires too soon. Without relief, families of these employees, many of whom are faced with significantly reduced income while on active duty, face another financial burden or might have to leave FEHBP altogether, perhaps entering the military health care system.

DOD Issues Final CRSC Guidance

After a four-month delay, Pentagon officials in April issued final policy guidance on the new Combat-Related Special Compensation program. Disgruntled military retirees with disabilities had accused the Bush Administration of foot-dragging in implementing a program it had opposed. Defense officials, in a written statement, said they were merely "taking time to develop a good policy that will be as favorable to the retirees as the law allows."

Congress, last year, passed legislation that provided a partial lifting of the century-old ban on retirees drawing both full retirement pay and VA disability compensation for service-connected injuries or illnesses. The initial CRSC program went into effect in June 2003. It was designed to replace lost retired pay for retirees with 20 or more years of service who had combat-related disabilities of 60 percent or higher or who had disabilities tied to a Purple Heart medal.

Effective Jan. 1, Congress expanded CRSC to restore any lost

retired pay tied to combat-related disabilities of 10 percent or higher.

The Pentagon in December was to produce a revised application to reflect the expanded eligibility. It did so in mid-April.

The initial rules had brought in some 25,000 applications DOD-wide. Col. Gary Cook, president of the Air Force Informal Physical Evaluation Board, said officials expected the expanded eligibility to produce "somewhere between 50,000 and 100,000" new applicants.

Pentagon officials said that despite the delays in launching the process, all payments would be retroactive to the effective date.

The Air Force has received more than 10,000 applications and approved nearly 60 percent. It had placed many applications on hold until DOD issued formal guidance on how to handle awards for retirees deemed individually unemployable by the Department of Veterans Affairs or eligible for Special Monthly Compensation.

With DOD finally issuing guidance and a revised application, Air Force CRSC officials said the logjam should ease.

Air Force retirees can get more information on CRSC by calling 800-616-3775 or 866-229-7074 or on the Web: www.afpc.randolph.af.mil/disability.

Pentagon Urges Restraint

Pentagon leaders continued to urge lawmakers to adopt restraint in enhancing entitlements for both active and reserve forces and military retirees. (See "Action in Congress: Worries Over Entitlements," May, p. 26.)

Thomas F. Hall, DOD head of reserve affairs, advised Congress not to approve new, costly entitlements, specifically initiatives to lower, from 60 to 55, the age at which reserve retirement pay begins. Also on Hall's list of problem areas was the move to provide reservists and their families more access to Tricare, whether or not the reservists have been activated.

Hall noted that a RAND study on changes in reserve retirement shows that they have only a small impact on recruiting and retention. Yet dropping the threshold age (from 60 to 55) at which benefits begin would cost $7 billion over 10 years.

Sen. Saxby Chambliss (R-Ga.), chairman of the Senate Armed Services Personnel Subcommittee, questioned whether RAND had considered the expense of losing experienced reservists for lack of a better retirement plan.

Hall countered that, although the RAND study is only at its halfway point, preliminary data "tell us that our younger Guardsmen and Reservists serving today ... heavily discount deferred compensation." In other words, the reserve retirement plan is not that important to them.

"If the topline [dollar] remains the same, and we only have a certain amount of money to spend, ... we [should] target it towards those serving and bearing the brunt today," said Hall.

SBP Fix Moves Forward

The House Armed Services Committee in May took what Rep. John M. McHugh (R-N.Y.) called "the first meaningful step" toward ending a sharp drop in military survivor benefits that occurs at age 62.

Since the Survivor Benefit Plan began in 1972, benefits have fallen from 55 percent down to as low as 35 percent at age 62, when the surviving spouse presumably becomes eligible for Social Security. The committee version of the 2005 defense authorization bill would phase out that reduction, starting in 2009, and eliminate it by 2014.

McHugh conceded the delay would disappoint SBP reform advocates. He said the committee could not find money to help SBP beneficiaries sooner.

Meanwhile, several House Democrats had joined with veterans and service organizations, including the Air Force Association, to launch a discharge petition to force a floor vote on legislation that would end the SBP offset immediately. (See "AFA in Action," p. 84.)

House Democratic Leader Nancy Pelosi (Calif.), Rep. Chet Edwards (D-Tex.), and Rep. Bob Filner (D-Calif.), on March 30, announced a new petition to bring to a floor vote H.R. 548, which was submitted last year by Rep. Jeff Miller (R-Fla.).

On April 27, Edwards formally submitted the discharge petition. By May 6, the petition had 201 of the 218 signatures needed to force the bill out of the House Armed Services Committee for a floor vote.

Miller's 2003 bill has 310 co-sponsors, almost half of them Republicans.

DOD Launches "Standard" Help

Users of Tricare Standard, the military's traditional fee-for-service health insurance plan, should see evidence soon of more Defense Department support for their preferred leg of the Tricare program.

Lawmakers mandated in the 2004 defense bill that the Pentagon launch a program to ensure that military families and retirees who use Tricare Standard have better information and have adequate access to civilian providers. A first step in that effort came in late March, when the Pentagon turned in to Congress its plan for an "Active Outreach Program."

The six-page report outlines an effort to better educate both beneficiaries and civilian physicians on the Standard option and to evaluate the level of satisfaction with Standard.

Standard beneficiaries have complained in recent years that fewer physicians accept them as patients. Of those who do, too many don't accept Tricare reimbursement and Standard patient shares as payment in full for their care, leading to higher out-of-pocket costs for beneficiaries.

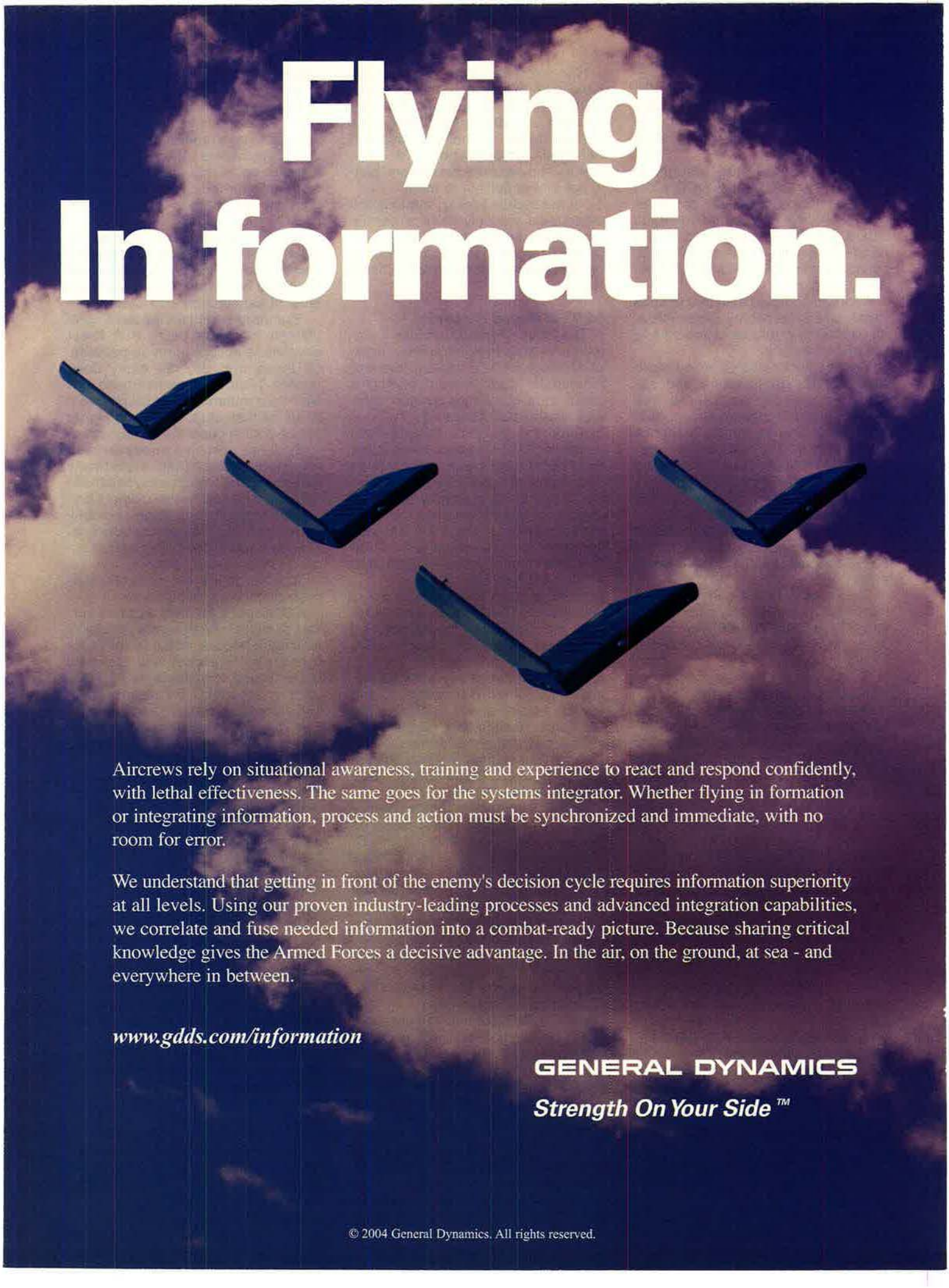
Evidence of such a trend has been anecdotal rather than statistically based, leaving Congress sympathetic but, like defense health officials and Tricare support contractors, not fully convinced that large numbers of Standard users are being denied access to affordable care.

To help define the problem, lawmakers ordered three steps:

- DOD must conduct a phone survey of civilian health care providers in Tricare market areas to measure willingness to accept new Standard patients and to participate in Standard by accepting Tricare maximum allowable charges rates as adequate.
- The US comptroller general must review DOD procedures to ensure access to Standard benefits.
- DOD must execute a new communication plan focusing on Standard users.

According to the Pentagon, the new outreach effort will be part of the planned switch over, beginning this summer, from 11 regions to three and a reduction in contracts from seven to three. All military beneficiaries will receive information packets this year, explaining their benefits under Tricare. The mass mailing will mark the first time since Tricare began in 1993 that the system has reached out to all those eligible, including more than two million Tricare Standard users.

One recent addition to the Tricare Web site, a database of physicians who recently have filed Tricare Standard claims, received a vote of thanks from the Military Coalition. It is searchable by zip code, so it at least provides a "fighting chance" to figure out what doctors in a given area might accept Tricare, said Sue Schwartz, testifying for the coalition. ■



Aircrews rely on situational awareness, training and experience to react and respond confidently, with lethal effectiveness. The same goes for the systems integrator. Whether flying in formation or integrating information, process and action must be synchronized and immediate, with no room for error.

We understand that getting in front of the enemy's decision cycle requires information superiority at all levels. Using our proven industry-leading processes and advanced integration capabilities, we correlate and fuse needed information into a combat-ready picture. Because sharing critical knowledge gives the Armed Forces a decisive advantage. In the air, on the ground, at sea - and everywhere in between.

www.gdds.com/information

GENERAL DYNAMICS

Strength On Your Side™

Verbatim

By John T. Correll, Contributing Editor

Appeasing the Alligator

"It's kind of like feeding an alligator hoping it eats you last. And it's not a terribly proud posture, in my view."***—Secretary of Defense Donald H. Rumsfeld on the theory that Spain can avoid further terror attacks by dropping out of the war on terrorism, CBS "Face the Nation," March 14.***

North Korea Says No

"Complete nuclear dismantling is a plot to overthrow the North's socialist system after stripping it of its nuclear deterrent. ... Verifiable nuclear dismantling reflects a US intention to spy on our military capabilities before starting a war. ... 'Irreversible nuclear dismantling' is nothing other than a noose to stifle us after eradicating our peaceful nuclear energy industry."***—North Korea's rejection of US demand to end nuclear programs,*** **New York Times,** ***March 28.***

History, Revisited

"My impression was that fighting terrorism, in general, and fighting al Qaeda, in particular, were an extraordinarily high priority in the Clinton Administration—certainly no higher priority. ... I believe the Bush Administration in the first eight months considered terrorism an important issue but not an urgent issue."***—Richard A. Clarke, former White House counterterrorism coordinator, statement to 9/11 Commission, March 24.***

Bottom Line

COMMISSION MEMBER SLADE GORTON: "Assuming that the recommendations that you made ... had all been adopted, say on January 26th, year 2001, is there the remotest chance that it would have prevented 9/11?"
RICHARD CLARKE: "No."***—9/11 Commission hearings, March 24.***

Good Enough for the Navy

"The Navy settled for the $92 million-a-copy F/A-18 E and F to combat enemy planes and penetrate air defenses on the ground. If this Chevrolet is good enough for the Navy, why do we need to buy almost 300 of the Air Force's F-22 Cadillacs?"***—George C. Wilson, defense correspondent, op-ed in*** **Washington Post,** ***April 5.***

Makes a Big Difference

"The leap from the F-15 to the F/A-22 is a much greater leap in technology and capability than it was from the F-4 to the F-15."***—Gen. T. Michael Moseley, Air Force vice chief of staff, to Congressional Air Force Caucus, March 15.***

Grandfatherly

"Besides all the flashing cameras and reporters, it was kind of like talking to your grandad."***—Midshipman Morgan Spiliotis on meeting Rumsfeld during his visit to the US Naval Academy,*** **Baltimore Sun,** ***April 6.***

Strike From Space

"The next generation long-range strike will probably be something that's through or from space, we're not sure yet; and there may be another generation of manned bomber that we have to go after to bridge that gap, but we're trying to get to the point that we can truly get to something that's halfway around the world in a matter of minutes to do whatever the nation needs to do."***—Air Force Chief of Staff Gen. John P. Jumper, National Defense Industrial Association, April 1.***

Ralph Nader Predicts

"The Pentagon is quietly recruiting new members to fill local draft boards, as the machinery for drafting a new generation of Americans is being quietly put into place. Young Americans need to know that a train is coming, and it could run over their generation in the same way that the Vietnam War devastated the lives of those who came of age in the '60s."***—Ralph Nader, www.votenader.org, April 10.***

A Role for NATO

"We should urge NATO to create a new out-of-area operation for Iraq under the lead of a US commander."***—Presidential candidate John F. Kerry, op-ed column,*** **Washington Post,** ***April 13.***

Al Qaeda's Nukes

"We sent our people to Moscow, to Tashkent, to other central Asian states, and they negotiated. And we purchased some suitcase bombs."***—Ayman al-Zawahiri, top henchman of Osama bin Laden, claiming to have bought portable nuclear weapons,*** **New York Daily News,** ***March 22.***

Lies, Says Carter

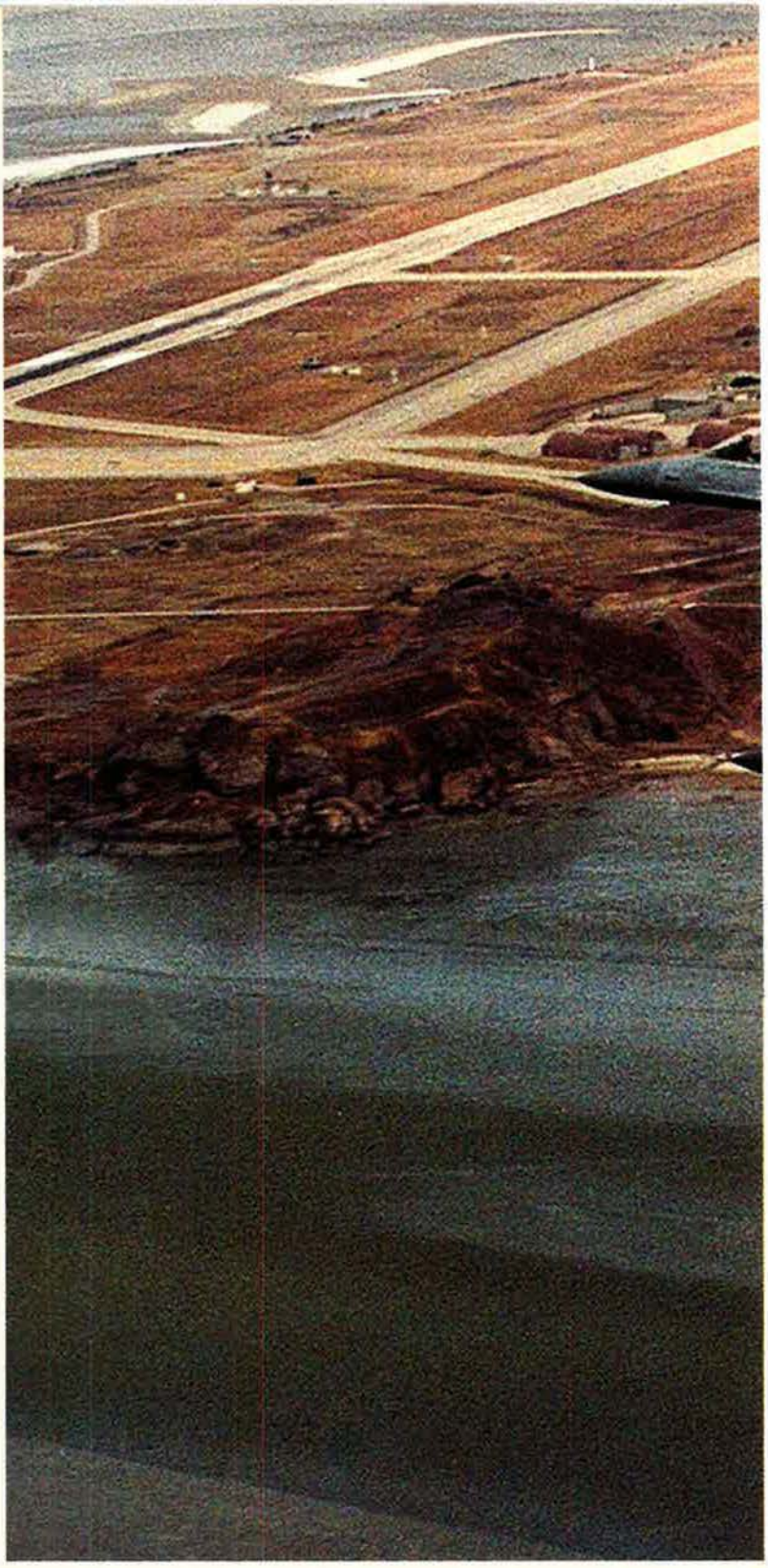
"There was no reason for us to become involved in Iraq recently. That was a war based on lies and misrepresentations from London and from Washington, claiming falsely that Saddam Hussein was responsible for [the] 9/11 attacks, claiming falsely that Iraq had weapons of mass destruction. And I think that President Bush and Prime Minister Blair probably knew that many of the allegations were based on uncertain intelligence. ... A decision was made to go to war [then] people said 'Let's find a reason to do so.' "***—Former US President Jimmy Carter, London's*** **Independent,** ***March 22.***

"Kill Rumsfeld" Ad

"And then there's Rumsfeld who said of Iraq, 'We have our good days and bad days.' We should put this SOB up against a wall and say,'this is one of our bad days,' and pull the trigger."***—Ad placed by St. Petersburg (Fla.) Democratic Club in the*** **Gabber,** ***a weekly newspaper in Gulfport, Fla., April 8, but later denounced by state and national Democratic Party organizations.***

Wait, Let Us Explain

" 'Pull the trigger' means let Rumsfeld know where we stand, not to shoot him! We are getting raped, and they are planning to steal the election again."***—Edna McCall, vice president of the St. Petersburg Democratic Club,*** **Drudge Report,** ***April 13.***



At "warrior bases" around the peninsula, 9,000 airmen train to fight a deeply buried enemy force.

Keeping Watch

By Adam J. Hebert, Senior Editor

TO SEE how edgy things can be in Korea, one need go no farther than "Big Coyote," a hill that offers a panoramic view of Kunsan AB, South Korea, home of USAF's 8th Fighter Wing.

A recent visitor on that windswept height looked down in one direction and saw row on row of advanced F-16 fighters all parked in hardened, individual shelters, ready to go into action on a moment's notice. Elsewhere, Army Patriot air defense missiles sat in hardened revetments, cocked and ready to shoot at attacking North Korean missiles and aircraft.

Not far away, vast quantities of munitions lay stashed away in berms and machine guns were evident in strategically placed defensive bunkers.

That was just the visible part. After a few minutes, heretofore invisible Air Force security forces, camouflaged and fully armed, emerged from the woods of Big Coyote. They were standing watch in subfreezing weather to deal with North Korean commandos, possibly in-

USAF photo by Jerry Morrison

A flight of four F-16s from the 8th Fighter Wing fly past Kunsan AB, in South Korea. The threat from North Korea means the airmen at Kunsan and Osan Air Base, near Seoul, must be ready to go to war on a moment's notice.

on Korea

USAF photo by SSgt. Michael R. Holzworth

An F-16 of the 80th Fighter Squadron at Kunsan prepares for takeoff. Pilots stationed in South Korea benefit from training missions that are flown over the same terrain they would defend in actual combat.

of the DMZ. He said that the focus is on interdiction—often training for "worst case" situations such as attacking enemy targets protected by heavy air defenses.

The Air Force's presence on the peninsula is large. Roughly 9,000 airmen (part of a total commitment of 37,000 US troops) are there to help deter North Korea and defend South Korea.

The airmen stationed there joke that they can always find north—that's the direction the Patriot missiles are facing. The Air Force recognizes the fragile state of affairs by exempting its forces in South Korea from participation in USAF's Air and Space Expeditionary Force (AEF) deployments.

Nearly every airman who deploys to South Korea serves on an unaccompanied one-year tour. (See "The One-Year Assignment," p. 31.) While on the peninsula, said Gen. William J. Begert, commander of Pacific Air Forces, airmen must "have a single-minded obsession" with their mission.

Commanders actually only get about nine months' worth of productive time from each airman. Col. William C. Coutts, vice commander of the 8th Fighter Wing at Kunsan, said it takes about two months to train airmen for the new assignment.

USAF photo by SrA. Araceli Alarcon

SSgt. Trent Fairchild and Capt. Todd Lafortune go through the preflight checklist on an F-16CG at Kunsan. F-16 teams in South Korea regularly train for air superiority and ground attack missions—often on the same flight.

filtrating from the nearby Yellow Sea.

To reach Big Coyote, a North Korean fighter aircraft would need only about 15 minutes, and a ballistic missile much less. That means Kunsan is within easy reach of a chemical weapon attack.

In Korea, the mission is "live," as they say. Even though Kunsan lies 140 miles south of the Demilitarized Zone (DMZ)—the 2.5-mile wide and 150-mile long boundary that separates North and South Korea—security forces must remain vigilant against attack. North of Kunsan, the problem is even worse.

Kunsan is one of the last "warrior bases," where everyone is on an unaccompanied remote tour, totally focused on the mission. The airmen of Kunsan prepare daily to defend the base, receive reinforcements, and take the fight north. That mission applies equally to all airmen in South Korea.

The Air Force operates in many dangerous locations, but its mission in South Korea is unlike that of anywhere else in the world. The prospect of a new Korean War is always imminent and makes an assignment to the peninsula distinctive.

Airmen stationed there train daily as if an invasion has begun. Upon arrival, one of the very first things an airman receives is gear for protection against biological-chemical agents. Exercises are frequent, and newcomers often are greeted by their commander in gas mask and chem-bio gear. Such precautions are a fact of life on the peninsula.

New airmen in South Korea quickly learn the mission and the central role they play as the first defenders. They also know that, immediately after they respond to an attack, they must receive a large influx of follow-on forces.

"Everything is more intense," said Capt. Charles Huber, an F-16 pilot at Osan AB, South Korea, just south

The One-Year Assignment

One thing that makes an assignment to South Korea unique is that nearly everyone deployed to the peninsula is on a one-year, unaccompanied tour. This means most of the airmen spend a full year away from their families, and while that is a downside, it also means they can concentrate almost exclusively on their jobs.

"A year away from the family is a year away from the family," said Col. William C. Coutts, vice commander of Kunsan's 8th Fighter Wing, known as the "Wolf Pack."

Kunsan is considered a remote assignment, so no families come along with the deployed airmen. At Osan, about 100 miles farther north and near the capital city of Seoul, 96 percent of the airmen are on one-year remote assignments.

The Air Force considers the one-year assignment a necessary evil.

A standard 90-day AEF rotation would not be long enough to master the intricacies of the mission. Tours to South Korea are considered permanent change of station assignments, even though a standard PCS tour lasts about three years. A one-year PCS is considered short enough for families to cope with the separation.

A common theme expressed by the younger officers is that they focus on their mission as a way to get through the difficult assignment. Airmen "don't have to go to PTA meetings" or worry about mowing the lawn, Coutts said. They generally live on base, unlike many Stateside and European assignments where they can live off base with their families.

For years, the US facilities in South Korea have ranked among the "worst living and working conditions" of all of DOD's permanent basing locations, said Army Col. Daniel M. Wilson, chief engineer for US Forces Korea (USFK). Investment in US facilities in South Korea suffered primarily because many believed the end of the Cold War signaled that North Korea's communist regime would simply "go away," said Col. Mark A. Bucknam, commander of the 51st Operations Group at Osan. Instead, "things didn't change much here," said Bucknam.

USAF is undergoing a $250 million facelift at Kunsan. The base already received a $4 million expansion to its fitness center and another nearly $4 million in improvements to its dining facility. As the US moves thousands of troops away from the DMZ, current plans also call for construction of new facilities in the Osan area.

Despite some decrepit facilities, living and working with like-minded airmen helps create a "small town atmosphere," said Capt. Brett Comer, an F-16 pilot at Osan. Everyone is focused on the job—one that requires 14-hour days, including weekends, said Comer.

Then, a month is lost when airmen depart for midtour leave. Some time is lost at the end of each tour, as personnel prepare for their next assignment.

Brig. Gen. Maurice H. Forsyth, commander of the 51st Fighter Wing at Osan, commented that forces in South Korea don't have the luxury of saying "we'll just anticipate getting backfills when we think the war's going to happen." He added, "We have to be ready to go." So, for many years, the Korean Peninsula has been manned at 100 percent, with a few extra personnel added to cover gaps.

The Asymmetric Advantage

In 1953, an armistice ended the Korean War. Since then, sporadic skirmishes have resulted in the deaths of 484 troops—90 Americans and 394 South Koreans. Most have been killed in fighting along the DMZ.

The DMZ, less than an hour's drive from downtown Seoul, features an impressive array of antitank barriers, guard posts, barbed wire, and minefields. US troops patrolling the DMZ are well aware of the sometimes deadly gamesmanship played by their North Korean counterparts.

One soldier expressed pragmatism about how demilitarized the DMZ really is. He wore an authorized sidearm to provide some sense of personal protection.

Nearby, the North Korean regime stations a mass of artillery, Scud missiles, and troops. Pyongyang also maintains hardened defenses and a complex, integrated air defense sys-

USAF photo by SSgt. Stacy Pearsall

Airmen train regularly with ground forces, and the US and South Korea have a highly integrated defense. Here, a US survival, evasion, resistance, and escape instructor is being camouflaged by a South Korean pararescueman.

tem. It has a decided numerical superiority over US and South Korean forces. And the frequent bad weather on the peninsula would, in some ways, aid an attack on the South.

US officials say that, in the event of a war, South Korea's Army would carry the burden of defense. They say, though, that a new war would not be won through a clash of massed ground forces. Air forces are needed to launch a counterattack to ensure defeat of North Korea's military.

It is through air and space power that the US and South Korea have an asymmetric advantage, capabilities that North Korea simply cannot match. The defenders have state-of-the-art fighters with precision weapons; advanced, realistic training; complete integration of ground and air forces; and shared intelligence-surveillance-reconnaissance capabilities.

USAF photo by SSgt. Suzanne Jenkins

Superior intelligence capabilities would be an Air Force advantage in a war with North Korea. Pictured is one of the U-2 reconnaisssance planes frequently rotated to Osan.

The Extent of the Threat

Pyongyang has learned from Air Force operations over the past 15 years, and it actively seeks to offset USAF advantages. The US ability to generate lots of fighter sorties led the communist regime to develop a special operations force whose primary mission would be to shut down airfields in South Korea. The effectiveness of US precision guided munitions inspired North Korea to build hardened tunnels. And US intelligence collection capabilities led Pyongyang to hide forces and weapon systems underground.

US officials believe that North Korea has some 11,000 hardened tunnels dug into its mountains, with the entrances facing north. These facilities house troops, artillery, aircraft maintenance facilities, and even airfields. The communist regime is putting underground as much military infrastructure as possible. In a war, that would mean airpower would have to find those forces and neutralize them.

The US and South Korea are essentially engaged in a war planning "shell game" with North Korea—because so many enemy targets can be secretly relocated. "That's why precision munitions and stealth and cruise missiles are so important to us," said Lt. Gen. Garry R. Trexler, commander of 7th Air Force and the senior USAF officer on the peninsula. These capabilities allow the US to strike not just at facilities massed along the border but deep into North Korea, where there is a "very sophisticated, integrated air defense system," he said.

In recent years, Pyongyang had moved 1.2 million soldiers closer to the DMZ, according to US intelligence. "There's a reason there's a four-star general [heading US Forces Korea (USFK)]," said Osan's Col. Mark A. Bucknam, 51st Operations Group commander. "There's not another situation like this in the world," he said.

North Korea is believed to possess several nuclear weapons, along with chemical and perhaps biological weapons. Consequently, Begert said the ability of the US forces in South Korea to function after a chemical or biological attack is "second to none."

If North Korea were to launch an invasion, say US analysts, it would attempt to isolate Seoul and quickly sweep across the rest of South Korea, overtaking the defenders before the US could move in reinforcements

Staff photo by Guy Aceto

Since the Korean War ended in 1953 with the signing of an armistice here at Panmunjon within the DMZ, 90 US and 394 South Korean troops have died in clashes with the north. Guards still keep a wary eye on each other.

from outside the peninsula. This massive attack would be spearheaded by a large-scale special operations assault targeting US and South Korean military and leadership facilities. North Korea has more than 100,000 commandos, and the US estimates that there may be as many as 3,000 sleeper agents living in the South.

Forsyth said North Korean infiltration of South Korea would be a key concern and a "second front" in a war.

The Strategy

As Osan and Kunsan quickly mounted counterattacks, they would be receiving an immediate flow of external reinforcements. In wartime, the two bases would at least double in capacity, as additional aircraft and personnel flowed in.

Staff photo by Guy Aceto

Osan hosts A-10 tank killers. Pilots focus on coordinating with USAF's battlefield airmen on the ground, learning the lay of the land, and identifying invasion routes.

In an exercise, members of the 51st Aircraft Maintenance Squadron at Osan take shelter in protective suits. North Korea has the means to hit Osan and Kunsan with chemical weapons.

The first sorties would focus on enemy ground targets, said Kunsan's Coutts. "We have a good idea" what the fixed targets are, he said. They include North Korean air bases, which host more than 1,600 aircraft, of which 800 are fighters.

Although North Korea does have a handful of fourth-generation MiG-29 Fulcrums, most of its fighters are obsolete. Its training for pilots is also limited. USFK officials estimate that the country's pilots only train about 10 flying hours per year, leaving them poorly equipped to compete effectively against the better-trained US and South Korean forces with their significantly better aircraft.

Of greater concern are enemy air transport divisions. North Korea has about 300 An-2 Colt light transports and 300 helicopters that could be used to ferry commandos southward. They would be hit early.

The mobile target set is where the US and South Korean fighters would be most effective, said Coutts. Fighter aircraft would be directed against North Korean forces "out in the open and moving south, ... exposed," he said.

Capt. Sean Monteiro, an A-10 pilot at Osan, contrasted the situation with Southwest Asia, to which he had deployed three times before his assignment to South Korea. In the desert, said Monteiro, it is "very easy to pick out targets." In Korea, even though pilots know what invasion routes the enemy is going to use, it is still "easy to hide," he said. Monteiro said attack pilots spend lots of time "getting to know the land like the back of our hands."

Forsyth said that knowing the enemy allows the US forces to be "more focused." He added, "It's an advantage for us."

The Air Force is confident it can overcome the secrecy and deception techniques used by North Korea. "If you look at something long enough, you can determine what it is and what it isn't," Forsyth explained.

Battlespace persistence would be hard to achieve. In Gulf War II, USAF bombers succeeded by loitering over the battlespace and striking pop-up targets. In Korea, persistence would stem from sending large numbers of fighters over a target, in wave after wave.

"Over here," Forsyth said, "persistence equates with continuous sorties." Because of North Korea's "much more extensive" air defense system, he noted, the Air Force "can't just orbit over a target up there. Our

USAF photo by SSgt. Bradley C. Church

To defeat a communist army of 1.2 million soldiers, air and ground forces must work together. Pictured is A1C Jonathan Brown, a tactical air control party technician from the 604th Air Support Operations Squadron.

persistence comes from continuous pressure—mission after mission after mission."

The Primary Force

The source of those "continuous sorties" would be the USAF ground-attack A-10s and F-16s assigned to the 51st Fighter Wing at Osan and the two squadrons of F-16s—one for ground attack and one for suppression of enemy air defenses—with the 8th Fighter Wing at Kunsan. The F-16s have day/night, all-weather attack capability with precision weapons.

Forsyth pointed out that the A-10 and F-16 fighters, though highly capable, are somewhat old. The health of the A-10s is of particular concern, he said, adding that it's a "fleet-wide issue." Upgrades on A-10s have lagged, but Forsyth said, "There are some concepts that have been spawned ... that will keep it a viable platform for years to come."

Trexler, who called the A-10 a "good airplane," said that, if USAF keeps it in the inventory, it must be modernized. "We need to get targeting pods out there, and we need to get [it] re-engined," said Trexler.

The Air Force does have plans to make A-10 structural upgrades and, at some point, add new targeting pods for precision weapons. New engines may be in the future, as well. "The strength of the motor is good," said Maj. Brad Tannehill, a maintenance supervisor with Osan's 51st Maintenance Group, "but it's been rebuilt too many times."

The A-10's age puts a burden on the maintainers, said Tannehill, because "a certain number [of aircraft] have to be ready to go up every night." But at the end of the day, one crew chief said, "It's a Hog, ... [and] the Army guys love it."

According to Begert, USAF doesn't expect any major changes in its force structure in South Korea in the near term. He did say, though, that the Air Force needs "to put Predator [unmanned aerial vehicles] in Korea."

The Predator's combination of tactical intelligence and quick-strike capability is tailor-made for Korea, said Begert. He believes 7th Air Force will bring the UAV in the theater in the near future.

Osan hosts the Hardened Theater Air Control Center, which serves as a combined air control center—the largest in the world. The HTACC has 10-foot-thick walls and is designed to survive blasts from the largest munitions in the North Korean arsenal. It is from there that Trexler, serving as the bilateral air component commander, would run an air war featuring integrated operations by South Korean and US Air Force aircraft, as well as Navy and Marine Corps airpower.

Osan is also home to one of USAF's five major air operations centers.

With the aid of these two centers, Trexler said, "our ability to synchronize effects across the spectrum is better" than before. "We are able to see a lot," he said, adding, "We know when ground forces are moving, we know where they're moving, we know when airplanes are flying."

Working air operations from a combined center is indicative of the integration that exists not only between US and South Korean air forces but also between air and ground forces. War plans envision air elements working hand in glove with ground forces. Combined training is the norm.

Airmen on the Ground

Facilitating the air-ground coordination are several hundred elite battlefield airmen. With 7th Air Force's 607th Air Support Operations Group are tactical air control party (TACP) controllers and combat weathermen. They live and work with US Army units at Army camps, most within a dozen miles of the DMZ.

The TACP airmen of the 604th Air Support Operations Squadron, headquartered at Camp Red Cloud, coordinate close air support and other air strikes. In addition to routine CAS operations against targets such as tanks, one of the TACP's primary missions in South Korea is to support the Army's counterfire mission by targeting air strikes, at the beginning of an invasion, against North Korea's massive artillery capability. The goal is to limit Pyongyang's ability to saturate South Korea with chemical weapons and high explosives.

The 604th also runs USAF's only hardened-bunker air support operations center.

Combat weathermen of the 607th Weather Squadron, headquartered at Yongsan Garrison, work in eight different detachments, directly with Army units. In the European theater, most USAF combat weathermen support Army aviation units. In South Korea, they also support tank, artillery, and infantry units. These battlefield airmen provide detailed weather data in a country known for its diverse weather patterns, especially in the mountainous DMZ area, and they often do it on the move.

A third group of battlefield airmen are USAF's combat communi-

cators. In South Korea, they are part of the 607th Combat Communications Squadron (CBCS), headquartered at Camp Humphreys.

The combat communicator job is to establish and defend command, control, communications, and computer capability in the field for Air Force and Army units.

Always Training

Daily training flights allow the four USAF fighter squadrons at Kunsan and Osan and 29 fighter squadrons of South Korea's Air Force to integrate tactics and techniques.

While that type training is invaluable, Forsyth said that "in an ideal environment, every mission would be exactly like you would do in wartime." Such realistic training takes place "at least once a month," he said, when large air and ground force exercises take place.

Staff photo by Guy Aceto

The defenders strive for maximum versatility. USAF aircraft regularly deploy to South Korean air bases for buddy wing exchanges. Pictured is an Osan F-16 on final approach to Kunsan.

USAF photo by SrA. Cat Trombley

A Kunsan F-16 sits in front of its hardened hangar. The airmen stationed in South Korea pride themselves on being spring-loaded for combat, and certain numbers of aircraft are kept ready to go at all times.

Once each year, US and South Korean forces conduct the Reception, Staging, Onward Movement, and Integration (RSOI)/Foal Eagle Exercise—the largest defensive military exercise in the world. RSOI/Foal Eagle participants, who include many forces from US units outside South Korea, number about 9,000.

USAF and South Korean air units also have routine "buddy exchanges" that provide another means to ensure maximum versatility in wartime. In the exchanges, troops swap bases and practice "turning" each other's airplanes for sorties.

Pilots tout the realism of the training, which includes close coordination with USAF's battlefield airmen. During mission preparations for one typical day at Kunsan, F-16 pilot Capt. Matthew Casey noted that his flight would be doing both air-to-air and air-to-ground training. Casey had completed fighter weapons school at Nellis AFB, Nev., before arriving at Kunsan. He was clearly enthusiastic about being able to fly the F-16 almost daily.

It is not easy to conduct such extensive training in a densely populated country with limited range space for live-fire activities.

For example, there are few places where A-10 pilots can actually shoot the Warthog's powerful gun. However, Forsyth points out, limited access to adequate training ranges is not unique to Korea.

The density of the population complicates matters for USFK war planners. In the event of war, USFK officials estimate, approximately 22 million noncombatants would be stuck in the middle—trying to get out of the way. Unfortunately, they would be moving through an area where tens of thousands of US and South Korean forces would be heading north as North Korean units headed south.

PACAF, as a whole, must deal with "the tyranny of distance," said one USFK official, but the forces in Korea contend with the opposite problem: "the tyranny of proximity and congestion." USFK officials estimate that there would be more than one million casualties if war broke out.

Ultimately, USFK anticipates that the US and South Korean advantages mean an invasion would be stopped north of Seoul, despite the limited defensive space available. One intelligence official said, "In the event of a war, we will not return to a stalemate." ■

The new defense budget sticks to the script—with the Air Force in a starring role.

Transformation, Take 2

USAF photo by Dereck Blanset

The F/A-22 Raptor is the Air Force's top modernization priority, and the service seeks $4.7 billion to purchase another 24 next year.

By John A. Tirpak, Executive Editor

With its new $402 billion defense budget, the Bush Administration reaffirmed its oft-stated conviction that advanced technologies hold the key to future US military power. And the Air Force benefits the most this time around.

The new 2005 spending blueprint continues the Pentagon's push toward transformation by selectively funding the procurement of advanced new systems and the upgrading of older ones.

The plan for next year emphasizes systems that offer stealth, precision, range, a capacity for multiple missions, and the ability to feed useful data into a military information network. It also provides significant funds for new military space systems.

The Pentagon allocated $121 billion to the Air Force, the most of

any military service. That figure represents a one-year, after-inflation increase of 7.1 percent, also the most of any branch of the armed forces.

The money would finance, among other programs, 24 of the premier F/A-22 fighters and additional development of the F-35 Joint Strike Fighter. Also included in the spending plan was money for unmanned surveillance aircraft, unmanned combat air systems, and advanced airlifters. The Air Force would get three V-22 Osprey tilt-rotor aircraft in 2005.

According to Pentagon officials, the Air Force budget contains lots of "pass-throughs," meaning an unusually large amount for intelligence. It is money the Air Force manages for the Intelligence Community.

Pentagon officials said the big new budget also helps to modernize the Army and gives the Navy and Marine Corps a new and highly capable assortment of new ships, aircraft, and weapons.

Though the emphasis was on high-tech systems, Pentagon officials argued that the new defense budget maintains "prudent" readiness standards, adequately supports military personnel, manages the demand on the force, and improves intelligence capabilities.

The overall procurement request comes to $74.9 billion, roughly $2 billion less than in this year. However, the research and development budget was raised by $3.5 billion to $68.9 billion.

Sticking to the Script

In general, the proposed defense spending plan sticks to the script so powerfully enunciated with this year's budget: DOD will seek incremental change toward a "transformed" military.

In unveiling their 2005 budget on Feb. 2, Pentagon officials noted it marks the seventh straight annual increase in defense funding, far surpassing this year's $382 billion. The $402 billion proposal matches or exceeds some budgets enacted during the Cold War. However, it falls well short of the Cold War benchmark—the huge Reagan defense budgets of the 1980s.

Moreover, the budget blueprint forecasts annual increases of about $20 billion through Fiscal 2009, which would bring the budget up to about $450 billion in that year, in 2005 dollars. (Note: All figures are presented in 2005 dollars.)

USAF photo

The triservice F-35 Joint Strike Fighter needs $4.6 billion in the 2005 budget; half from the Air Force, half from the Navy Department. Weight problems have forced a program restructure for the F-35.

The Administration seeks more money for each service. The one-year increase for the Air Force—$9.6 billion—exceeds those for the Army and the Navy. The Navy/Marine Corps budget comes to $119.3 billion and the Army's to $97.2 billion. A $10.8 billion increase to $64.7 billion for defense agencies was greater than for any individual service.

The operation and maintenance account, which funds force readiness programs such as flying hours, tank miles, and steaming days, increased from $129.8 billion in 2004 to $140.6 billion in 2005.

The Air Force and Army flying programs did not change. Air Force and Army crews will fly 16.8 hours per month and 13.1 hours per month, respectively. The Navy's flying hours dropped from 20.8 to 19.2 per month. Its ship steaming days fell from 54 to 51 days per quarter. Army tank miles dropped, from 913 to 899 per month in the new budget.

When it comes to major weapon programs, the defense proposal contained few surprises.

The Army did surprise many by canceling its Comanche scout/attack helicopter program shortly after the budget request was sent to Congress. (See "Washington Watch: Death of Comanche," April, p. 9.)

Dov S. Zakheim, who briefed reporters on the 2005 budget before leaving his post as DOD comptroller, said that the Pentagon plans to conduct a thorough review of most major weapon systems every two years, as part of its shift to the biennial budget cycle. Later this year, he said, as the department begins work on the 2006 budget, it will review aircraft and shipbuilding programs.

The program amounts listed below cover both procurement and research, development, test, and evaluation (RDT&E) funding.

■ Tactical Air. USAF has $4.7 billion for 24 new stealthy F/A-22s. The Air Force is still committed to a "buy-to-budget" plan for the F/A-22 that would enable the service to buy as many aircraft as it can within its F/A-22 topline. Although Congress prohibited USAF from doing that last year, Zakheim said he doesn't "think it's going to be as big an issue" this year because of the growing program stability. However, the program is in the midst of several reviews, one at the request of the White House. (See "The F/A-22 Force Forms Up," April, p. 34.)

The budget provides $4.6 billion to cover restructuring of the F-35 Joint Strike Fighter program. The Pentagon had to delay the program by one year and shift more funds into RDT&E to overcome the fighter's weight growth problem. (See "The

F-35 Gets Real," March, p. 44.) However, Pentagon officials do not see weight growth as an issue unique to the F-35. The same problem, said Zakheim, has happened with every new aircraft "anywhere in the world in the last 40 years or so." Despite the program delay, Air Force officials maintain they will still meet their planned in-service date of 2011 for the airplane.

The Navy portion of the budget includes $3.1 billion for 42 F/A-18E/F aircraft, continuing an annual buy to replace F-14s. The Navy also gets $0.6 billion to sustain development of the E-2C Hawkeye and $0.4 billion for development of an advanced electronic warfare F/A-18 variant, the EA-18G Growler, to replace the elderly EA-6B Prowler now jointly used by the Navy, Marine Corps, and Air Force.

The budget includes $1.6 billion for precision munitions to arm tactical aircraft of each service. The request would buy more than 46,000 new weapons, including 15,000 laser guided bombs and 30,000 Joint Direct Attack Munitions, to replace those expended in Operation Iraqi Freedom and to bolster stocks.

■ Mobility Aircraft. The Air Force requests $4.1 billion to buy 14 C-17 airlifters, sustaining the C-17's multiyear procurement contract.

No funds were requested for a replacement aerial refueling aircraft because the Air Force's plan to lease 20 and buy 80 new Boeing KC-767s was put on hold last December. The tanker deal has been under investigation both by the Pentagon inspector general and Congressional committees. There is no indication when the reviews will be completed, said Zakheim. Senior Air Force leaders now say the tanker lease deal may no longer be a valid approach to dealing with the problem of an old and overextended fleet of tankers. (See "Aerospace World, Roche: Tanker Lease Advantage Is Perishable," May, p. 18.)

Boeing artist's concept

The 2005 budget request contained no money for new tankers, as DOD and Congress work through the controversy over a proposed lease/buy of new KC-767s from Boeing.

The budget provides $1.7 billion for continued development of the basic V-22 tilt-rotor transports and procurement of 11. Despite a series of fatal accidents that halted testing for a time, Zakheim said the V-22, in 2003, went through "some rigorous testing" and it "passed with flying colors." He said the program is "moving on." USAF plans to buy a total of 50 of the CV-22 variant.

■ Space Systems. The Administration is requesting $775 million for a new laser communications satellite—dubbed Transformational Satellite (TSAT) Communications—that Zakheim said will get the services "out of the bandwidth straight jacket." He called it the "heart" of network-centric warfare because it will provide "so much more communication ... more quickly." A Global Hawk surveillance image could be transmitted over TSAT in less than a second, whereas, today, a Milstar II satellite would need more than 12 minutes.

Another key space system in the Pentagon's list of "transforming systems" is the Space Based Radar, for which the budget requests $408 million. SBR is expected to offer ground moving target information, much like USAF's Joint STARS radar aircraft, but with the ability to see even farther behind enemy lines.

■ Missile Defense. The Missile Defense Agency's ballistic missile defense system received a big boost in the budget, up from about $7.8

USAF photo

Development of the CV-22 Osprey for AFSOC continues. The 2005 budget seeks $1.7 billion for development and purchase of tilt-rotors. Ultimately, USAF will own 50 CV-22s to transport commandos in war zones.

billion in 2004 to $9.2 billion. Within that request is $900 million to continue development toward fielding, by the end of this calendar year, an initial capability with nine ground-based interceptors and five sea-based interceptors and, by the end of 2005, another 11 ground-based and five sea-based systems.

■ Unmanned Aircraft. Several pilotless aircraft programs are funded in the new budget. The single largest dollar program, at $710 million, is the Joint Unmanned Combat Air System (J-UCAS), a merger of Air Force and Navy unmanned combat aircraft programs. The Pentagon plans to conduct an operational assessment for J-UCAS in the 2007-09 time frame. Other programs include USAF's Predator and Global Hawk unmanned aerial vehicles and the Army's Shadow tactical UAV. Out of a total of nearly $1.2 billion for these "other" UAVs, the budget requests $309 million for nine Predators and $696 million for four Global Hawks.

■ Ground Force Systems. The spending plan contains funding for the Army's two major programs: the Future Combat System ($3.2 billion) and Stryker ($1 billion). The FCS, which includes systems for both direct fire and indirect fire, is on track for initial operational capability in 2010, according to Pentagon officials. Funding for Stryker will purchase new combat vehicles for the fifth of the Army's new brigade combat teams.

■ Shipbuilding. The budget requests $11.1 billion to buy nine ships, up from seven in 2004. The out-year budget forecasts purchase of an average of 9.6 ships per year—with 17 in 2009—to maintain a 300-ship force. Of the total for shipbuilding, $1.6 billion will go toward RDT&E for four new ship classes: DD(X) destroyer, Littoral Combat Ship, CG(X) cruiser, and Maritime Pre-position Force (Future) ship. Overall, the Navy may have fewer ships than in the past, but its new ships will have twice the capability of the ones they replace, said defense officials.

■ Other Transformational Programs. The budget includes the Joint Tactical Radio System, better known as JTRS (pronounced "jitters"), and cruise missile defense. The JTRS request for $600 million will provide wireless Internet capability for warfighters. A $239 million request for cruise missile defense covers a host of programs, said Zakheim. The goal is to provide some capabilities to defend against cruise missiles in 2008, with the first full units following by 2010.

Staff photo by Guy Aceto

The Joint Unmanned Combat Air System is developing an unmanned, stealthy, attack aircraft for USAF and the Navy. J-UCAS is shown here dropping a 250-pound guided bomb.

A key theme of the spending plan is the Pentagon's push to transform not just systems but operations. By transforming operations, said Zakheim, the Pentagon will increase true combat capability without necessarily spending more money.

The Air Force has been employing and refining for several years its new capabilities-based air and space expeditionary force structure. This year, the Navy began implementing its new fleet response plan, essentially doing away with fixed rotations to be able to deploy more quickly with more firepower. The Army plan to develop the brigade as its core fighting force, said Zakheim, is the first revolutionary change for land forces since Napoleon made divisions the central maneuver unit. Each Army division will now have at least one additional brigade, raising the total number of brigades from 33 to 43 over the next four years. Within five years, the Army goal is to reach 48 brigades, said Zakheim.

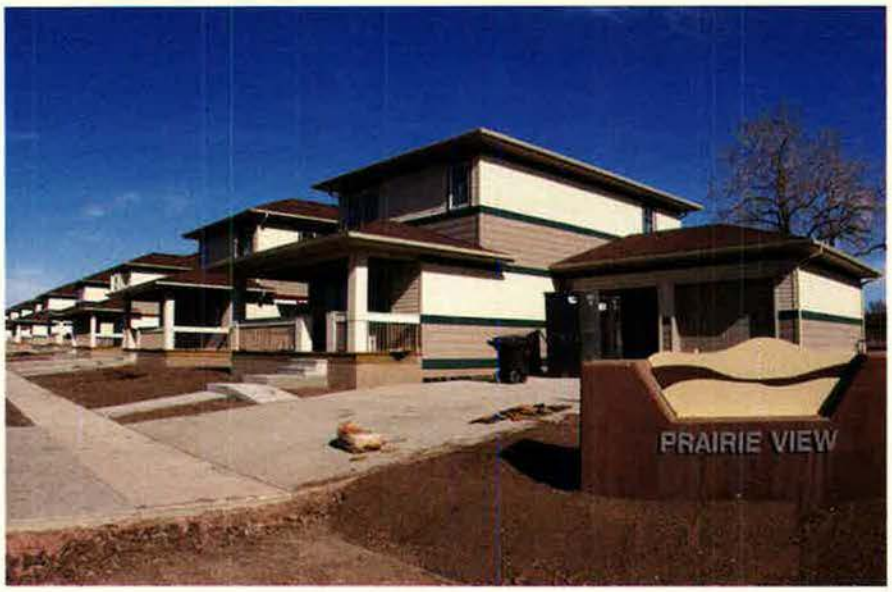
Additionally, the Marine Corps is being better aligned with special operations forces, and some special forces missions are being moved "into the general-purpose forces." All this adds up to "major change" and rapid "evolution of the force," Zakheim asserted.

No New Troops

A major push by lawmakers last year did not change Administration plans to refrain from requesting an increase in end strength. Several bills have been proposed to add troops to the military's payroll. Many lawmakers believe that back-to-back deployments of both active and reserve component forces will eventually lead to a mass exodus of troops from the military.

The Administration believes that the Pentagon can gain more capability by rebalancing workloads and ensuring uniformed members are performing military functions. Pentagon leaders argue that personnel costs are high and adding more troops would be unaffordable without displacing needed hardware modernization.

Defense Secretary Donald H. Rumsfeld told lawmakers, "If the war on terror demands it, we will not hesitate to increase force levels even more using our emergency authorities." The fact that the Pentagon has a combined total of about 2.6 million active and reserve forces but had to resort to an emergency boost of 33,000 troops for the deployment of 130,000 to Iraq, said Rumsfeld, "suggests strongly that the real problem is not the size of



USAF photo by SSgt. Joanna E. Hensley

Nearly $10 billion will be poured into military construction and family housing accounts. DOD's plan is to eliminate 90 percent of substandard housing by 2007. Pictured are some of the 100 new homes at Ellsworth AFB, S.D.

the force, per se, but rather the way the force has been managed and the mix of capabilities at our disposal."

According to the spending plan, the Pentagon will convert some 10,000 military positions to civilian in Fiscal 2004 and has $572 million in the budget to convert another 10,700 in 2005. Rumsfeld said that military personnel filling those positions are to be returned to the operational force.

Rumsfeld also touted the department's plan to rebalance the active and reserve forces to move "skills that are now found almost exclusively in reserve components" into the active force. Other rebalancing measures both within and between active and reserve forces include shifting troops from low-demand jobs, such as heavy artillery, into high-demand jobs, such as security forces and SOF. The plan calls for some 40,000 troops to be shifted in 2004 and 2005.

Rumsfeld noted that the Army is divesting itself of some missions because they can be better performed by the other services. For example, some air defense and artillery units will be disbanded because those capabilities can be covered by the Air Force.

The Navy actually plans to reduce its manpower by as many as 25,000 billets over the next five years. Adm. Vern Clarke, Chief of Naval Operations, told lawmakers that the Navy can do with fewer sailors because of new automated systems on ships and because the size of the fleet itself is diminishing. However, the Navy wants to use the savings generated to invest in new ships and new combat aircraft.

USAF photo by SrA. Priscilla Robinson

Army Rangers step off a C-17 at Aviano Air Base in Italy. USAF's long-running airlift shortfall should be reduced by the purchase of an additional 14 C-17 transports in Fiscal 2005.

Quality of Life

The new budget requests a 3.5 percent military pay raise and reduces out-of-pocket housing costs to zero. The military construction request of $5.3 billion and family housing of $4.2 billion keep DOD on track to eliminate unsatisfactory facilities and housing, said officials. The plan will eliminate 90 percent of inadequate family housing by 2007 and completely by 2009, said Rumsfeld. The facilities funding will reduce the recapitalization rate from 138 years in 2004 to 107 years in 2005, with a goal of achieving 67 years, the industry average, by 2008.

The new spending plan includes $17.6 billion for the defense health program and $10.3 billion for an accrual fund to manage the Medicare-eligible military retiree health program, known as Tricare for Life. About half of the TFL amount will fund future benefits for current active duty personnel. The 2005 health care figure also includes $400 million Congress directed last year for expanded Tricare benefits for reservists and their families.

Rumsfeld and other senior defense officials are already telegraphing changes coming for the 2006 budget. The Global Defense Posture Review could result in a complete restructuring of US overseas bases and a greater reliance on allies to carry some of the burden of show-of-force operations.

Moreover, early drafts of a new military strategy suggested that the Pentagon plans to be able to cover more territory without increasing the size of its forces. That could mean new investment in long-range aircraft and supporting tankers. ■

AIR & SPACE CONFERENCE and Technology Exposition

2004 September 13-15 Washington, DC

AIR FORCE ASSOCIATION

Join us at the first ever Air & Space Conference and Technology Exposition 2004, September 13-15, at the Marriott Wardman Park Hotel in Washington, D.C. Formerly known as the AFA National Convention, Air & Space Conference 2004 will be first and foremost a forum for professional development for today's 21st century Air and Space Expeditionary Force, members of industry, and representatives of international air forces. It will be a one-of-a-kind opportunity for attendees to dialogue on important national defense issues.

Air and space power issues will be featured at professional workshops, where leading academicians and professionals will discuss the latest developments in their areas of expertise. The Conference will also highlight aerospace excellence and outstanding achievement and recognize the Air Force's finest with national aerospace awards and programs. Additionally, AFA will provide each Conference attendee with a certificate documenting their participation.

See the latest in aerospace technology. The Aerospace Technology Exposition will include more than 100 exhibitors and offer new and exciting ways to explore today's cutting-edge technology.

Go to www.afa.org for updates on Air & Space Conference and Technology Exposition 2004.

REGISTER ON LINE AT WWW.AFA.ORG

Recent decades have brought some major changes in Air Force doctrine.

Basic Beliefs

by John T. Correll

THE Air Force has a reputation for not being very interested in doctrine, which is strange.

Billy Mitchell's epic campaign was about all doctrine—what airpower could do, how it should be employed—and his disciples carried on the cause with fervor until the Air Force became a separate service in 1947.

After that, however, airmen devoted their energies to developing and operating their new force. The Air Force did not publish its own basic doctrine until 1953. In the years that followed, doctrine was often regarded as a thing apart from everyday operations.

Even so, there was a long-running fight between factions of the force about who would write the doctrine and what it would say. The evolution of it tells a great deal about Air Force thinking and priorities over the past 50 years.

In today's world of joint operations, airmen are regularly called upon to explain and combine their concepts with those of the other services. Air Force doctrine watchers believe this is leading to a greater interest in doctrine.

"As airmen, we have not properly understood or consistently applied our air and space doctrine," the Air Force Chief of Staff, Gen. John P. Jumper, said in his foreword to the current Air Force Basic Doctrine, published in November 2003. "As great operators we have preferred our ability to improvise over sound repeatable principles."

That is no longer good enough. "We must understand what it means to be

A KC-135 Stratotanker, once a "strategic" asset, leads a formation of F-15E, F-16, and British GR4 Tornados fighters, which were once considered tactical.

USAF photo by SSgt Suzanne M. Jenkins

USAF photo

In the 1950s, Strategic Air Command set the tone and dominated Air Force doctrine. Pictured is the alert crew of a SAC B-58 Hustler, scrambling to its waiting bomber at Carswell AFB, Tex.

an airman and be able to articulate what air and space power can bring to the joint fight," Jumper said.

The Air Force Doctrine Center publishes more than 30 doctrine documents, on topics ranging from space operations to combat search and rescue, but the capstone is Air Force Doctrine Document 1—basic doctrine—which sets forth the fundamental beliefs of the force about air and space power.

All Eyes on SAC

At first, Air University at Maxwell AFB, Ala., wrote doctrine for the Air Force. In 1958, the Air Staff at the Pentagon took over the job, not believing that Air University could keep up with "the rapid staff-action requirements of Air Staff officers reacting to policy dilemmas," according to Lt. Col. Johnny R. Jones, author of an extensive study on how Air Force doctrine has developed. For the next 30 years, doctrine was an Air Staff function.

Strategic Air Command was front and center in the first doctrine manual, published in 1953. It emphasized strategic nuclear operations to the exclusion of almost everything else. That reflected the priorities of the force at the time. "In Air Force slang," Jones said, "the service had been 'SACumsized.' "

The focus on SAC was so strong that the Korean War was ignored in the writing of doctrine. In 1955, Thomas K. Finletter, a former Secretary of the Air Force, said, "The Korean War was a special case, and airpower can learn little there about its future role in United States foreign policy in the East."

The 1959 version of basic doctrine—the first published after the Air Staff takeover—said that "the best preparation for limited war is proper preparation for general war."

Political leaders put their stamp on doctrine, too. Eugene M. Zuckert, Secretary of the Air Force in the early 1960s, said that doctrine "should be designed to support policy and strategy" rather than being "based upon the absolute capabilities and limitations of aerospace forces."

When the Vietnam War came along, Air Force doctrine also treated it as another off-line event.

"As with the Korean War before, the Vietnam War now offered a vast experience bed for analysis," Jones said. "Air Force doctrine writers largely ignored the lessons of Vietnam, choosing instead to remain with the now familiar issues of nuclear deterrence."

After Vietnam, airmen became unsure of their beliefs and "wandered in a doctrinal wilderness" for the next two decades, said Dennis M. Drew, now associate dean of the School of Advanced Air and Space Studies.

The AirLand Interlude

Lt. Col. Phillip S. Meilinger, who would soon emerge as a leading analyst of air and space power, reached similar conclusions in an *Airpower Journal* article in 1992.

"When the crisis of Vietnam struck, a divided Air Force had no intellectual foundations to fall back on, so it stumbled towards Army doctrines that eventually culminated in Air-Land Battle and deep operations that viewed airpower in a supporting—not complementary—role. Air leaders allowed their limited experience to become their even more limited theory," Meilinger said. "As a result, we now have airmen who believe that the primary mission of the Air Force is to support the land battle."

The relationship had supposedly been settled long ago. It was a red letter day in Air Force history, July 21, 1943, when Army Field Manual 100-20 acknowledged that "land power and airpower are co-equal and interdependent forces; neither is an auxiliary of the other."

With doctrinal concentration fixed on SAC, though, the role of airpower in conventional warfare had come into question.

The Air Force's 1984 basic doctrine manual said, "The basic objective of land forces is to win the land battle," and "the basic objective of aerospace forces is to win the aerospace battle." It could be—and was—interpreted to mean the Air Force's job was to maintain air superiority and support Army forces on the ground.

The Army's new doctrine in the 1980s was AirLand Battle, in which the Army sought to win the land battle with the help of the Air Force. It included deep strikes against the enemy's rear echelons.

The catch was that the Army always led, was always the supported force. There was no provision for the Air Force to lead or be the supported force. Many Air Force people believed that AirLand Battle was Air Force doctrine as well.

As the Gulf War and other conflicts of the 1990s were to demonstrate, the AirLand Battle idea had underestimated enormously what airpower, used as the leading force, could achieve against ground forces.

Even earlier, though, change had begun to bubble up in Air Force doctrine. The 1992 version of basic doctrine, finished before the Gulf War but not published until afterward, addressed various levels and

kinds of wars, took a broader view of Air Force roles and functions, and made a stronger case for what aerospace forces could achieve.

The experience of the 1990s, from the Gulf to Kosovo, validated the bolder view of air and space power and the idea that the air component might be a supported rather than supporting element of the joint force in ground attack.

"The main objectives of counterland operations are to dominate the surface environment and prevent the opponent from doing the same," the 2003 doctrine said. "Although historically associated with support to friendly surface forces, counterland operations may encompass the identical missions, either without the presence of friendly surface forces or with only small numbers of surface forces providing target cueing."

Back to Maxwell

The 1980s also saw a successful challenge to the Air Staff's 30-year control of doctrine. The opening wedge was the creation—despite Air Staff objections—of the Center for Aerospace Doctrine, Research, and Education (CADRE) at Air University. Its charter was to conduct studies and analysis, and "to assist in the development, analysis, and testing of concepts, doctrine, and strategy."

In August 1985, the Air Staff finished the draft of a new basic doctrine manual, intended to supersede the version put out in 1984. This time, however, there was stiff criticism from CADRE, which said the draft was "narrowly focus[ed] on fighting a large-scale theater war against a modern, industrialized enemy" and that "our doctrine should address not only the most demanding war but also the most likely wars."

Revised drafts stalled out in the review process, and, in 1988, CADRE got approval to prepare a competing draft for consideration. The CADRE product gained support in reviews by Air Force agencies, and the Air Staff's revision effort was canceled in 1989.

Credits in the 1992 basic doctrine were mixed. CADRE was listed as having prepared and edited the manual, but Air Staff Plans and Operations was shown as the office of primary responsibility and as the approval authority.

In 1997, the new Air Force Doctrine Center, reporting directly to the Chief of Staff and co-located with Air University at Maxwell, took charge. The revision to basic doctrine published in 1997 listed the Doctrine Center as the office of primary responsibility. The Air Staff did not show in the credits.

The 12th Edition

The Air Force Doctrine Document 1—AFDD 1—that came out in November 2003 was the 12th version of basic doctrine in the series that began in 1953.

Doctrine documents are traditionally dry, sometimes painfully dull. This one is not. It is well-written and is interesting to read. At 127 pages, it is also longer than any of its predecessors. (The shortest, in 1955, was only 10 pages.)

AFDD 1 avoids parochialism, both about services and systems. "Doctrine is about effects ... not platforms," it says. "This focuses on the desired outcome of a particular action, not on the system or weapon itself that provides the effect."

"Doctrine is about using mediums ... not owning mediums. This illustrates the importance of properly using a medium to obtain the best warfighting effects, not of carving up the battlespace based on service or functional parochialism."

"Ultimately, doctrine is not about whether one particular element is more decisive than another, nor about positing that element as the centerpiece of joint operations; it's the total, tailored joint force that's decisive."

AFDD1 also says a lot of things that Billy Mitchell would no doubt like, were he still with us.

■ "Early airpower advocates argued that airpower could be decisive and could achieve strategic effects," it says. "While this view of airpower was not proved during their lifetimes, the more recent history of air and space power application, especially since the 1991 Persian Gulf War, has proven that air and space power can be a dominant and frequently the decisive element of combat in modern warfare. Air and space power is a maneuver element in its own right, co-equal with land and maritime power; as such, it is no longer merely a supporting force to surface combat. As a maneuver element, it can be supported by surface forces in attaining its assigned objectives. Air and space power has changed the way wars are fought and the manner in which the United States pursues peacetime efforts to protect the nation's vital interests."

■ "The 'American way of war' has long been described as warfare based on either a strategy of annihilation or of attrition and focused on engaging the enemy in close combat to achieve a decisive battle. Air and space power, if properly focused, offers our national leadership alternatives to the annihilation and attrition options."

■ "The prompt, continued, aggressive application of air and space power in the opening phase may ac-

USAF photo

During the Vietnam War, doctrine often defined the Air Force's role as being support of ground forces. Here, a flight of F-4C Phantoms under radar control of an EB-66 electronic warfare airplane bomb North Vietnamese targets.

tually constitute the conflict's decisive phase. Thus, this first phase need not be a precursor to a buildup of ground forces and conventional counterattack."

■ "Air and space power's exceptional speed and range allow its forces to visit and revisit wide ranges of targets nearly at will. Air and space power does not have to occupy terrain or remain constantly in proximity to areas of operation to bring force upon targets. Space forces in particular hold the ultimate high ground, and as space systems advance and proliferate, they offer the potential for 'permanent presence' over any part of the globe; unmanned aerial vehicles (UAVs) are offering similar possibilities from the atmosphere."

Strategic attack is still listed first among the operational functions of the force. However, the Cold War emphasis on global war is gone, and AFDD 1 applies equally to conflicts at all levels.

"As a concept, strategic attack builds on the idea that it is possible to directly affect an adversary's sources of strength and will to fight without first having to engage and defeat their ground forces," AFDD 1 says. "While strategic attack may not totally eliminate the need to directly engage the adversary's fielded military forces, it can shape those engagements so they will be fought at the time and place of our choosing under conditions more likely to lead to decisive outcomes with the least risk for friendly forces."

USAF photo

By the time of the 1991 Gulf War, doctrine experts were beginning to argue that airpower could be supported by land power. The lines between strategic and tactical aircraft and missions began to blur.

It reminds us, however, that "strategic attack is not an argument for replacing ground combat with airpower; the ground battle will still often be necessary. Strategic attack simply offers [joint force commanders] another option, a flexible one, that can go to the heart of an enemy and attain a variety of effects directly at the strategic level."

Curiously, there is no mention in the new AFDD of "centers of gravity"—the assets of greatest strategic importance to the enemy—which was a leading operational concept and a staple of doctrine through the 1990s. Nor is there direct discussion of targeting the enemy's infrastructure, other than that which "contributes directly" to the ground battle.

Evolving From Napoleon

As has been traditional with basic doctrine, AFDD 1 cites and builds upon the classic principles of war. These are the same nine principles—unity of command, objective, offensive, mass, maneuver, economy of force, security, surprise, and simplicity—espoused 200 years ago by Napoleon, with one exception. In 1997, the Air Force moved unity of command to the top of the list, ahead of objective.

According to the Doctrine Center, this reflects a belief that unity of command is pivotal to Air Force concepts of organization and command and control.

"Unity of command is vital in employing air and space forces," AFDD 1 says. "Centralized command and control is essential. ... The ability of airpower to range on a theater and global scale imposes theater and global responsibilities that can be discharged only through the integrating function of centralized control under an airman. That is the essence of unity of command and air and space power."

AFDD 1 also comes down hard on the principle of the offensive. The old rule of thumb, devised by Army

USAF photo by SSgt. Jocelyn Rich

Strategic, or tactical? The B-52, formerly a strategic nuclear weapon, has now been used for close air support missions. This BUFF is loaded with 2,000-pound satellite guided bombs.

theorists, said the defense in warfare had an advantage of at least 3-to-1, and that the advantage rose to 5-to-1 when defending prepared positions. Such ratios do not apply to air and space forces.

"History has generally shown that a well-planned and executed air attack is extremely difficult to stop," AFDD 1 says. "The speed and range of attacking air and space forces give them a significant offensive advantage over surface forces and even *defending* air and space forces. In an air attack, the defender often requires more forces to defend a given geospatial area than the attacker requires to strike a set of specific targets."

On the principle of mass, AFDD 1 says that "mass is an effect that air and space forces achieve through effectiveness of attack, not just overwhelming numbers. Today's air and space forces have altered the concept of massed forces. The speed, range, and flexibility of air and space forces—complemented by the accuracy and lethality of precision weapons and advances in information technologies—allow them to achieve mass faster than surface forces."

As for maneuver, "Air maneuver allows engagement anywhere, from any direction, at any time, forcing the adversary to be on guard everywhere."

Air and Space

In a significant change, AFDD 1 reverses a doctrinal position the Air Force had held for more than 40 years and drops the term "aerospace" in favor of "air and space."

This aligns with the view of Chief of Staff Jumper, that "aerospace" terminology—which the Air Force expounded with vigor in the 1990s—"fails to give the proper respect to the culture and to the physical differences that abide between the physical environment of air and the physical environment of space."

"Aerospace" had been in use since 1959, when basic doctrine switched from "airpower" to "aerospace power" and defined aerospace as the "total expanse beyond the Earth's surface."

This view had been confirmed in doctrine as recently as February 2000 in AFDD 2, "Organization and Employment of Aerospace Power," which said that "Air Force doctrine recognizes the institutional shift within the US Air Force from 'air' to 'aerospace.' "

USAF photo by A1C Nick Martin

A B-2 stealth bomber, first developed to penetrate Soviet air defenses and deliver nuclear bombs, is forward deployed to Andersen AFB, Guam. Today, the B-2s armed with conventional weapons are key to USAF's force projection.

However, AFDD 1 declares in the first chapter, "Air and space are *separate domains* requiring the exploitation of different sets of physical laws to operate in, but are *linked by the effects* they can produce together. By using the phrase 'air and space' instead of 'aerospace' we acknowledge the inherent differences in the two media and the associated technical and policy-related realities without deviating from our vision. To achieve a common purpose, 'air' and 'space' need to be integrated." (Emphasis in the original.)

Doctrine, Concepts, and Vision

The Doctrine Center is keenly aware of the dangers of rigidity and has built its process to be responsive to change. Two years after publication, every doctrine publication comes up for review and evaluation.

AFDD 1 says that "doctrine must be continually interpreted in light of the present situation. A too-literal reading of doctrine may fail to accommodate new operational realities."

Doctrine should be seen as part of a continuum that begins with vision statements, which focus on concepts and desired operational capabilities, 15 years or more into the future. "As an example," AFDD 1 says, "in the mid-1990s, the Air Force stated a vision to attain the ability to find, fix, target, track, and engage anything that moves on the Earth's surface."

Next on the continuum are operating concepts, which look out five to 15 years ahead. The Airborne Laser, designed to destroy enemy ballistic missiles shortly after launch, was such an operating concept.

At the end of the continuum is doctrine, which "is focused on near-term operational issues and talks to the proper employment of current capabilities and current organizations."

AFDD 1 says that "any given doctrinal position reflects a snapshot in time. Doctrine can and should evolve based on experience. In circumstances when the Air Force cannot find a unanimous doctrinal consensus, it may settle on an 'agreed-to, least-common-denominator' position that all players are willing to sign up to."

"Certain principles—like unity of command, objective, and offensive—have stood the test of time," AFDD 1 says. "Other ideas—like unescorted daytime bombing, decentralized command, and the preeminence of nuclear weapons—have not. If we ignore the potential of space and information operations and the global and strategic natures of air and space power, we may commit the same sins as our forebears." ■

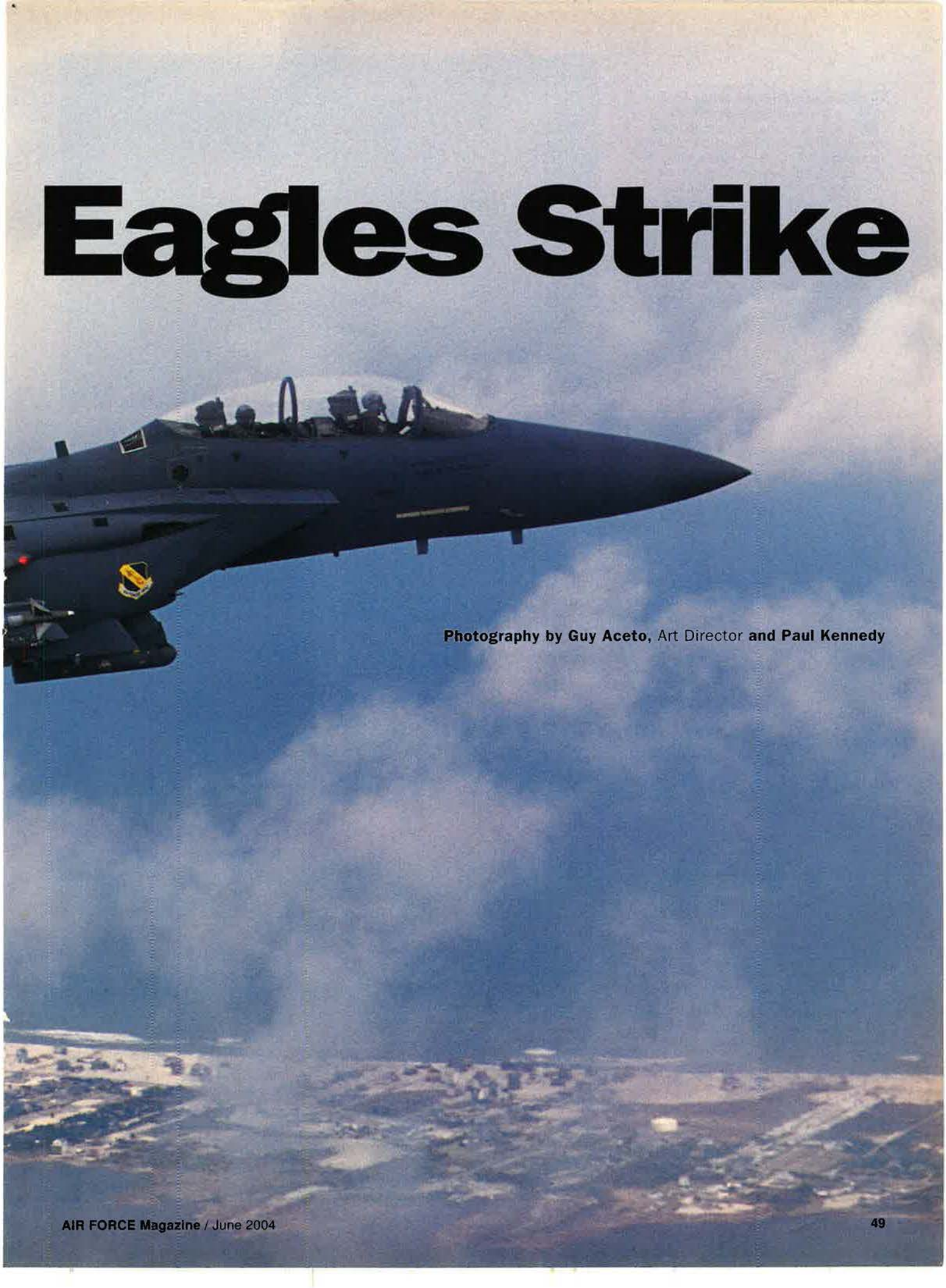
John T. Correll was editor in chief of Air Force magazine for 18 years and is now a contributing editor. His most recent article, "Revisionism Gone Wrong," appeared in the April 2004 issue.

The power and precision of USAF's F-15E Strike Eagles starts with the Fourth Fighter Wing.

When

The Outer Banks of North Carolina blur beneath an F-15E of the 335th Fighter Squadron as it heads out over the Atlantic on a training sortie.

Eagles Strike



Photography by Guy Aceto, Art Director **and Paul Kennedy**

The 4th Fighter Wing *originated with three "Eagle Squadrons"—American volunteers who flew in Britain's Royal Air Force before US entry into World War II. They were among the first to face the German Luftwaffe and numbered some of the first American aces in that war. They also destroyed more enemy aircraft than any other American unit. Since they led the way, the wing's motto, "Fourth but First," seemed a natural.*

Based at Seymour Johnson AFB, N.C., the unit was also first to fly the F-15E Strike Eagle operationally and the first to take it to war in Desert Storm in 1991.

Staff photos by Guy Aceto

Photo by Paul Kennedy

The 4th FW today has nearly 90 fighters in four squadrons: the 333rd, 334th, 335th, and 336th. It is one of the largest fighter wings in the Air Force. Above, a returning Strike Eagle taxis past a long row of F-15Es.

Left and below, last-minute checks are performed before takeoff on an afternoon mission.

In addition to supporting operational missions, Seymour Johnson hosts the F-15E "schoolhouse," where Strike Eagle crews learn their trade. The 4th Training Squadron handles the academics, while the 333rd and 334th provide the flying training. Every F-15E crew starts here before being assigned to one of six Strike Eagle squadrons in USAF.

At right, a pair of F-15Es prepare to light the burners for takeoff while two more move into position on a busy day of flying.

Staff photos by Guy Aceto

An F-15E pulls a hard right turn, showing off its capacity to carry a wide array of stores. Just behind the air intakes are the two LANTIRN (Low Altitude Navigation and Targeting Infrared for Night) pods.

Frequent deployments and constant training keep the Strike Eagle crews sharp. Their mission—long-range, precision attack—is in high demand.

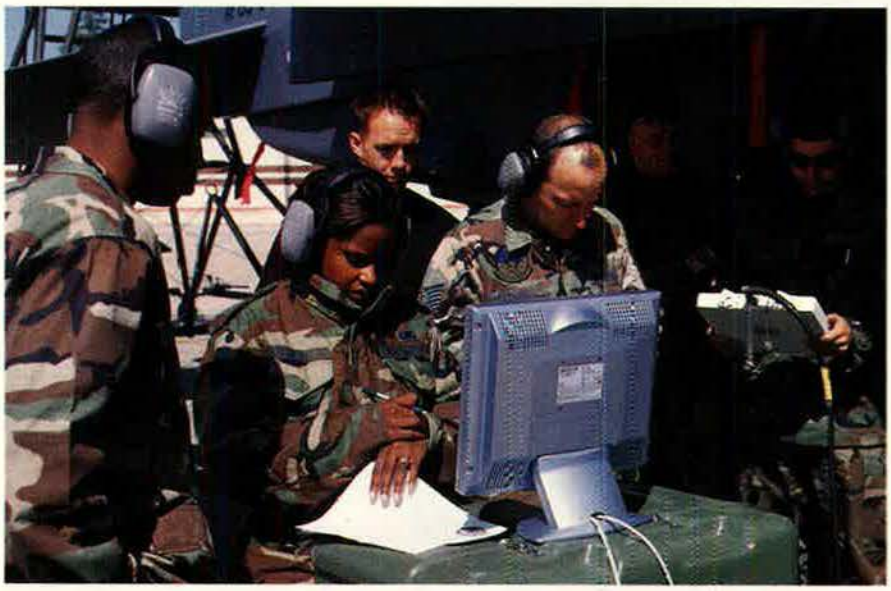
The targeting and navigation system, together with a data link that brings up-to-the-minute target data right into the cockpit, ensure the Strike Eagle can hit the objective precisely, in any weather.

Although optimized for ground attack, the F-15E retains all the dogfighting power of the F-15C from which it was derived.

The F-15E is a formidable combination of heavy weapons load and precision, provided by LANTIRN and a terrain-mapping radar. Wing technicians test LANTIRN pods on exactly the same equipment they use when deployed.

At right, SSgt. Steven Bowden (left) and SrA. Kari Allen work with a wide array of test gear to check and recheck the systems that bring steel precisely down on target. LANTIRN has been improved since its introduction, and, now, next generation pods like the Litening system provide even more precise target information.

Photos by Paul Kennedy



Today's fighters don't just drop munitions, they also feed them crucial data en route to the target. At left, maintenance crews monitor software that allows the Strike Eagle to "talk" to its weapons.

The addition of the Joint Direct Attack Munition to the Strike Eagle's repertoire has expanded its capability and versatility. Data links allowing ground units to pass targeting information right to the cockpit have greatly enhanced the ability of the Strike Eagle to perform close air support.

If things go wrong, the pilot needs to be able to count on the aircraft's escape systems. These technicians, here updating an ACES II ejection seat, work to make sure that these last-chance systems work as advertised. With a shooting war on, motivation is high.

Staff photos by Guy Aceto

Photos by Paul Kennedy

Periodic teardown inspections give maintainers good insight into the health of their aircraft. These technicians go the extra mile to make sure everything is perfect. Nearly 90 airplanes operate from the base, so this shop is tightly scheduled and work continues 24 hours a day.

The F-15's basic design is more than 35 years old, but F-15Es are newer. More are still being produced for the export market.

At left, A1C Shawn Krath is up to his neck in afterburner maintenance, helped by SrA Chris Reams.

Photo by Paul Kennedy

The 4th Fighter Wing stores its external fuel tanks in a novel system that looks like racks at a dry cleaner. One of these systems can hold 100 fuel tanks, any one of which can be called up after draining and checks. In combat, the unit uses disposable tanks, assembled in-theater, that can be jettisoned if a Strike Eagle needs to make a quick getaway.

Staff photo by Guy Aceto

Above, A1C Catherine Powers adjusts the fuze on a bomb while SSgt. David E. Vancamp instructs. Powers and the rest of the load crew undergo quarterly training on every weapon the F-15E can carry. The 5,000-pound, laser guided GBU-28 "bunker buster" is carried exclusively by the F-15E.

At right, A1C Edmund Nourrie positions a 2,000-pound bomb on the F-15E. He drives a special bomb loading vehicle nicknamed the "Jammer." In the foreground is a 500-pound bomb. Once loaded, the bombs receive their laser seekers, turning them into laser guided bombs (LGBs). The 500-pound LGBs were a preferred weapon in Iraq because of their precision and limited blast radius. Both of these weapons are inert training rounds, a fact indicated by the blue bands around their necks.

Staff photo by Guy Aceto

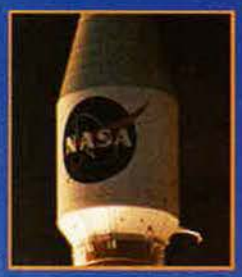
The 4th FW flew missions over Afghanistan from Al Jaber AB, Kuwait, setting records for some of the longest fighter missions in history. By the end of Operation Enduring Freedom, crews of the 335th Fighter Squadron had garnered four Silver Stars and seven Distinguished Flying Crosses.

The 335th was replaced at Al Jaber by the 336th, which went to war in Iraq. The 335th was later summoned to join its sister squadron in Operation Iraqi Freedom. Despite losing an aircraft and being shorthanded, the 4th Fighter Wing never lowered the pace of its operations.

In one 11-day sortie surge during OIF, F-15Es from the 4th Fighter Wing carried 3.4 million pounds of munitions.

Photo by Paul Kennedy

At top, an F-15E crew trains hard in the military operating area off the Carolina coast. Above, a 335th pilot performs his walkaround and gives the thumbs up at left. The F-15E is a powerful machine that provides unsurpassed capability to the Air Force, but the 4th Fighter Wing has it under control.



Your mission is our mission.

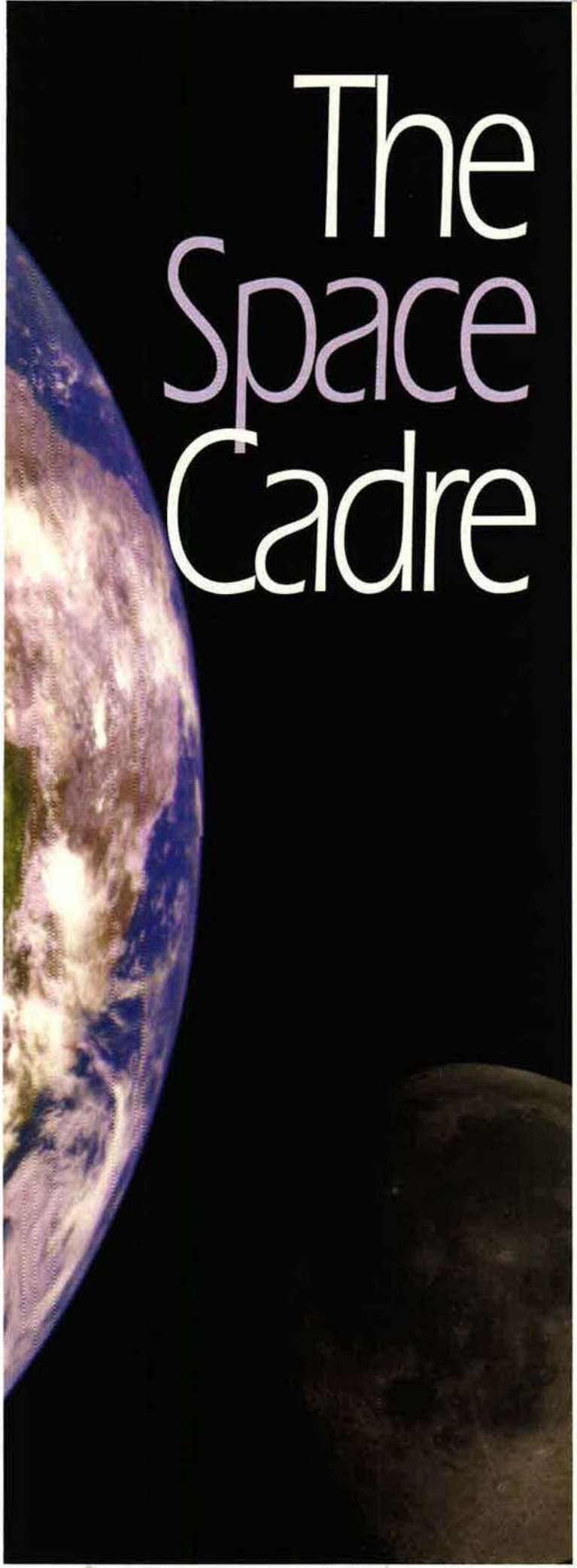
Flexibility. Reliabi ity. Performance. For over 40 years the Atlas launch vehicle system has been providing exceptional rides to orbit, building a solid history of ove 580 flights and an unparalleled reliability record of 100% for the Atlas II, III and V series. Born out of a unique partnership, the Atlas V Evolved Expendable Launch Vehicles build on the capabilities and performance that have made the Atlas rockets the premier rides to space. And with an unparalleled breadth of lift capabilities, the Atlas V family is uniquely capable of launching all present and future orbital requirements. Atlas. Your assured access to space.

www.ilslaunch.com

LOCKHEED MARTIN

ILS

International Launch Services



The Space Cadre

The Air Force's goal is a "space-oriented culture of professionals" who will advance US power.

By Peter Grier

DECADES ago, Generals Billy Mitchell, Henry H. "Hap" Arnold, Curtis LeMay, and others did it for air operations. Now today's Air Force leaders are doing it for space.

"It" is the building of a cadre of military professionals to ensure long-term US domination of an entire medium.

USAF launched its "space cadre" effort three years ago, spurred on by the blue-ribbon Commission to Assess United States National Security Space Management and Organization. That panel, chaired by Donald H. Rumsfeld before he became Secretary of Defense, was highly critical of certain US space practices, including its handling of military space personnel.

USAF is putting the finishing touches on its Space Professional Strategy, according to top officers. The service has identified thousands of airmen who have the skills to be part of a space cadre.

It has almost completed a set of academic courses. The enterprise also has been linked with other USAF force development efforts.

On a scale of one to 10, with 10 being complete, cadre development stands at 8.75, reports Gen. Lance W. Lord, commander of Air Force Space Command, Peterson AFB, Colo., who added, "We've done, I think, a great job of getting started."

The goal is to establish a group that can spearhead advancement in the state of US space power and dramatically transform military and intelligence operations, say Air Force leaders.

Increased US military dependence on space systems may mean that reaching this goal is more important than ever.

"More and more, I believe our warfighting operations are dependent on our ability to collect information from space and to network our forces using space assets," said Undersecretary of the Air Force Peter B. Teets, the Pentagon's point man for all things regarding military space.

Excellence has characterized the Air Force space program since its start in the 1950s. Development and operation of USAF's highly sophisticated missiles, rocket boosters, and satellites would not have been possible without scientific and technical expertise of the highest order.

Nothing Is Assured

However, said the space commission report, it would be a gigantic mistake to take such excellence for granted. It can only be maintained by means of intense American investment in career development, education, and training, the commission warned.

At the time the panel issued its report in January 2001, commissioners did not like what they were seeing. "The Department of Defense is not yet on course to develop the space cadre the nation needs," the report concluded.

The panel wanted to give the Air Force "a clear opportunity to create a space-oriented culture" composed of "military professionals who could directly influence the development of systems and doctrine for use in space operations."

The nation's "vital interests" depend on such a cadre, the commissioners said. They added that the pace of technological change is so great that there must be a core group able to make "a concentrated effort" to protect the US space and information infrastructure. "Such efforts are not being pursued with the vision and attention needed," the panelists said.

The report itemized numerous deficiencies. Ever since, USAF has been struggling to fix them.

Pilots, nuclear submariners, and others in specialized military fields typically spend about 90 percent of their careers within their specified field. In 2001, however, less than 20 percent of all of the flag officers serving in key operational space leadership positions had come from career space backgrounds, said the commission.

In the past, the commissioners said, US military space forces had relied too heavily on officers trained for space only after they had moved into their space jobs. That approach does not work well in an era in which space missions are becoming more important to military success and space systems are becoming ever more complicated.

"Perhaps more than other areas," said the panel's report, "space benefits from a unique and close relationship among research, development, acquisition, and operations, as spacecraft are usually procured in far fewer numbers—sometimes as few as one or two—than are tanks, airplanes, or missiles."

Like Rickover

The panel suggested USAF adopt the kind of intensive, career-long technical education designed for, and imposed on, the nuclear Navy by the legendary Adm. Hyman G. Rickover.

Indeed, space education should continue its rise to prominence in all the services' professional military education institutions, said commissioners.

"Commanders would be better able to exploit the full range of combat capability at their disposal if they were educated from the beginning of their careers in the application of space systems," said the report.

Air Force Space Command has been working to develop space-oriented professionals for years, noted Lord. Prior to the Space Commission report, he said, Space Command had experts leading many of its activities.

However, he added, "I think if you took a look across the whole spectrum of space, it's fair to say that we needed to do a better job."

Since 2001, therefore, the development of the space cadre has topped the list of priorities for the leaders of Air Force Space Command and for Teets, whose position is designated civilian head of national security space programs.

The Air Force Space Professional Strategy was officially promulgated last spring. Funding for space professional development is pegged at almost $10 million for Fiscal 2004. Plans call for that figure to rise to $22 million by 2009.

The first goal of the strategy was an obvious one: Identify the space cadre's prospective members.

According to Lord, Space Command by July 1 will have identified about 7,000 suitable personnel.

"If you look at all the folks [we'll] deal with in the space business, we've put our arms around that," said Lord.

Furthermore, Space Command has listed a series of qualities and capabilities that members of the space cadre should possess. It is currently evaluating every likely member to see how many possess these skills, with an eye toward the measurement of career development.

The point, said Lord, is to get away from billet management and get into an inventory management model.

Lord said Space Command needs to be able "to track [cadre] members by who they are personally, plus what their attributes are in terms of where they've been, what their assignments were, what kind of focus they've had in the business—whether they're missile warning specialists, or launch specialists, or what kind of training they've had."

Three Courses

The second goal is to improve space career development. To that end, Space Command and Air Education and Training Command are putting together a series of courses:

- Space 100. This comprises the basics. The current schedule calls for it to be available online in October.
- Space 200. This more-advanced course will be geared to personnel nearing the 10-year mark of their careers. Space 200 has already been prototyped and validated and is being taught in Colorado Springs, Colo., by Space Warfare Center personnel. "[Space 200] is a look at ... how it [space] supports the operational level of war," said Lord.

Example: In one recent Space 200 classroom, students were separated into groups, each assigned a task: develop requirements for a satellite to carry out a particular function in support of a deployed joint force commander. First they had to determine an ideal capability. Then they had to do trade-offs, determining what capabilities they could get with the budget they had. The notional satellite was then matched with a

booster and moved into production. "So it was kind of an exercise in understanding the acquisition process as well as what it took to meet the operational needs," said Lord.

● Space 300. This top-level space course still is being developed. It is designed to fit into the latter stage of a cadre member's career. It will teach space doctrine at the strategic level—the importance of space superiority, generation of combat effects through space, etc.

Among those eligible for this education, and for cadre membership generally, will be engineers, scientists, program managers, officer and enlisted space professionals, and even those who enter and leave the space career field, such as intelligence and communications specialists.

"What we're trying to do is to institute a stronger, technically oriented, fully capable cadre of people," said Lord. "We're looking at the three levels of war—strategic, operational, and tactical—and approaching it in a force development sense so that we can build our people."

Within Space Command, the space cadre management office reports to the vice commander, Lt. Gen. Daniel P. Leaf. By the end of this year, cadre development should be well-positioned, with all courses up and available.

There's already a periodic newsletter, *Vigilant Vector,* through which Space Command leaders communicate with cadre members. This summer AFSPC should publish the first issue of a space professional journal.

Within the year, AFSPC should have in place a space cadre certification process so that members can understand their place in the structure. This may include special badges or other identifiers.

"I would like to go to a totally new, highly visible way to recognize the members of the cadre," said Lord.

Of course the space cadre is both an Air Force and a Department of Defense-wide endeavor. As the designated Pentagon executive agent for space, Teets exercises oversight of Space Command and outreach to other services and civilian agencies.

Depth and Breadth

The Defense Department wants, as its ultimate goal, an established group of "space professionals" who have "the depth and breadth of training and experience required to advance the use of space power and to transform military and intelligence operations," said Teets.

Depth and breadth are an important part of this definition, Teets noted. AFSPC is far from the only organization that carries out complex space activities.

The National Reconnaissance Office, which Teets oversees, carries out space research and development, acquisition, and some operations—all in one organizational unit. The Navy's space activities almost all involve operations, but even the Navy has ongoing space research and development activities. The Army has extensive space operational interests.

"My activity tries to synchronize those efforts in a way that we provide a Total Force that is capable of joint warfighting and using the terrific advantages we gain from our space efforts," said Teets.

Teets wants to make sure service graduate education efforts fit together. In particular he's leading an effort to look at the space curricula of the Air Force Institute of Technology at Wright-Patterson AFB, Ohio, and the Naval Postgraduate School in Monterey, Calif.

"We're starting to establish ... strong professional graduate education curriculum[s] at both schools that complement each other, and I think will start to really pay big dividends downstream," said Teets.

AFIT is science oriented. It is strong in such technical specialties as flight control analysis, space sciences, and so forth. The Naval Postgraduate School is more oriented toward the systems level of analysis.

Teets and a joint space oversight board are trying to make use of the two schools' capabilities so that students interested in a space career can choose either a space science track or a space systems track, whatever their branch of service.

"What we're trying to do is get some mix and match so that we get graduates of AFIT that are going to enjoy Navy careers in Navy space, and get graduates of the Naval Postgraduate School that will be part of our Air Force," said Teets.

Faster Pace

In general the Defense Department has a strong need to make rapid progress in space cadre implementation, according to Teets. While the pace may have been frustrating in the past, it has accelerated in recent years. DOD has begun to implement the DOD Space Human Capital Resources Strategy.

"In a matter of a few more years," said Teets, "we will have a thorough, professional, well-established space cadre across DOD." It could number, by 2005, a total of 10,000 Air Force, Navy, Army, Marine Corps, and defense agency personnel.

The space cadre may not have to be large to improve US military capabilities. Neither space acquisition nor space operations are labor-intensive businesses.

"I think the number of people in the Air Force as well as the Navy and the Army [space] cadres is about right," said Teets.

The importance of space to military operations is certainly growing. According to Teets, new systems such as the space based radar will only accelerate that change.

In the future, US forces will continue to operate in remote places where space-based communications provide the only networking capability and where space reconnaissance can provide the best intelligence-gathering tool.

Adversaries increasingly recognize the advantages the US military gains from owning the high ground. That being the case, the Pentagon will have to be most diligent in its efforts to ensure space freedom of operation. That is likely to mean development of both defensive and offensive counterspace capability.

"As space becomes a bigger and more important part of our joint warfighting and our intelligence collection capability, I would see space people taking a stronger leadership role within our Air Force," said Teets. ■

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

USMC photo by LCPL Christopher H. Fitzgerald

In Gulf War II, Air Force and Marine airmen devised an informal pact that paid big dividends.

MARINE AIR

In Operation Iraqi Freedom, Marine Corps aviation was integrated into a joint force as never before. Take, for example, the concept of urban close air support. Gen. T. Michael Moseley—the air boss of the war—credited it to "a Marine major" working in his air operations center.

Marines took an active role in joint force air component planning, committing all Marine Corps aircraft to fulfilling the daily air tasking order.

The Marines also won praise for controlling air support to the 1st Marine Expeditionary Force (I MEF) area east of the Euphrates River in Iraq.

This result was not foreordained.

In Marine Corps doctrine, the Marine air-ground task force (MAGTF) reigns supreme. Any expeditionary outfit—whether a small Marine expeditionary unit (MEU) or huge Marine expeditionary force (MEF)—can be a MAGTF. Whatever the unit's size, it will always have command, aviation combat, ground combat, and combat service support elements.

The MAGTF concept governs aviation organization, equipment, and training. The whole point is to send the MAGTF into battle as a coherent whole, with aviation bound to it.

Marine aviation has six canonical roles, ranging from offensive air support to reconnaissance. Still, Marine aviators think the main task is to support Marines on the ground.

Roles and Missions Fight

History shows that Marine aviators have done many things as part of a joint force, as was true in World War II (see box). However, Marine aviation survived the fierce roles and missions battles of the late 1940s by emphasizing close air support (CAS) for Marines.

Marine aviator and historian Fred Allison described the postwar moves in this way: "For the Marine Corps to say it needed airpower to support its infantry was a risky argument, especially when one considered that, in many cases in World War II, the Marines made do with 'generic' air support. But it [the argument] worked, and the Marine Corps was allowed to keep its aviation."

IN THE MAINSTREAM

By Rebecca Grant

Two Marine Corps AV-8B Harriers pass each other on the flight lines at Al Jaber AB, Kuwait, during Operation Iraqi Freedom. During OIF, Marine airpower was integrated into the joint air campaign as never before.

In Korea and Vietnam, Marine aviation made contributions under joint command but tended to focus on needs of Marine ground forces. Later, Cold War strategies of the 1970s and 1980s favored independent operational concepts for naval forces. The formal adoption in 1983 of the MAGTF concept reconfirmed the requirement for organic Marine aviation.

It is true, though, that a 1986 agreement left room for a joint force commander to employ all US assets—including Marine aviation assets—as he saw fit.

Planning for Desert Storm in 1991 put the MAGTF concept to the test. US air assets were to be organized under the control of a joint force air component commander (JFACC)—in that particular case, USAF Lt. Gen. Charles A. Horner.

The Marines, however, preferred independence for their air arm.

"Warplanes were an integral part of Marine Corps combat power, no different from artillery and tanks," explained Michael R. Gordon and Bernard E. Trainor in their book, *The Generals' War*. As they told it, Marine leaders worried that the JFACC setup would lead to "a drain on their resources."

That view was particularly strong when it came to strategic air attacks and other attempts at battlefield shaping. One Marine colonel cited by Gordon and Trainor argued that Marine aircraft should not drop any bombs in Iraq before Marine ground forces started their attack.

In a compromise, the Corps agreed to put under JFACC authority all its A-6 medium-attack aircraft and EA-6B electronic warfare aircraft plus half of its F/A-18 fighters. However, the Corps kept control of all AV-8B Harriers and half of the F/A-18s to schedule and direct as they chose.

It was an extraordinary deal, and it was not an entirely successful one. As the war approached, it was apparent to JFACC's officers that the Marines on their own had not hit Iraqi forces hard enough. Horner, in a book he authored with Tom Clancy, noted that he "shifted air over the eastern sector" to help them out.

Despite the problems, the Desert Storm experience did not shake the Corps' faith in the MAGTF concept. Nor was that faith affected by the work of Marine airmen in joint operations of the 1990s—Bosnia, Kosovo, the no-fly zone enforcement over Iraq—even though Marine aviators flew as small detachments at forward Air Force bases or launched from aircraft carriers.

When the US went to war in Afghanistan in 2001, no MAGTF was even in the theater; one arrived relatively late in the campaign. At the peak phase of Operation Enduring Freedom, Marine pilots did most of their flying from Navy carrier decks.

Run-Up to War

In the run-up to the Iraq War of 2003, the Marines worked hard on urban CAS. They had substantial organic air assets in 3rd Marine Air Wing and firm ideas on how to employ them—joint campaign or not.

For example, a direct air support center (DASC), on its own, could run the air defense, airspace coordination, and air strikes for the 1st Marine Division. But imposing strict

MAGTF doctrine was not in the interest of the joint force. It would fence off Marine Corps air assets. For one, Moseley would not be able to use Marine air to strike targets near Baghdad early in the war. Worse, it could leave the Marines without full benefits of reconnaissance assets such as the U-2 and Global Hawk, and it would deprive the Marine sector of the added strike power of attacks delivered by other coalition aircraft.

In fall 2002, top Air Force and Marine Corps leaders met at NAS Miramar, Calif., for their annual warfighter talks. Moseley said he wanted to figure out a way to run 3rd MAW air operations for OIF "through the CAOC (combined air operations center) and then back out," and he wanted to make sure the Marines were comfortable with the arrangement.

At a special session, Moseley took Marine briefings. He declared that, while Billy Mitchell at St. Mihiel in 1918 was the first US combined force air component commander (CFACC), Marine Brig. Gen. Roy S. Geiger, commanding general of the Marine wing on Guadalcanal, was the second. "Geiger did it right on Guadalcanal because he was meshing ashore Navy squadrons, Army squadrons, and Marine squadrons," as Moseley put it.

Moseley recalled, "We spent three or four hours locked up in that room."

The result was an informal pact. All Marine aircraft would be placed on the ATO (although the CFACC would not have tactical control of organic Marine air assets). The Marine Corps aircraft might be tasked to work deep targets as team players in the air component, but there would be no intent to siphon off sorties.

Moseley remembered telling the group, "I am not worried about *you* giving *me* excess sorties. *I'm* going to give *you* excess sorties because, when they come through the CAOC and back out, you're going to get Global Hawk, you're going to get Rivet Joint, you're going to get JSTARS, you're going to get Predator, you're going to get everything that the air component can bring to bear on this problem."

Moseley wanted the MAGTF concept to work, but "I wanted it to work in the construct of a bigger air effort," he said.

Moseley asked the Corps leaders to assign a first-class Marine aviator to his CAOC staff as a liaison. He also asked for a senior Marine to become the CAOC's CAS expert in the A-3 operations division. "He was the CAS guy for the whole theater," Moseley said.

Getting a "Marine Injection"

The Marines readily accepted, according to Marine Maj. Rich Hilberer, an I MEF planner in the war. At every planning meeting, he said, "we had some Marines there, ... injecting our way of seeing the world and how we do business in the MAGTF and making sure that ... the final product ... supported MAGTF combined arms operations, and we feel it pretty much did."

The air component also backed up 3rd MAW with extensive Air Force base support in Kuwait.

Taking the time to plan, rehearse, and prepare paid off. So did development of personal relationships, from the generals on down. Parochial views gave way to dialogue.

Hilberer said: "I'll be very blunt. We don't normally get a terribly warm reception when we go talk to CFACC about Marine air command and control, but this CFACC staff was different. They were very positive."

In turn, the Marines brought to the table a sophisticated system for air command and control over a battle area, one which won high marks from other airmen.

Key to it all was the direct air support center or DASC. "Primarily what it does is coordinate [air] at the senior ground combat element level," said Hilberer.

In Iraq, the DASC had four unique traits.

- It controlled rotary and fixed-wing assets: attack helicopters like the AH-1 Cobra, fixed-wing aircraft such as AV-8B Harriers and F/A-18s, and medevacs and other utility aircraft operating with the division.
- It had organic Marine air assets preplanned for air support. In OIF those were the forces ashore in Kuwait or on amphibious ships in the Gulf.
- It was crewed by "DASC-keteers," Marines who worked as part of a dedicated DASC career path. The typical division-level DASC has a crew of 12 to 17 officers and enlisted troops to receive and process requests.
- It was attached to the 1st Marine Division—not to I MEF. This focused the DASC on the division-level fight, chiefly the area out to only 18.6 miles beyond the forward line of troops, or FLOT. "In our opinion, the division commander ... has a better understanding of what's going on in his immediate battlespace," explained Hilberer.

When OIF began on March 19, 2003, the time had come to put this new working relationship to the test.

The US Army's V Corps, on the left, was designated the main effort of the Combined Force's Land Component Command's drive. I

USAF photo by MSgt. Michael E. Best

Marines were active participants in OIF's combined air operations center at Prince Sultan AB, Saudi Arabia. Gen. T. Michael Moseley credited a Marine major with developing the coalition's urban close air support concept.

MEF, on the right, was the supporting effort. Plans called for both to converge on Baghdad then link up in the city. Troops in each sector faced opposition from regular Iraqi army units, irregulars in the cities, and Republican Guard divisions before Baghdad.

From the start, V Corps and I MEF used the air weapon in different ways, with V Corps making early moves to shape the deep fight with their own Apache helicopters and Army tactical missile systems. As a result, the fire support coordination line (FSCL) extended out far beyond the forward lines, putting a heavy burden on air support operations centers (ASOCs) to direct deep strikes on Iraqi military targets and meet numerous requests for air support along V Corps' line of advance from Kuwait to Karbala.

USMC photo by LCPL Christopher H. Fitzgerald

A pair of F/A-18D Hornets refuel at Al Jaber. During Gulf War I, half the Hornets and all the Harriers were withheld from joint planning and kept under Marine Air-Ground Task Force Control. By 2001, things had changed.

Traffic Jam

The result was a traffic jam of aircraft clogged up in CAS stacks. Frustration abounded. While the overall volume of strikes in the V Corps area was high, and increasing daily through March, it was taking too long to run air strike missions in that area. Some aircrews were turned back without dropping their bombs even as commanders worked to increase the pressure on the Republican Guards and other units.

The after-action report from V Corps' lead unit, the 3rd Infantry Division, spoke to the frustration on the ground. It recommended that the FSCL be placed closer in since "V Corps ... demonstrated their inability to manage said battlespace."

The writers of the 3rd Infantry Division's report declared, "CFACC is better prepared [than V Corps] to engage targets to effectively shape the battlefield."

For I MEF, the situation was very different. There was no temptation to run an oversize deep battle at corps level.

On its own, 1st Marine Division had "little capacity to run an organic deep fight," said Air Force Col. Gary L. Crowder, a CAOC expert who is now vice commander, 505th Command and Control Wing. What they did have, he said, was an efficient air control system to open the spigot for organic and coalition aircraft.

The Marines put in place a supplementary battlefield coordination line (BCL) to speed "expeditious attack of surface targets of opportunity" between the BCL and the more distant FSCL as Marine doctrine defined it.

A typical BCL extended 18.6 miles out from the FLOT—roughly the range of 105 mm artillery. Air strikes short of this line were typically Type I, II, or III CAS calling for varying degrees of control.

Beyond the battlefield coordination line, the "kill boxes" could be opened more easily, and the DASC was able to put its brisk procedures into play, pointed out USMC Maj. Brian Annichiarico, a Harrier pilot. All levels monitored the air requests and intervened only to stop them. "It works out to be a much faster chain," he said.

The DASC was co-located with a fire support coordinator, who updated the ground picture as the DASC personnel worked the air picture. It wasn't "what most Air Force guys think of as 'the air picture,' " Hilberer pointed out. The Marines used procedural control with aircraft checking in at control points to give route headings which the DASC controller cross-referenced.

Overall the DASC was well-posi-

Airpower Jointness on Guadalcanal

In World War II, Marine aviators on Guadalcanal fought off Japanese Zeros and bombers to hold the runway at Henderson Field in the harrowing weeks after Imperial Japan's August 1942 invasion of the island.

Marine Brig. Gen. Roy S. Geiger arrived to take command of Guadalcanal air operations on Sept. 3, 1942. He typically had 70 operational aircraft, including some Navy and Army aircraft, but the core of the air fight indisputably belonged to the Marine squadrons. The fight for air superiority consumed the "Cactus Air Force" and produced new Marine aces in record time. Joe Foss, Marion E. Carl, and John L. Smith were among them.

Meanwhile, close air support for Marine ground units often fell to the island's handful of Army aircraft, especially in late August and early September. The creaky Army Air Forces P-400s that landed at Guadalcanal in late August lacked oxygen equipment for higher altitude dogfights but ably toted 500-pound bombs. On Guadalcanal, everything counted.

"The Army pilots proved valuable in support of ground troops," wrote Robert L. Sherrod in his epic *History of Marine Corps Aviation in World War II*. Dawn attacks by a handful of P-400s "all but annihilated the last of the enemy concentration" at the Battle of Bloody Ridge on Sept. 13-14, 1942.

By October, Foss and others were locked in the main crisis of the air superiority battle. The AAF's 67th Squadron brought in P-39s and developed innovative tactics such as dropping depth charges into ravines to hit the Japanese defenders, according to Sherrod.

USAF photo by 1Lt. Daniel Triplett

In April 2003, a B-52 demolished the lead elements of a large Iraqi tank column that was threatening a Marine division. Here, SrA. Andrew Marshall checks a BUFF's lights at a deployed location.

tioned in the first two weeks of the war, and it worked "a little bit better than the ASOC" at first, said Crowder.

Aircrews quickly caught on to the fact that the DASC could give them targets fast. "It was so bad, aircrews created a DASC bingo," Crowder added. They would calculate their time on station for V Corps, then, if they weren't needed, they'd take the last few minutes to switch frequencies and contact the DASC in hopes of being assigned a target for their bombs.

Soon the flow of coalition strike sorties, planned and unplanned, far exceeded anything the Marine air planners thought the CAOC would give them.

Dial-Up BUFF

"Not very long into it, we started to get a whole lot of stuff coming in from CFACC—in real time or near real time—[which had been] shifted over to support our efforts," Hilberer said, adding that the amount the Marines got was "way more than we ever expected." Even B-52s were used to check up on the net, he added.

On April 1, 2003, a B-52 crew dubbed "Thrill 35" flew a mission under DASC direction. After striking an ammunition dump north of Baghdad, the crew was "put in touch with a Marine division that was being threatened by a very large Iraqi tank column," said the aircraft commander of Thrill 35. They dropped two CBU-105 cannisters containing sensor fuzed weapons on a column of about 20 tanks. The first third of the tank column died instantly. Iraqis in the rear of the column "poured out of the tanks, hands up, game over," said this aircraft commander. He joked, "The Marines didn't have to do a single thing except cover their ears."

The opening up of kill boxes beyond the BCL let the DASC employ a concept called strike coordination and reconnaissance, or SCAR. For SCAR, the direct air support center tagged a strike aircraft already on station with a good tactical picture to loiter and coordinate other aircraft "coming in and dropping on targets," according to Annichiarico. The SCAR aircraft could work up to four kill boxes while the DASC fed airplanes into them. "It's as impromptu as that," said Hilberer.

The Air Force's "Killer Scouts" did much the same thing a decade earlier in Desert Storm, launching on dedicated sorties to direct other strike aircraft to Iraqi military targets, usually in just a single kill box. In OIF, aircraft outside of the Marine wing—such as the USAF F-15E—also performed SCAR to great effect.

The air support was so steady that the Marines used it to control bypassed Iraqi units on their right flank. They did not pose a threat since the "MEF had [kill] boxes open along its frontage and all the way down on one side, because we didn't want to have to go over there and fight those guys, so we blew 'em up with airplanes," said Hilberer.

It was an efficient use of airpower to stifle enemy maneuver and keep the Marines on the march. Both "the 10th Armored and the Baghdad Division received virtually nonstop attention by the MAW and other coalition assets," said Brig. Gen. John F. Kelly in the February 2004 issue of Marine Corps *Gazette*.

"East of the Euphrates, the Marines really were joint," commented Crowder. They employed organic and joint assets via SCAR and other means to work deep battle targets. The efficiency of the DASC caused airmen to take notice. Marines on the ground praised the air attacks.

Air support in OIF opens the question of how to build better fire support control measures for the nonlinear battlefields of the future. A key issue will be defining when and where the CFACC—not the DASC or ASOC—should have free rein to push air strikes into kill boxes beyond the immediate front lines. That will call for review and revision of traditional fire support control measures.

The OIF experience raises a larger question about the future of Marine air in the MAGTF: how to ensure that future joint force commanders can count on a swift and productive integration of organic Marine air assets with the larger air war.

In OIF, months of careful advance work by the air component ensured that Marine air—with all its unique traits—was employed to best advantage. There was time to talk, plan, and prepare. The nature of the fight made it suitable for the DASC to focus on support to 1st Marine Division, as outlined in MAGTF doctrine. The question now is whether the same set of circumstances will present themselves in future operations—and whether other commanders would go out of their way to draw organic Marine air into the joint battle. ■

Rebecca Grant is a contributing editor of Air Force *Magazine. She is president of IRIS Independent Research in Washington, D.C., and has worked for* Rand, *the Secretary of the Air Force, and the Chief of Staff of the Air Force. Grant is a fellow of the Eaker Institute for Aerospace Concepts, the public policy and research arm of the Air Force Association's Aerospace Education Foundation. Her most recent article, "The First Military Airplane," appeared in the April issue.*

When it comes to fratricide, **"zero is the only good score."**

Better "Blue Force" Tracking

AMERICA'S armed services are in the throes of a new and far-reaching campaign to eradicate the scourge of "friendly fire." Gulf War II had hardly stopped before the services had launched fresh reviews of fratricide—inadvertent attacks that troops inflict on comrades in the swirling confusion of battle. They are reassessing and, at times, altering tactics, technologies, procedures, and doctrine.

One prime objective is dramatic improvement in blue force tracking, that is, the ability to pinpoint the whereabouts of friendly forces in a rapidly changing battlespace.

There has been no upsurge in friendly fire casualties. The opposite is the case, as was seen in Gulf War II's "major combat phase" in March and April 2003. A preliminary analysis showed that fratricide of all types accounted for about 11 percent of 115 US battle deaths. Those figures suggest notable progress in recent years. In Desert Storm in 1991, fratricide was blamed for 35 of 148 US battle deaths—or about 24 percent.

Moreover, analysts debate the true meaning of these figures. During World War II, Korea, and Vietnam, the rate of fratricide was not as high. However, total deaths were far higher. In short, the rate of fratricide today seems high mostly because total ca-

By George Cahlink

Warthog. *An A-10 rolls in to mark a target with white phosphorous rockets during an aerial demonstration. Pilots flying close air support missions rely heavily on the data collected and provided by ground forces.*

sualties are dramatically low. And that low death rate is attributed, at least in part, to high-speed war, US style. It rapidly shatters the enemy and prevents prolonged, casualty-producing force-on-force ground clashes.

As USAF said in an official Desert Storm analysis: "The loss or injury of any military member is at once tragic and regrettable, but the casualties sustained by the United States in the Gulf War must be considered in light of what they could have been—and what some had predicted they would be, before the war—had the bulk of Saddam Hussein's forces been fit, supplied, intact, and in place, awaiting the onset of the ground operation."

Navy Adm. Edmund P. Giambastiani Jr., commander of US Joint Forces Command, told lawmakers recently that the interaction of air and ground forces was "substantially greater" in OIF than it was during Desert Storm. Yet, even with a "more complex battlefield," the number of fratricide events was lower, he said.

Even so, military leaders argue that the armed forces must do more to reduce friendly fire casualties. Giambastiani listed fratricide prevention under a heading of "capabilities that fell short of expectations" and said more must be done to find joint solutions to the problem.

"We did better in Operation Iraqi Freedom, statistically," said Giambastiani at a House Armed Services Committee hearing on the lessons of Gulf War II. "However, one is too many."

The results of a year-long review of one of the fratricide incidents in Gulf War II highlight the type of communication and command and control problems that have been inherent in combat operations.

A 900-page report prepared by the Air Force and Marine Corps lays out in detail how USAF A-10 attack aircraft came to strike a US Marine company on the fourth day of Gulf War II. Investigators determined that a ground-based Marine air controller, located south of USMC Charlie Company, called in the air strikes against his own forces. He mistakenly believed that his unit was farther north than any others. (See "Aerospace World: A-10 Pilots Cleared in Fratricide," p. 16.)

Fratricides occur most frequently among ground troops, whether the shooting is done by other ground forces or from the air. A DOD analysis of training and combat statistics in the period 1990-99 found that ground forces were the victims in some 97 percent of all fratricides.

USAF photo by SSgt. AAron D. Allmon

Guides. ***SMSgt. Tim Tyvan, a USAF Tactical Air Control Party airman, and a second unnamed airman conduct an April 26 patrol in Iraq. The Air Force wants better communications with such troops at all times.***

Moreover, the 10-year review showed, the overwhelming bulk of the fratricides—about 90 percent—were of the ground-force-on-ground-force variety. Only 10 percent featured air attacks.

When they are launching strikes, pilots rely heavily on the data collected and provided by ground forces. The Air Force has made improving communications and information with blue force tracking systems one of its top priorities.

The key to USAF's antifratricide efforts lies largely in the quality of information its aircrews receive from ground troops. There was no shortage of technologies for identifying and tracking ground forces used during Operation Iraqi Freedom. They included advanced information systems that used GPS and digital maps, beaconing systems that sent out radar signals to friendly forces, thermal panels on vehicles, and even reflective tape soldiers placed on their helmets that gave off a bright signal when viewed through night vision goggles.

Combining Ground Systems

At the heart of Pentagon fratricide prevention measures are efforts to reduce the number of blue force tracking systems and improve communications between ground and air.

During OIF, the military experimented with as many as nine different blue force tracking systems, which often could not share information with one another, said Marine Lt. Col. Mike Sweeney, head of the Marine Corps information superiority branch.

"I believe that when we are successful you'll see the number of technologies used dwindle to two or three," said Sweeney.

The most widely used blue force tracking system is the Army's Force XXI Battle Command Brigade and Below (FBCB2), a system of ruggedized laptop computers and communications software that uses satellite links to form a wireless battlefield Internet. However, the FBCB2 system used in Gulf War II was limited in the amount of data that could be sent over networks and how quickly that information could be updated.

Ground troops using it complained that even simple messages had to be sent out in segments. They found that their positions would be updated on the digital maps within 10 to 15 seconds, but positions for other friendly forces took several minutes. Enemy positions were rarely displayed on the screens because they had to be entered manually.

The FBCB2 system, which was used by both soldiers and Marines, relied to some extent on commercial satellites, with no provision for sending classified information.

The Marine Corps, meanwhile, had another battlefield network that used Data Automated Communications Terminals located on hundreds of Marine ground vehicles. The Marine system, which won high marks for providing secure communications, had the necessary bandwidth to offer a complete battlefield picture to commanders, but the system relied on line-of-site communication towers to relay information, not satellites, and fast-moving troops often outran the system.

Recently, the Joint Requirements Oversight Council ordered the Army and Marine Corps to merge their battlefield networks and build a single, blue force tracking system for ground forces. The Army is leading the effort, which will retain the Army system's name, FBCB2.

"There are quite a few blue force tracking systems in the field, and we want to get them all under one single manager," said Army Col. Ray Montford, the project manager for blue force tracking.

The new system will combine the best features of Army and Marine Corps tracking systems. For example, the system will use the same ruggedized computers, graphics, system software, and non-line-of-sight networks developed by the Army while relying on the Marine Corps applications to create a common operating picture for commanders.

US Army photo by Capt. Timothy Beninato

Tracking. *Sgt. 1st Class Kenneth Dawson of Ft. Lewis, Wash., checks the map of his Force XXI Battle Command Brigade and Below (FBCB2) system, a widely used but limited blue force tracking system that is being improved.*

Getting the Picture

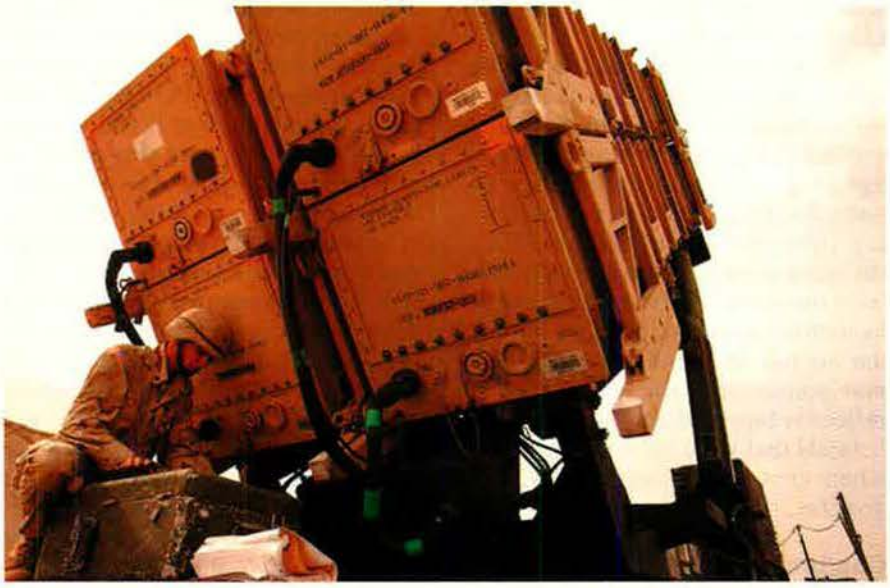
The Air Force plans to focus on improving battlefield management command and control operations at its fifth warfighting experiment, Joint Expeditionary Force Experiment (JEFX) 2004, slated for late July. USAF will test new blue force tracking technology and concepts during the experiment, which will involve hundreds of USAF and other service personnel at a half-dozen bases.

Getting general situational awareness reports—digital updates showing the location of friendly ground forces—sent directly to cockpit computers will be one key test during JEFX. Currently, before launching strikes, pilots receive most reports about location of friendly ground troops through radio communications from the ground or from battle management aircraft. In many cases, they must rely only on what they can see from the cockpit.

The Air Force plans to pump information gathered by the FBCB2 system directly into aircraft cockpits. USAF will attempt to tap into the central ground force battlefield Internet to provide real-time locations of friendly troops.

The information would have to be filtered, removing much data not essential to a pilot, before it would be sent—via a secure data link—to the cockpit. "You can't show everything because you'd have a display with nothing but dots on it," said Don Stuart, the technical advisor to the director of the Air Force Experimentation Office, Langley AFB, Va., which oversees JEFX 2004.

One part of the test entails using a high-resolution situational awareness system, for which USAF has developed software and links to quickly move the blue force tracking data directly to cockpit displays. It will show a pilot specific current information about the area he is targeting. "If you are given a close air support target and a forward controller says attack, you could find the target even before you go there and see if any blue forces were there," said Stuart.



USAF photo by SSgt. Quenton T. Burris

Danger. *In Gulf War II, Patriot destroyed Iraqi missiles but also shot down two coalition fighters, killing three airmen. Ninety percent of fratricides, however, are of the ground-force-on-ground-force variety.*

During the upcoming JEFX, USAF also plans to examine how to improve situation awareness to help prevent the type of ground-to-air fratricides that occurred during Iraqi Freedom. In two separate incidents, US Army Patriot missiles mistakenly shot down a British Tornado fighter, killing two airmen aboard, and a Navy FA-18C fighter, killing the pilot.

The Air Force will share its daily master air plans with Army Patriot batteries to pinpoint areas where they may overlap. In turn, ground-based air defense units will share more location information with aircrews.

The Army not only will send information to aircrews, but also will rely on information collected by surveillance aircraft to fill out its situational awareness reports. Montford said USAF's Joint Surveillance Target Attack Radar System aircraft, with its sophisticated radars, sensors, and onboard computers used to track the movement of enemy ground forces, will share information with the Army's FBCB2 system to provide a more complete picture of the battlespace—data on both enemy and friendly forces.

"They can add credibility to our system and we can add credibility to their system," said Montford.

Air Force Gen. Richard B. Myers, Chairman of the Joint Chief of Staff, said at a House Armed Services Committee hearing in February that blue force tracking technology, such as FBCB2, was "critical" to the fast-moving ground campaign. However, he emphasized that "challenges remain" in providing "all front-line tactical units with friendly and threat information."

Joint Forces Command, he said, has the lead in a "comprehensive effort" to improve joint battle management command and control, including combat identification.

Part of JFCOM's work is to ensure that the services train in a joint arena with any new combat identification technology.

Army Brig. Gen. Robert W. Cone, director of the Joint Center for Lessons Learned, told reporters in a Pentagon briefing last fall that technology needs to be balanced with training. He said whenever he offers a technological solution to commanders they are quick to say that the system's success relies on training troops in using it.

USAF photo by SSgt. AAron D. Allmon

Keeping Watch. *TSgt. Cory Langel (left) and A1C Kandess Johnson monitor a console onboard an E-8C Joint STARS aircraft. Such aircraft play a key role in developing detailed information about battlefield activity.*

Giambastiani said that Joint Forces Command has already planned to "embed and assess combat ID capabilities" in upcoming joint exercises.

"We want to get the equipment we need in time for training to be conducted on it before the troops deploy and use it," said Giambastiani. "It needs to be joint forces training so all branches of the military are speaking the same language."

The Bandwidth Issue

Army Lt. Gen. William S. Wallace, who commanded V Corps during Iraqi Freedom, told lawmakers last fall that the Army-Marine Corps fielding of the FBCB2 blue force tracking system was "extraordinarily successful," but he pointed out that the system had "thin fielding."

One reason, said Wallace, was that there was simply not enough time to produce more units. The other reason, he said, was "limitations in satellite capability."

There was not enough bandwidth available to accommodate fielding a blue force tracking system in greater numbers.

Air Force Lt. Gen. Daniel P. Leaf agreed with Wallace. Leaf told lawmakers at the same hearing, "When it comes to bandwidth and the use of the available spectrum, we don't just need to improve our user equipment, ... we have to improve our awareness of the utilization of the spectrum." Leaf is now vice commander of Air Force Space Command, but during Gulf War II, he served as the USAF liaison to the land component commander.

Leaf advocated creating an "operationalized picture," much as is done for air, land, sea, and space activity. He said operational commanders need a picture of "bandwidth utilization, availability, and, in some cases, waste" that they can use to "set and implement priorities" for more efficient use of the bandwidth available.

Leaf went on to say that the blue force tracking system alone is not the entire solution to the fratricide problem. He said it is "part of the overall combat identification matrix."

He told lawmakers that the Air Force's leaders gave Air Force Space Command officials "strong direction to look at how we can improve, enhance, and expand the role of blue force tracker as part of our overall situational awareness."

Leaf said: "In terms of fratricide, zero is the only good score, and we're not there yet." ■

George Cahlink is a military correspondent with Government Executive *Magazine in Washington, D.C. His most recent article for* Air Force *Magazine, "BRAC to the Future" appeared in the April issue.*

This chronology recalls key events in USAF's quest for strategic "high ground."

50 Years of Space and Missiles

Compiled by the staff of *Air Force* Magazine

USAF Delta II launch

Today's Air Force space and missile professionals view July 1, 1954, as the red-letter date of their business—the moment that USAF fully and formally jumped into the space and missile field. Lt. Gen. Thomas S. Power, commander of Air Research and Development Command, ordered the creation in Inglewood, Calif., of the Western Development Division, headed by the now-legendary Brig. Gen. Bernard A. Schriever. WDD's first job was to build strategic missiles for the Air Force, but such rockets could also launch Earth-circling satellites. Soon, WDD was building them, too, and forging the complex structure of modern military space power. In the 50 years that have elapsed, the Air Force has remained at the forefront of world strategic space systems, technologies, and operations.

Gen. Bernard A. Schriever

Data on these pages are drawn from several official and nonofficial studies. The principal source is Air Force Space Command.

July 1, 1954. Air Research and Development Command establishes the Western Development Division (WDD), in Inglewood, Calif., under command of Brig. Gen. Bernard A. Schriever. He is formally given full authority over the Atlas ICBM project.

Sept. 8, 1954. The Air Force approves the WDD's selection of the Ramo-Wooldridge Corp. to perform systems engineering and technical direction functions for Project Atlas.

Dec. 13, 1954. An Air Force procurement authorization sets aside $3.6 million in production funding for Atlas. This is the first production funding for an ICBM program.

Jan. 6, 1955. USAF awards a contract to the Convair Division of General Dynamics Corp., for development and fabrication of the Atlas airframe and control system, the integration and assembly of the various subsystems with the airframe and control system, and for checkout and testing.

Oct. 27, 1955. Glenn L. Martin Aircraft Co. is given a contract authorizing the design, development, and testing of the two-stage Titan ICBM.

Nov. 26, 1955. Secretary of Defense Charles E. Wilson assigns responsibility for development and operations of land-based ICBMs to the Air Force.

Feb. 15, 1956. Responsibility for the advanced satellite system WS 117L (later, Satellite and Missile Observation System, or SAMOS) is officially transferred to WDD.

Oct. 29, 1956. Lockheed is awarded the prime contract for the development of the Military Satellite System and its associated Hustler (later redesignated Agena) upper stage vehicle.

March 1957. WDD begins feasibility studies on a defense alarm system (MIDAS) satellite that would provide early warning of hostile missile launches.

June 1, 1957. WDD is redesignated Air Force Ballistic Missile Division (AFBMD).

September 1957. US and Canada create the North American Air Defense Command (NORAD) for defense of air and space over the US and Canada.

Oct. 4, 1957. Soviet Union stuns the world with the launch of Sputnik, world's first man-made satellite, aboard one of their new SS-6 ICBMs.

Nov. 13, 1957. Schriever directs Air Force planning for development of man-carrying vehicle systems for space operation.

Nov. 29, 1957. Air Force Chief of Staff Gen. Thomas D. White declares the Air Force "must win the capability to control space."

Dec. 17, 1957. The Air Force's HGM-16 Atlas ICBM makes its first successful launch and flight from Cape Canaveral.

Jan. 31, 1958. The Army's Explorer 1, the first US satellite successfully sent into space, is launched at Cape Canaveral.

Feb. 10, 1958. A1C Donald G. Farrell, in a mock moon voyage, enters a cramped, windowless space cabin simulator at Randolph AFB, Tex., where he spends a week under harsh physical and psychological conditions. He emerges in good shape, convincing space officials that humans are indeed psychologically suited to actual spaceflight.

Feb. 27, 1958. Secretary of Defense Neil H. McElroy authorizes the Air Force to start research and development on a new ICBM. This is the genesis of Minuteman.

March 31, 1958. Schriever directs planning for a full-scale manned military space systems program aimed at a lunar landing operation.

June 16, 1958. Boeing and Martin are named prime contractors to develop competitive designs for the Air Force's X-20 Dyna-Soar boost-glide space vehicle. This project, although later canceled, is the first step toward producing a workable space shuttle.

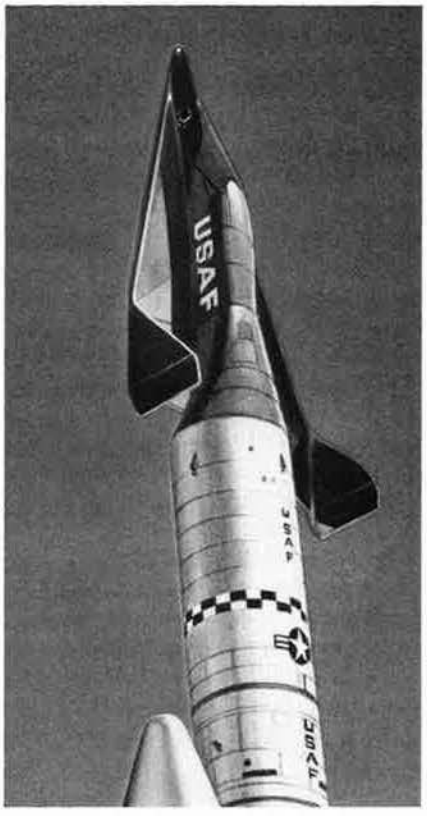
June 30, 1958. Pentagon notifies AFBMD that it has transferred to the Advanced Research Projects Agency (ARPA) authority to develop the Military Satellite System, WS 117L.

July 29, 1958. President Dwight D. Eisenhower signs the National Aeronautics and Space Act.

Sept. 4, 1958. The Transit and TIROS satellite programs are initiated with booster responsibilities assigned to AFBMD. Transit is a navigation satellite, while TIROS (Television Infrared Observation Satellite) is to take television pictures of cloud cover and transmit meteorological information for relay to ground stations.

Nov. 25, 1958. AFBMD receives its first specific NASA request to support research leading to manned spaceflight. An Atlas C booster is to be the first of 13 ballistic missile boosters to be procured for NASA.

December 1958. ARDC assumes space track mission for the Air Force.



USAF's X-20 Dyna-Soar boost-glide space vehicle. This was the first step toward a usable space shuttle.

Dec. 18, 1958. Project Score, a communications repeater satellite, is launched by an Atlas booster into Earth orbit. The satellite on Dec. 19 broadcasts a Christmas message from President Eisenhower to Earth, the first time a human voice has been relayed from space.

Jan. 4, 1959. Vandenberg AFB, Calif., and Pacific Missile Range are declared operational for missile launchings.

Feb. 6, 1959. Air Force crew launches the first XSM-68A (later redesignated HGM-25A) Titan ICBM from Cape Canaveral.

Feb. 28, 1959. In test, USAF successfully launches the Discoverer 1, the world's first polar-orbiting satellite, from Vandenberg. It is part of the secret Corona program.

April 2, 1959. NASA announces the identities of seven Project Mercury astronauts: USAF Capts. L. Gordon Cooper Jr., Virgil I. "Gus" Grissom, and Donald K. "Deke" Slayton, Navy Lt. Cmdrs. Walter M. Schirra Jr. and Alan B. Shepard Jr., Navy Lt. M. Scott Carpenter, and Marine Lt. Col. John H. Glenn Jr.

April 6, 1959. The first military unit to be charged with conducting military satellite operations, USAF's 6594th Test Wing, is established at Palo Alto, Calif.

April 13, 1959. Air Force Thor/Agena A boosts into orbit the Discoverer 2 satellite, the first satellite to be stabilized in orbit in all three axes, to be maneuvered on command from Earth, to separate a re-entry vehicle on command, and to send its re-entry vehicle back to Earth.

Aug. 7, 1959. US carries out first satellite intercontinental relay of a voice message.

Aug. 7, 1959. Explorer 6 spacecraft transmits first television pictures from space.

Aug. 31, 1959. Strategic Air Command (SAC) takes command of Vandenberg's Complex 576A, USAF's first fully operational ICBM complex.

Sept. 9, 1959. SAC crew at Vandenberg conducts first West Coast launch of an operational Atlas missile, which lands near Wake Island.

Sept. 18, 1959. USAF states that the Pentagon has approved the transfer of MIDAS and SAMOS back to the Air Force.

Sept. 23, 1959. DOD states that primary responsibility for military space programs belongs to the Air Force.

An Atlas booster fitted with a communications repeater satellite waits on the pad at Patrick AFB, Fla.

Oct. 6, 1959. AFBMD issues an abbreviated development plan for Vela Hotel system to detect and locate nuclear detonations in space.

April 1, 1960. US launches TIROS 1, world's first meteorological satellite, from Cape Canaveral.

April 13, 1960. Transit 1B becomes first US navigation satellite in space.

May 20, 1960. Air Force Atlas ICBM, launched from Cape Canaveral, boosts a 1.5-ton payload 9,040 miles to the Indian Ocean, the longest-ever flight for a US ICBM.

May 24, 1960. MIDAS 2 becomes the first early warning satellite in orbit.

June 22, 1960. US launches Galactic Radiation and Background (GRAB) satellite, the nation's first successful reconnaissance spacecraft. It collects electronic intelligence (Elint) from Soviet air defense radars.

Aug. 11, 1960. Discoverer 13 satellite, launched on Aug. 10, ejects a capsule that is recovered in the Pacific Ocean, the first successful recovery of a man-made object ejected from an orbiting satellite.

Aug. 12, 1960. A Thor/Delta booster lifts NASA's Echo 1, the first passive communications satellite to be placed into orbit.

Aug. 18, 1960. Discoverer/Corona satellite takes first image of Soviet territory ever snapped from space.

Aug. 19, 1960. Crew of a modified C-119J uses two trailing wire hooks to snag a descending Discoverer 14 capsule over the Pacific. It is the first aerial recovery of an object returned from orbit.

Aug. 31, 1960. President Eisenhower shifts SAMOS program from Air Force into a small civilian-directed Pentagon office. This is the genesis of the National Reconnaissance Office (NRO).

Sept. 15, 1960. DOD shifts its defense communications satellite program to the Army and renames it Project Advent.

Sept. 23, 1960. ARDC recommends splitting USAF's Los Angeles R&D complex. Plan calls for keeping space activities in Los Angeles and moving missile activities to Norton AFB, Calif.

October 1960. NORAD assumes operational control of all space defense responsibilities with formation of the Space Detection and Tracking System.

Feb. 1, 1961. First LGM-30A Minuteman ICBM is test launched from

The first satellite reconnaissance photo of Soviet territory, taken in 1960 by Discoverer/Corona.

Cape Canaveral. It travels 4,600 miles downrange and hits the target area.

March 6, 1961. Secretary of Defense Robert S. McNamara formally assigns to USAF the responsibility for development of military space systems.

April 1, 1961. USAF forms Air Force Systems Command and assigns to the Space Systems Division the responsibility for military space systems and boosters. Ballistic Systems Division handles ICBMs.

April 12, 1961. USSR stages world's first successful manned spaceflight. Cosmonaut Yuri Gagarin, piloting Vostok 1, becomes not only history's first spaceman but also the first person to orbit the Earth.

May 5, 1961. Navy Cmdr. Alan B. Shepard Jr. becomes the first Project Mercury astronaut to cross the space frontier. His flight in Freedom 7 lasts 15 minutes, 28 seconds, reaches an altitude of 116.5 miles, and ends 303.8 miles downrange.

July 12, 1961. First Atlas D/Agena B booster lifts MIDAS 3 satellite, the heaviest US spacecraft to date, into a record 1,850-mile-high orbit.

July 21, 1961. Capt. Virgil I. "Gus" Grissom becomes the first Air Force astronaut in space, reaching an altitude of 118.3 miles on the second Mercury mission.

Sept. 6, 1961. Secretary McNamara establishes the National Reconnaissance Program, formally creating the classified National Reconnaissance Office.

Feb. 20, 1962. Marine Lt. Col. John H. Glenn Jr. becomes the first US astronaut to orbit the Earth. His Friendship 7 flight lasts nearly five hours and completes three orbits.

April 23, 1962. The 6555th Aerospace Test Wing launches an Atlas D/Agena B vehicle that carries NASA's Ranger 4 to the moon. This is the first US instrument package to reach the moon.

May 23, 1962. US deploys first Defense Meteorological Satellite Program (DMSP) spacecraft.

June 11, 1962. In reorganization of Advent program, DOD gives USAF responsibility for development, production, and launch. The Army retains responsibility for the ground system, and Defense Communications Agency is to handle integration activities.

Aug. 20, 1962. DOD announces plans to develop a Titan launch vehicle that will be operational by 1965.

Dec. 11, 1962. Minuteman ICBM reaches initial operational status with turnover of the first two 10-missile flights to SAC's 341st Strategic Missile Wing at Malmstrom AFB, Mont.

May 15, 1963. Maj. L. Gordon Cooper Jr., second Air Force astronaut in space, makes nearly 22 orbits in spacecraft Faith 7. He is the last American to go into space alone, first to spend a complete day in orbit, and first to perform an entirely manual re-entry.

Oct. 16, 1963. Space Systems Division, using first Atlas D/Agena D vehicle, boosts into orbit two new Vela Hotel nuclear radiation detection satellites, designed to provide information on nuclear detonations in the atmosphere or outer space.

Oct. 17, 1963. SAC crew carries out first LGM-30A Minuteman I operational test launch at Vandenberg. The re-entry vehicle overshoots the target.

Oct. 17, 1963. Vela Hotel satellite performs first space-based detection of nuclear explosion.

Dec. 10, 1963. DOD announces cancellation of Dyna-Soar program.

July 15, 1964. Secretary McNamara directs DOD to begin full development of Initial Defense Communications Satellite Program.

Launch of Friendship 7. There was great synergy between US military and civil space efforts.

The first Minuteman LGM-30A is test launched at Patrick AFB, Fla. The test is successful.

Aug. 19, 1964. Thor/Delta vehicle boosts into orbit NASA's Syncom 2 communications spacecraft, the world's first geosynchronous satellite, which then carries communications between Clark AB, the Philippines, and Camp Roberts, Calif.

September 1964. DOD begins military communications experiments between South Vietnam and Hawaii using the Syncom 2 synchronous communications satellite.

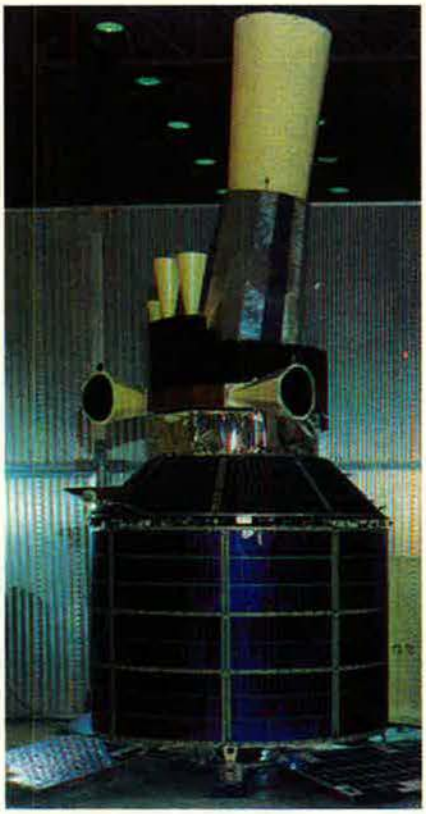
Nov. 20, 1964. DOD directs build-up of Minuteman ICBM force to 1,000 launchers by the end of 1967.

April 3, 1965. Atlas/Agena successfully boosts a SNAPSHOT spacecraft carrying Snap10A nuclear reactor. The on-board reactor provides electrical power for a 2.2-pound ion engine, marking the first attempt to test a reactor-ion system in orbit.

June 4, 1965. Air Force astronaut Maj. Edward White makes a 22-minute spacewalk, first by an American astronaut.

June 18, 1965. Air Force accepts Titan III, first Air Force vehicle specifically designed and developed as a military space booster.

Dec. 4-18, 1965. An Air Force Titan II launch vehicle lifts Gemini 7



A DSP satellite, with infrared sensors that provided space-based early warning of missile launches.

into orbit. Astronauts Frank Borman and James A. Lovell complete 206 orbits.

Dec. 8, 1965. Secretary McNamara approves development of the Minuteman III ICBM.

Dec. 15, 1965. In a first for the US space program, crews of Gemini 6 and Gemini 7 rendezvous in space. Gemini 6 crew of USAF Maj. Thomas P. Stafford and Navy Capt. Walter M. Schirra Jr. maneuver to within a foot of Gemini 7.

Dec. 16, 1965. Astronauts Stafford and Shirra conduct the first controlled re-entry of a manned spacecraft to a predetermined landing point on Earth.

June 16, 1966. In a record-setting mission, a Titan IIIC puts eight satellites into near-synchronous orbits 18,200 miles above the equator as part of Initial Defense Satellite Communications System.

Aug. 31, 1966. Gen. Bernard A. Schriever, commander of Air Force Systems Command, retires after 32 years of active service.

Jan. 25, 1967. Soviet Kosmos 139 antisatellite (ASAT) weapon carries out first test of a fractional orbital bombardment system.

May 3, 1967. Ballistic Systems Division announces completion of the deployment of 1,000 Minuteman missiles.

July 1, 1967. Within Air Force Systems Command, Space Systems Division and Ballistic Systems Division are combined to form the new Space and Missile Systems Organization (SAMSO).

July 3-4, 1967. Air Force, Army, and Navy conduct first satellite-based tactical communications.

Aug. 16, 1968. In the first test of the system, a Minuteman III launched at Cape Canaveral completes a successful 5,000-mile flight downrange.

Oct. 20, 1968. Soviet Kosmos 248 and Kosmos 249 spacecraft carry out first co-orbital antisatellite test.

Dec. 21-27, 1968. Apollo 8 astronauts—USAF Maj. William A. Anders, Col. Frank Borman, and Navy Cmdr. James A. Lovell Jr.—become the first humans to orbit the moon.

Feb. 9, 1969. Air Force Titan IIIC places experimental, 1,600-pound Tactical Communications Satellite (TACSAT I) into orbit 22,195 miles above equator—the largest communications satellite yet orbited by the US.

June 16, 1969. SAMSO contracts with North American Rockwell, McDonnell Douglas, General Dynamics, and Lockheed to study Space Transportation System (STS) design concepts and technical objectives.

July 20, 1969. At 10:56 p.m. EDT, Apollo 11 astronaut Neil A. Armstrong puts his foot on the surface of the moon, becoming the first human to do so. He and lunar module pilot, Air Force Col. Edwin E. "Buzz" Aldrin Jr., spend just under three hours walking on the moon, while the command module pilot, Air Force Lt. Col. Michael Collins, orbits overhead.

October 1969. USAF and NASA agree to develop a reusable space vehicle that meets civilian and military space requirements. NASA proposes a two-stage shuttle with a huge cargo area.

March 19, 1970. First successful powered flight of X-24A lifting-body research aircraft takes place at Edwards.

November 1970. Air Force launches first classified Defense Support Program satellite, whose infrared sensors provide space-based early warning of missile launches.

May 15, 1971. USAF and Navy reach agreement that Navy's Fleet Satellite Communications (FLTSATCOM) system will be developed with some channels set aside for Air Force use.

June 15, 1971. First launch from Vandenberg of a Titan IIID space booster.

Jan. 5, 1972. President Richard M. Nixon announces a $5.5 billion NASA program to develop a space shuttle to supplant all present launch vehicles except the smallest and largest.

Dec. 7-19, 1972. Apollo 17 mission, the last of the 20th century moon landings, unfolds successfully.

Jan. 10, 1973. Air Force awards contracts for development of Air Force Satellite Communications (AFSATCOM) system.

Dec. 22, 1973. Deputy Secretary of Defense William P. Clements Jr. authorizes Air Force development of the Global Positioning System.

March 8, 1974. Air Force completes a revised program memorandum that is to become the basis of USAF planning for the space shuttle.

March 1, 1975. CMSgt. James M. McCoy becomes the first senior enlisted advisor for Strategic Air Command, the focus of Air Force strategic missile forces. He serves until Aug. 1, 1979, when he becomes the sixth Chief Master Sergeant of the Air Force.

March 9, 1976. Defense System Acquisition Review Council approves conceptual work on Missile X ICBM system.

Sept. 17, 1976. US rolls out *Enterprise*, the first space shuttle vehicle, at the Rockwell plant in Palmdale, Calif.

Aug. 12, 1977. *Enterprise* makes first space shuttle free flight. After being carried aloft on a Boeing 747, it is released and makes an unassisted landing at Edwards.

Feb. 9, 1978. Atlas booster launched at Cape Canaveral carries the first FLTSATCOM satellite into orbit.

Feb. 22, 1978. Atlas booster launches into orbit the first test vehicle of the Navstar GPS constellation.

April 15, 1978. AFSATCOM space segment is declared operational.

Dec. 13, 1978. Launch of two Defense Satellite Communications System II (DSCS) (follow-on to IDSCS) satellites puts full four-satellite constellation in place for the first time.

Oct. 1, 1979. SAMSO splits into two organizations—the Space Division and the Ballistic Missile Office.

Jan. 28, 1980. USAF and Vought

The launch of the first flight of space shuttle **Columbia** *lifts off from Edwards AFB, Calif.*

enter new phase of program to develop a workable ASAT weapon. A two-stage ASAT missile, launched from an F-15, would send a miniature kill vehicle smashing into a satellite target.

June 19, 1980. USAF authorizes Vought and Boeing to begin fabrication and flight test of a prototype ASAT system.

Aug. 29, 1980. Space Division is directed to begin development of a near-term space-based radar system.

April 12, 1981. NASA conducts first flight of shuttle *Columbia,* the first shuttle to orbit the Earth and the world's first reusable manned space vehicle. The shuttle spends 54 hours on orbit.

April 14, 1981. *Columbia* lands on Rogers Dry Lake, Edwards AFB, Calif., after its first orbital mission.

July 1981. Drop test of ASAT program's miniature vehicle shows it can acquire and track an orbiting spacecraft.

April 30, 1982. USAF directs deactivation of Titan II ICBMs, with all 55 operational missiles to be removed from silos and stored for possible use as space launch vehicles.

May 1982. First three Ground-based Electro-Optical Deep Space Surveillance (GEODSS) system sites open in Hawaii, New Mexico, and South Korea. In the late 1980s, USAF opens a fourth site on the Indian Ocean atoll of Diego Garcia.

Sept. 1, 1982. The Air Force establishes Space Command in Colorado Springs, Colo., under the command of Gen. James V. Hartinger. The command's mission is to centralize Air Force space operations and to forge a stronger link between space research and development and space operations.

Oct. 1, 1982. CMSgt. Charles P Zimkas Jr. becomes first senior enlisted advisor for USAF Space Command, the focus of Air Force space activities. He serves until Sept. 14, 1984.

Oct. 30, 1982. Air Force launches the first element of DSCS III.

April 22, 1983. Air Force designates Space Command as operator of new Milstar communications satellite system.

May 1, 1983. Enlisted satellite control specialists officially begin operations at Air Force Space Command, marking the first time in its history that noncommissioned Air Force personnel have been permitted to "fly" spacecraft on a regular basis.

CMSgt. Charles P. Zimkas Jr., the first senior enlisted advisor for USAF Space Command.

May 1, 1983. SAC transfers space and missile warning systems, bases, units, and upgrade projects to Space Command.

May 20, 1983. USAF signs a $1.2 billion contract for production of 28 Global Positioning System Block II satellites.

May 26, 1983. ASAT missile undergoes first in a series of 13 all-up captive flights aimed at assessing ability of the guidance system to navigate and of the F-15 carrier aircraft to take the missile to the launch point and perform the launch maneuver.

June 17, 1983. Air Force conducts first test launch of the new LGM-118A Peacekeeper ("MX") ICBM at Vandenberg.

June 18, 1983. Sally K. Ride, a *Challenger* crew member on the seventh shuttle mission, becomes the first American woman to go into space.

Aug. 30, 1983. Air Force Lt. Col. Guion S. Bluford Jr., on board *Challenger* for the eighth shuttle mission, becomes first African American astronaut to go into space.

Jan. 21, 1984. F-15 launches ASAT missile on its first free flight in test of the missile's ability to fly to a predetermined point in space and deploy its warhead.

August 1984. President Ronald W. Reagan approves a National Space Strategy which endorses an Air Force plan, developed by the undersecretary of the Air Force, Edward C. Aldridge, to keep a limited number of expendable launch vehicles.

Aug. 23, 1984. Pentagon directs modification of inactivated Titan II ICBMs into space launch vehicles.

Sept. 13, 1984. Space Division awards three contracts to start the Space Surveillance and Tracking System (SSTS) program, which Space Division manages for the Strategic Defense Initiative Organization.

Sept. 27, 1984. Pentagon turns off the last of the aging Vela satellites, which, since the 1960s, have monitored compliance with limited nuclear test ban treaty.

Jan. 24-27, 1985. On the 15th shuttle mission, the crew of *Discovery* carries out the first dedicated DOD flight. They deploy a classified payload, believed to be a signals intelligence satellite.

Sept. 13, 1985. In a test over Vandenberg, an F-15-launched ASM-135A ASAT missile destroys a target satel-

lite orbiting at a speed of 17,500 mph some 290 miles above Earth.

Sept. 23, 1985. DOD activates US Space Command at Peterson AFB, Colo.

Sept. 26, 1985. Consolidated Space Operations Center opens at Falcon AFS, Colo., and transfers from Air Force Systems Command to USAF's Space Command.

Oct. 3, 1985. Shuttle *Atlantis* launches first pair of DSCS III satellites using inertial upper stage.

Nov. 15, 1985. USAF's Space Command is redesignated Air Force Space Command (AFSPC).

Jan. 28, 1986. Space shuttle *Challenger* explodes 73 seconds after liftoff, killing seven astronauts.

May 5, 1987. The last Titan II comes off strategic alert at Little Rock AFB, Ark.

Sept. 5, 1988. Converted Titan II rocket is used for the first time as a launch vehicle.

Nov. 6, 1988. At Vandenberg, Air Force launches its last Titan 34D booster, which carries a classified payload.

Feb. 14, 1989. A Delta II space booster, on its first launch, boosts first operational Block II GPS satellite into orbit.

June 14, 1989. First Titan IV heavy-lift space booster is successfully launched from Launch Complex 40 at Cape Canaveral. The booster, nearly 20 stories tall, carries a classified military payload.

Aug. 5, 1990. Over Edwards AFB, a B-52 carrier aircraft drops an air-launched Pegasus space booster on its first flight, which is a success.

Oct. 1, 1990. Air Force transfers control of all operational space lift systems to Air Force Space Command. Over the next four years, AFSPC assumes launch responsibility for Atlas E, Atlas II, Delta II, Titan II, and Titan IV missions from Cape Canaveral, and Vandenberg.

December 1990. In Gulf War I buildup, Air Force Space Command repositions a reserve Defense Satellite Communications System II satellite over Indian Ocean, offering better coverage. USAF also accelerates the launch of a third Defense Meteorological Satellite Program spacecraft to augment existing spacecraft. USAF deploys a third Defense Support Program satellite to improve coverage of Iraqi Scud launches. It also reconfigures antenna patterns on two DSCS satellites to increase signal strength, moves LES-9 satellite over the Atlantic, and launches three new GPS satellites while repositioning others.

A GPS satellite in orbit. There are 28 satellites in the full GPS constellation.

Jan. 17, 1991. What USAF calls "the first space war," Operation Desert Storm, opens with air attacks aided by space-derived data.

March 8, 1991. USAF launches first Titan IV heavy-lift space booster from Vandenberg. The booster carries a classified payload.

April 18, 1991. USAF stages first successful flight test of the MGM-134A Small ICBM. It flies 4,000 miles from Vandenberg to a target area in the Pacific Ocean.

Feb. 11, 1992. First military launch of an Atlas II/Centaur takes place at Cape Canaveral.

June 1, 1992. SAC transfers to Air Force Space Command all of the management of AFSATCOM systems.

June 19, 1992. Gen. Merrill A. McPeak, Chief of Staff, changes the Air Force mission to read: "Defend the United States through control and exploitation of air and space."

Jan. 13, 1993. USAF Maj. Susan J. Helms, aboard the space shuttle *Endeavour*, becomes the first US military woman in space.

July 1, 1993. Air Force Space Command assumes ICBM operational mission from Air Combat Command.

July 19, 1993. Launch of DSCS Phase III satellite provides first full five-satellite DSCS III constellation.

Nov. 1, 1993. At Falcon AFB, Colo., AFSPC activates the Space Warfare Center to foster space support to combat units.

Feb. 7, 1994. Air Force Space Command launches the first Milstar communications satellite.

March 9, 1994. Air Force completes the full constellation of 24 GPS satellites. Goes fully operational in April 1995.

May 5, 1994. President William J. Clinton directs the merger of civilian and military meteorological systems under the National Oceanic and Atmospheric Administration.

June 10, 1994. Air Force enlisted members become eligible for astronaut duty. Secretary of the Air Force revises Air Force Instruction 36-2205, "Applying for Flying and Astronaut Training Programs." This change, for the first time allows enlisted airmen to apply to become mission specialists aboard NASA space shuttle missions.

Feb. 6, 1995. USAF Lt. Col. Eileen M. Collins is first woman to pilot a US spaceship, doing so when *Discovery* and space station Mir perform the first US-Russian space rendevous. Later (July 23-27, 1999), she becomes the first woman to command a space shuttle.

April 27, 1995. Air Force Space Command declares the GPS satellite constellation to be fully operational.

Aug. 5, 1995. President Clinton signs the National Space Transportation Policy, endorsing plans to develop a more efficient space launcher, the evolved expendable launch vehicle.

Feb. 23, 1997. The first Titan IVB launch vehicle lifts off from Launch Complex 40 at Cape Canaveral using an inertial upper stage (IUS). It launches a Defense Support Program (DSP) payload.

April 4, 1997. A Defense Meteorological Satellite Program (DMSP) satellite is launched into polar orbit aboard a Titan IIG booster from Vandenberg.

May 29, 1998. First transfer of an operational military space system to a civilian agency occurs when USAF hands over primary control of the DMSP on-orbit assets to NOAA.

March 24, 1999. NATO launches what USAF calls the Air War Over Serbia, an operation in which space assets played a major support role.

May 1, 2000. President Clinton directs the Pentagon to cease injecting deliberate inaccuracies into the civil GPS signals, so that civilians can make better use of the system.

Sept. 27, 2000. USAF changes the standard space and missile operator uniform from blue, one-piece flight suit to the standard green flight suit.

Jan. 11, 2001. Congressionally mandated Space Commission issues report recommending significant organizational realignments of the military space program and increased responsibilities for the Air Force.

Jan. 22-26, 2001. Space Warfare Center conducts Schriever 2001, the first wargame to explore requirements for space control, counters to enemy space capabilities, and the ability of an enemy to deny the US and its allies the use of space assets.

May 8, 2001. The Secretary of the Air Force is designated as DOD executive agent for space.

Oct. 1, 2001. Control of the Space and Missile Systems Center, Los Angeles AFB, Calif., shifts from Air Force Materiel Command to Air Force Space Command, thereby placing cradle-to-grave oversight of acquisition and operation of space systems under a single command.

Lt. Col. Eileen Collins, first woman to pilot a US spaceship and first female to command a space shuttle.

A Delta IV rocket lifts off from Cape Canaveral, Fla., carrying a DSCS satellite.

Oct. 7, 2001. US launches Operation Enduring Freedom in Afghanistan, featuring employment of numerous space-directed Air Force combat assets.

April 19, 2002. Air Force Space Command becomes a four-star Air Force major command in its own right. Previously, the four-star commander of US Space Command and NORAD also commanded AFSPC.

Aug. 21, 2002. First Atlas V, the first of two new launch vehicles developed under USAF's EELV program, boosts a Eutelsat Hot Bird 6 communications satellite into orbit from Cape Canaveral.

Oct. 1, 2002. US Space Command, created in 1985, is disestablished. Its missions are transferred to US Strategic Command, Offutt AFB, Neb. STRATCOM gains the responsibility to define, plan, develop, and conduct space operations.

Nov. 20, 2002. Delta IV, second of the new EELVs partially funded by USAF, debuts by boosting a Eutelsat payload from Cape Canaveral.

Dec. 17, 2002. President George W. Bush announces plans to field, by 2004, an initial missile defense capability for the US. It is to comprise ground- and sea-based interceptors and sensors based on land, sea, and in space.

Feb. 1, 2003. The shuttle *Columbia* breaks up 200,000 feet above east Texas on its re-entry after a 16-day mission in space. Seven astronauts perish.

March 10, 2003. Delta IV boosts into orbit a DSCS III satellite, marking the first launch of a military payload aboard an EELV.

March 12, 2003. Peter B. Teets, undersecretary of the Air Force, and Gen. Lance W. Lord, commander of Air Force Space Command, tell Congress they have assigned high priority to developing a cadre of space professionals.

March 20 (Baghdad time), 2003. EGBU-27 bombs, guided to precise locations by GPS satellite signals, roll off F-117 stealth fighters in the opening blasts of Gulf War II.

March 25, 2003. US officials say Iraq has been using special devices to try to jam GPS signals but that coalition forces have destroyed all six of the devices.

April 22, 2003. Air Force Space Command's 14th Air Force activates first-of-its-kind space intelligence squadron. The mission of the 614th SIS is to identify and devise means to respond to threats to US space systems.

May 13, 2003. President Bush issues the US Commercial Remote Sensing Space Policy. It calls for federal agencies to rely "to the maximum practical extent" on commercial space imagery to fill imagery and geospatial needs for military, intelligence, foreign policy, homeland security, and civil users.

Oct. 15-16, 2003. AChinese astronaut, Lt. Col. Yang Liwei, is launched into space on Shenzhou V rocket and orbits the Earth 14 times. The 21-hour trip puts China into elite manned space flight club, occupied exclusively by US and Russia since 1961.

Jan. 16, 2004. The AFSPC's Space and Missile Systems Center requests proposals for a Space Based Radar program which will give theater commanders the ability to track moving targets.

Feb. 25, 2004. In a warning about dangers in space, Secretary Teets tells the House Armed Services Committee that "we have done a very serious vulnerability study ... of our national security space programs" and that "we do see ... a threat starting to evolve." ■

The theft of the fighter was a classic tale of Cold War skullduggery.

Purloined Yak

By Bill Getz

In October 1953, intelligence agents of a Balkan country approached the Central Intelligence Agency resident in their nation, offering to hand over to the US a current Soviet-built fighter—a Yak-23 Flora—on a very short-term basis. Thus began a project involving a small number of Air Force and CIA personnel. It was called "Project Alpha."

The Air Force declassified much of the project's technical material in the mid-1990s, but it had expunged the names of the Balkan countries involved and three foreign officials sent as escorts. The CIA was even less forthcoming. Fifty years after the fact, the agency refused to divulge any information. It would not even acknowledge that such a project ever existed.

However, interviews with some Air Force personnel who participated in Project Alpha have helped to lift the veil.

The story went something like this: Agents of an unnamed Balkan country (call it "Balkan Country No. 1") knew a crated Yak-23 fighter was being transported by train through their country to another nation—Balkan Country No. 2. The agents of No. 1 suggested that the US could take the fighter, study it, flight-test it, and then return it in the crates exactly as it had been picked up.

Soon, all parties shook hands on the deal.

USAF sent a C-124 to Balkan Country No. 1. The C-124 flew the crated and disassembled Yak-23, along with the three foreign escorts, to USAF's Air Technical Intelligence Center (ATIC) at Wright-Patterson AFB,

Photo via Robert F. Dorr

As a cover story to explain possible sightings, USAF ordered those in the know to say the Yak-23 was the experimental Bell X-5 aircraft. The two airplanes bore a passing resemblence, and the Yak had been given temporary US markings.

Ohio. There, the Yak was reassembled, flight-tested, disassembled again, recrated, and flown back to Balkan Country No. 1.

Getting the Yak

After receiving the offer, CIA agents contacted ATIC, whose mission was to acquire and evaluate foreign aircraft.

The first step was to arrange transport for the Yak. In early November 1953, a C-124 cargo aircraft, assigned to the 4th Troop Carrier Squadron, 62nd Troop Carrier Wing, Larson AFB, Wash., was dispatched to Wright-Patterson. The pilot was Capt. Leroy D. Good, a highly experienced veteran of troop carrier operations. Good and his crew received a briefing covering the bare essentials of the flight. They were not told the purpose or the ultimate destination.

The first leg of the journey took the C-124 to Westover AFB, Mass. From there, it flew to a US air base near Munich, where it was refueled. The crew was given another briefing and made ready to continue its flight, having been told that the exact destination was to be revealed en route. The C-124, a large four-engine aircraft, was easy to identify, so there was no effort to conceal its USAF markings, but the flight was to be made at night.

However, Good and his crew never took off on the mission. Instead, they were sent back to Larson. Good still does not know why. That was not his last involvement in Project Alpha, though.

Another C-124 from his same unit took over and completed the pickup. This second transport delivered the crated Yak-23 to Wright-Patterson. Upon landing, the C-124 was towed near Hangar 145, where the crates were unloaded and taken into a secure area.

Flight Testing

Time was short, because the crates had to be returned before anyone noticed they were gone. The disassembled aircraft was quickly reassembled and underwent its first test flight on Nov. 4, 1953, at Wright-Patterson.

Heading the top secret Project Alpha at ATIC was Air Force civilian I.H. Herman. He lined up test pilots Lt. Col. Fred Wolfe, chief of USAF fighter test, and Capt. Tom Collins. Wolfe flew a safety airplane on the wing of the Yak-23, while it was flown by Collins. Ray Gardiner was chosen as maintenance crew chief. Assisting him were two other mechanics, Stan Kulikowski and Ronnie Wilcoxin.

During the flight tests, the Yak-23 was disguised with removable USAF markings. The Air Force created a cover story to explain the "strange aircraft" to curious eyes. If asked, project members were to say it was the X-5 experimental aircraft.

The cover was soon put to the test. Some F-86 pilots assigned to a fighter-interceptor squadron at the base were taxiing out during an early morning no-notice practice alert at the same time Collins was getting ready to take off in the Yak. At the officers' club that evening, the F-86 pilots asked Collins about the strange aircraft. Collins gave them the cover story. The Yak-23 did bear a resemblance to the X-5, so perhaps the story fooled the inquisitors. One of the two X-5s built had been destroyed in a crash, but one was still flying, so it would be difficult to dispute the claim.

In all, Collins made eight test flights in the Yak-23. The last took place on Nov. 25, 1953.

The Return

For the return trip, airlift pilot Good again got the call. He flew C-124 tail No. 0097.

Good said that when he arrived at

To retrieve the Yak, the Air Force flew a C-124 transport from Wright-Patterson AFB, Ohio, to Germany, and then on to Yugoslavia. It picked up a fighter that had already been broken down and loaded into crates.

Wright-Patterson, workers hung a black curtain inside his C-124, separating most of the cargo area from the front of the airlifter. He said that six to 12 men "who spoke a foreign language" boarded the C-124, along with a man wearing an Air Force colonel's uniform. The colonel, who gave Good route and destination flight directions, wore no name tag and did not offer his name. Good did not ask.

The disassembled and re-crated Yak was loaded aboard the C-124 and the return journey began. The aircraft flew heavy, according to Good. They again flew to the US air base outside Munich. At the base flight operations center, Good filed an instrument flight rules plan for an airfield north of the Munich area. The C-124 departed Munich at night and flew north after takeoff. Almost immediately, the colonel ordered Good to shift to a southerly course.

Base air traffic controllers, said Good, kept trying to contact the C-124 to find out why it was deviating from its flight plan. The colonel ordered Good not to respond. When Good protested, the colonel told him that the change had "all been arranged."

After flying the southerly course for a brief period, Good was told to take an east to southeast heading. The C-124 was soon joined by an escort of two propeller-driven fighter aircraft, one on each wing. It was too dark for Good to identify the aircraft or see their national markings. All three aircraft flew without lights.

They landed in the middle of the night at a military airfield and were met by jeeps that led them to a remote parking area. The people who met them brought food and drink. The C-124 engineer, Sgt. Roy H. Bass, recalled one gregarious and happy member of the welcoming party giving him a yellow bottle of Sljivovica, a Serbian liqueur.

The C-124's passengers, except the colonel, departed the aircraft and boarded a bus. The colonel and aircrew stayed with the C-124, which was unloaded quickly. Shortly after landing, the Americans took off and the colonel told Good to fly directly to Paris. At Orly Field, the colonel thanked the crew and wished them good-bye. Good and his crew returned to Larson Air Force Base.

Who Provided the Yak?

Air Force documentation clearly shows that a crated Yak-23 was being shipped via rail through Balkan Country No. 1 to Balkan Country No. 2. Both were identified as communist countries. The same records made it clear that the shipment did not originate in a third Balkan country.

Four former Soviet client states have flown Yak-23s. Two were Balkan: Bulgaria and Romania. Two were not: Czechoslovakia and Poland. Yugoslavia was undoubtedly Balkan Country No. 1—the one that "loaned" the Yak to the US.

Good confirmed that in an interview. He said he knows that, when he made the classified flight from Wright-Patterson, he flew into a military airfield near Belgrade, Yugoslavia. At that time, Pancevo field near Belgrade was a military pilot training base.

Why would Yugoslavia offer the Yak-23 to the US? At about this time, the US and Yugoslavia had been working out a military security arrangement.

Photo via Robert F. Dorr

The Yak-23, shown here in its removable USAF markings, was of questionable quality but was in service with several Warsaw Pact nations. It was flown by Czechoslovakia and Poland, in addition to Bulgaria and Romania.

The leader of Yugoslavia, Josip Broz, better known as Tito, practiced his own form of communism, independent of direction from Moscow. This difference of opinion came to a head early in 1948, and Stalin broke off relations with Yugoslavia, withdrawing all materiel support.

Tito believed that survival of his government depended upon getting the support of Western powers, particularly the United States. The US saw an opportunity to use a split in the communist bloc to its advantage, including gaining a foothold in the Balkans to help defuse the communist problem facing NATO member Greece.

Starting in 1949, Western nations began limited economic support to Yugoslavia. Two years later, the US began shipping weapons to Tito.

Photo via Robert F. Dorr

The purloined Yak is shown here in flight with its temporary markings and designation of FU-599. In all, the Yak was flown eight times at Wright-Patterson between Nov. 4 and Nov. 25, 1953, when it was spirited back to the Balkans.

A Long Intelligence History

The Air Technical Intelligence Center (ATIC) traces its roots to 1917. It was in that year that the Army Signal Corps' Airplane Engineering Department formed the Foreign Data Section at McCook Field, near Dayton, Ohio. The mission of the section was to study foreign aircraft, translate aerospace documents, and maintain a technical library on foreign equipment.

By 1942, during World War II, the section had evolved and become the Technical Data Laboratory. By 1945, TDL had grown from 25 to 750 people and had been redesignated the T-2 intelligence section. Along the way, it moved from McCook to Wright Field. T-2's primary job was to evaluate German and Japanese aircraft and technical documents.

In 1951, the Air Force created ATIC and made evaluation of Soviet technology its primary scientific and technical intelligence mission.

Although ATIC was discontinued 10 years later, its mission continued. On July 1, 1961, USAF created, within Air Force Systems Command, the Foreign Technology Division, headquartered at Wright-Patterson.

Out of FTD grew today's National Air and Space Intelligence Center, still headquartered at Wright-Patterson. NASIC is a component of the Air Intelligence Agency.

Some unofficial sources claim that US military personnel were also sent to Yugoslavia in the early 1950s to help train the Yugoslav Air Force.

In October 1953, the opportunity to provide the US with a Soviet-built fighter aircraft—even temporarily—would have seemed a ready-made way to further cement US-Yugoslav relations.

No Real Value?

There was probably no way for Yugoslav officials to know that, weeks earlier, the US had acquired a MiG-15 when a North Korean Air Force pilot, Lt. Kum Sok No, flew one to Kimpo Air Base, near Seoul in South Korea. In September 1953, the 21-year-old defector landed his MiG near a USAF F-86 and turned over his fighter.

Air Force tactical intelligence personnel at Kimpo partially disassembled the fighter, which was flown aboard a C-124 to Okinawa. After it was reassembled and its North Korean markings were replaced with USAF emblems, Air Force test pilot Collins, the same one to fly the Yak-23 about a month later, became the first to fly the MiG. In all, Collins and Maj. Charles E. Yeager made 11 test flights at Okinawa before the MiG was disassembled again and, in December 1953, transported to the Air Technical Intelligence Center at Wright-Patterson.

The Yak-23 fighter, built by the A.S.Yakovlev design bureau, was obsolete the day it first rolled out the factory door in 1948.

According to an ATIC summary report contained in the Air Force documentation: "The Yak-23, like its predecessors, is a single-seat, low-wing, lightweight fighter, ... which was given in quantities to [Soviet] satellite air forces. ... There is a minimum amount of equipment installed in the aircraft. ... The outstanding features of the aircraft are its takeoff, climb, and acceleration capabilities, which are excellent. ... Lack of cockpit pressurization, a 0.8 Mach No. restriction, and poor directional stability above 325 knots IAS [indicated air speed] are its major drawbacks."

The Yak-23 was outclassed by the MiG-15, which was introduced at about the same time. However, the Yak was a fairly new Soviet fighter and was flown by several Warsaw Pact countries. The offer to study one was an opportunity ATIC obviously could not refuse. ■

Bill Getz is a retired Air Force pilot and industry executive who now focuses on writing and publishing. This is his first article for Air Force *Magazine.*

AFA / AEF National Report

afa-aef@afa.org

By Frances McKenney, Assistant Managing Editor

USAF photo by TSgt. Rich Puckett

During his USAFE visit, AFA National President Pat Condon addresses the 86th Contingency Response Group, Ramstein AB, Germany. Condon had several breakfast and lunch meetings with young airmen and junior officers.

AFA in Europe

AFA National President Stephen P. "Pat" Condon in April received an orientation to the mission, troops, and facilities of US Air Forces in Europe during a three-country visit to Europe. He also had an opportunity to meet with several AFA chapter members during his nine days of information-gathering and outreach activities.

Condon began at Ramstein AB, Germany, listening to briefings on USAFE, Allied Air Force North Europe (AIRNORTH), 86th Airlift Wing and 435th Air Base Wing operations, the Kisling NCO Academy, and the DOD dependents school system.

A first-night highlight was dinner with USAFE Commander Gen. Robert H. Foglesong and his other guests of honor: Daniel R. Coats, US ambassador to Germany, and Peter W. Bodde, the consul general based in Frankfurt.

Condon spoke to Coats about AFA's "Adopt a Base" initiative and said later that the envoy was enthusiastic about the idea. (See "AFA in Action," p. 84.)

Meeting Condon for dinner the next night were Denny T. Mauldin, AFA special assistant Europe; Lt. Col. Kathryn C. Wallace, president of the **Lufbery-Campbell Chapter** at Ramstein; and other chapter officers. Wallace was president of another AFA overseas chapter, **MiG Alley (South Korea),** before her assignment to Ramstein.

At Spangdahlem AB, Germany, Condon received briefings on 52nd Fighter Wing missions and met wing commander Brig. Gen. Stephen P. Mueller, a **Spangdahlem Chapter** member.

Condon visited the flight line, a dorm, a modern recreation center, and the education center, as well as Bitburg Annex's Airman Leadership School.

When he arrived in Britain, he was met by Maj. Gen. Michael W. Wooley, 3rd Air Force commander.

During Condon's visits to RAF Mildenhall and nearby RAF Lakenheath, he talked with several **Lakenheath Chapter** members. Col. Richard T. Devereaux, 100th Air Refueling Wing commander, and Maj. Jarrett Purdue of 3rd Air Force's Logistics Branch were among the members who briefed Condon on missions and operations. With Capt. Jack M. Nemceff II and Capt. Jennifer H. Coyne, Condon discussed efforts to increase AFA involvement in base support activities at the two locations.

Condon participated in the graduation ceremony at Lakenheath's First Term Airman Center, addressing the class of airmen new to the 48th Fighter Wing and presenting graduation certificates.

During a jam-packed Monday at Aviano Air Base—where the **Dolomiti Chapter** is located—Condon was briefed on 31st Fighter Wing operations and the base's $535 million construction project called Aviano 2000. About 80 percent of the construction is finished, and he toured several of the project's completed facilities. He also took time to meet with young airmen at the First Term Airman Center and Airman Leadership School.

For his final full day in Europe, Condon returned to Germany for an office call in Stuttgart with Gen. Charles F. Wald, deputy commander of US European Command. He then traveled to Heidelberg for briefings on the 4th Air Support Operations Group, whose forward air controller work is integrated with 7th Army.

Col. Ralph O. Stoffler, a Lufbery-Campbell Chapter member, coordinated Condon's USAFE orientation and served as escort officer.

From formal briefings by USAFE senior leaders to casual chats with airmen, the information Condon learned helps AFA form its Statement of Policy and Top Issues, and helps determine its legislative agenda.

Condon also raised awareness of AFA through interviews with the American Forces Network at Spangdahlem and the public affairs office at RAF Mildenhall.

Commenting on the USAFE orientation, Condon said, "Nearly everywhere we went, someone expressed appreciation for our visit and for what AFA does in supporting the men and women of our Air Force and for our

role in advocating quality of life issues on Capitol Hill."

Art From AEF

The Aerospace Education Foundation donated a fine-art collection of 16 lithographs to Florida Community College of Jacksonville, with the **Falcon Chapter (Fla.)** making the formal presentation to school officials at a March chapter meeting.

The artwork is part of AEF's limited-edition run of prints from 16 paintings that depict historical events in USAF's first 50 years.

FCCJ's aviation program manager, Richard R. Rozanski Jr., saw the fine-art prints on AEF's Web site and asked the foundation if it would consider donating a few to his school. AEF offered the entire set.

FCCJ's Aviation Center of Excellence runs professional pilot and aviation management and maintenance programs leading to associate degrees. The center is located at the former NAS Cecil Field, now called Cecil Commerce Center.

For the presentation ceremony, Chapter President Frank W. Kozdras arranged a special framing of artist Jim Laurier's "Thud Ridge." The painting shows an F-105D Thunderchief over Southeast Asia. It was signed by retired Gen. Charles A. Horner, retired Col. Leo K. Thorsness, a Medal of Honor recipient, and retired Lt. Col. R.E. "Gene" Smith, who survived more than five years as a POW in North Vietnam's "Hanoi Hilton" and Son Tay prisons. (Smith was later AFA National President and Chairman of the Board, 1994-98.)

Kozdras and chapter member Brig. Gen. Emmett R. Titshaw Jr., assistant adjutant general for the Florida Air National Guard, presented "Thud Ridge" to Duane Dumbleton, president of the college's Kent Campus, and other school officials.

More than two dozen chapter members attended the ceremony. Most toured the center afterward, with the former pilots Gordon H. Fair, Edwin G. Moitoza, Theodore J. Stumm, Roger N. Thomas, Ernest L. Webster, and Kozdras trying out its flight simulators.

The AEF prints will be hung in the aviation center's classrooms and hallways.

Dallas Military Ball

AFA Board Chairman John J. Politi joined USAF Chief of Staff Gen. John P. Jumper and Texas Reps. Sam Johnson (R), Pete Sessions (R), and Martin Frost (D) as the VIP guests at the annual Dallas Military Ball in March.

Photos by Susan Kennedy

AFA Board Chairman John Politi talks with New Zealand's Air Commodore Richard Newlands at Air Force Magazine's annual reception for foreign air attaches. Newlands is dean of the foreign air attache corps. Representatives from more than 30 countries attended the 24th annual reception, held in April in Arlington, Va.

Below, Newlands meets with Sean Ryan, of Raytheon, and Maj. Gen. Michael Gould, director of operational plans and joint matters. Many senior US Air Force leaders attended the event, as did defense contractors.

The **Dallas Chapter** and its Army, Navy, Marine Corps, Guard, and Reserve counterparts organized the first Dallas Military Ball in 1966 in conjunction with the AFA National Convention held that March in the city. Leadership of the formal affair has since rotated among the services. The Air Force was the host this year, with the Dallas Chapter's Kenneth W. Cordier as general chairman. Chapter President Richard L. Hamer and Earl C. Bullock were among other members who took lead roles in organizing the event.

The ball raised more than $140,000 this year, with proceeds going to military organizations such as the Air Force Assistance Fund.

What We Need

In March, AFA National President Condon was a keynote speaker for a symposium sponsored by the Indus-

AFA In Action

The Air Force Association works closely with lawmakers on Capitol Hill, bringing to their attention issues of importance to the Air Force and its people.

■ During a recent visit to Washington, AFA National President Stephen "Pat" Condon made a series of visits to Congressional offices, including one to Alan Hill, who is staff director of the House Air Force Caucus and legislative director to **Rep. Cliff Stearns** (R-Fla.). Condon discussed a proposal to get caucus members to act as sponsors for overseas Air Force bases. Such an endeavor—called "Adopt a Base"—would help ensure lawmakers are aware of quality-of-life and quality-of-service concerns.

Condon also met with several other key staffers to discuss AFA's 2004 Statement of Policy and Top Issues and to emphasize the association's position on upcoming legislation on issues such as the Survivor Benefit Plan, for which AFA has been actively pushing a discharge petition. (See "Action in Congress," p. 24.) Condon also provided them with copies of the annual almanac issue of *Air Force* Magazine and the Aerospace Education Foundation study, "Gulf War II: Aerospace Power Led the Way."

The AFA leader met with Steven T. Peterson, senior policy advisor and counsel to **Rep. Rob Bishop** (R-Utah), Bill Castle, counsel to the Senate Judiciary Committee and military legislative assistant for **Sen. Orrin Hatch** (R-Utah), and Nate Graham, legislative correspondent and acting senior policy advisor for defense in the office of **Sen. Robert Bennett** (R-Utah).

■ AFA Government Relations (GRL) staff members represented AFA and other veterans service organizations (VSOs) when they met recently with a senior member of the Department of Veterans Affairs, **J.W. Nicholson,** undersecretary for memorial affairs. The meeting was held at the National Cemetery Administration (NCA), which currently maintains more than 2.6 million grave sites at 120 cemeteries. The NCA oversaw 305,700 interments during Fiscal 2003.

GRL met with Nicholson to discuss current NCA operations and future needs and to relay to the VA what AFA views as priorities in upcoming legislation. The VA's construction of new cemeteries was of particular interest to AFA's Veterans/Retiree Council. The council asked GRL to reinforce with the VA that the department should request sufficient funds from Congress to establish and maintain a uniform standard of appearance at all national cemeteries.

■ AFA was among the VSOs invited recently to meet with the Defense Department's Reserve Forces Policy Board, created by Congress in 1952 to be the principal advisory body on reserve issues for the Secretary of Defense. **Albert C. Zapanta,** board chairman, wanted to get AFA input on Fiscal 2005 legislative priorities before preparing the board's annual report, which goes to the President and Congress, as well as the Defense Secretary.

AFA's GRL director, Ken Goss, told the board that DOD should never "underestimate the cumulative impact on the Guard and Reserve of extended call-ups." He also said, "Our nation has an obligation to provide fair and comprehensive benefits to those serving and their families, now and in retirement."

Goss went on to enumerate the association's legislative priorities, including extending Tricare benefits for all Guard and Reserve members, decreasing the reserve retirement age to 55, increasing GI Bill benefits, and providing a fair and just compensation system for reservists and tax credits for employer of reservists.

trial Associates for AFA Utah and the Ogden Air Logistics Center at Hill AFB, Utah.

The Hill AFB 2004 Requirements Symposium for defense contractors explained the various projects the base will undertake in the next five years. Keynote speaker Maj. Gen. Kevin J. Sullivan, the OALC commander, spoke about the center's new workloads, ranging from C-17 and F/A-22 support to overhauling generators for the Army. In Fiscal 2003, Hill issued more than 12,000 contracts worth nearly $3 billion, he said.

Grant Hicinbothem from the **Northern Utah Chapter** pointed out that Utah is the only state that has its own roster of Industrial Associates. They number about 60 and represent more than 50 businesses. Some 400 guests from industry and government attended the two days of sessions at the requirements symposium.

Fair Judges

The **Central Oklahoma (Gerrity) Chapter** donated awards for winners in the category of air, space, and meteorological research at a state-level science fair in April.

The Oklahoma State Science and Engineering Fair, which has taken place at East Central University in Ada for 32 years, involved projects from more than 250 students this year.

The chapter awarded a $150 savings bond and certificate of achievement to seventh-grader Corey Swartz from Grove Middle School in Monkey Island, for a project called "G-Whiz II: The Study of G Forces." Melissa Carvell, a seventh-grader from Madison Middle School in Bartlesville received a $100 savings bond and certificate. Kaci Hampton, a 12th-grader at the senior high school in Moore, investigated the question "Do Moon Phases Affect Tornado Frequency and Intensity?" and earned a $50 savings bond and certificate.

Second Lt. Greg Wells presented the awards. He headed a group of six active duty USAF members from Tinker Air Force Base who volunteered as judges.

The chapter participated in the science fair at the suggestion of its membership VP, Lt. Col. Rizwan Ali, commander of Tinker's 32nd Combat Communications Squadron. He was looking for a way to raise awareness of the chapter and to get it and Tinker personnel involved in the community. In an initial effort, Ali sent a group of five volunteers—headed by 2nd Lt. David B. Colao—from his squadron to help judge the local Oklahoma City Science and Engineering Fair in February.

USAF's Cheering Section

When the Air Force Academy's hockey team played Niagara University in upstate New York, **L.D. Bell-Niagara Frontier Chapter** members made sure the Falcons knew they had fans in the audience.

The chapter got together with the local Military Affairs Council and sat in a VIP area overlooking one of the hockey goal nets during the Feb. 20 Friday night game at an ice arena in Lewiston, N.Y.

So there was no doubt about whose side he was on, retired Lt. Col. Richard Waring, the chapter president, wore his old Air Force uniform. Other chapter members in the USAF cheering section included Stephan R. Kovacs Jr., who is the chapter vice president, James Roberts, Robert C. Bienvenue, and William C. Rapp, an AFA national director emeritus.

Waring described the match as "hard-fought, exciting"; unfortunately Niagara University defeated the academy 4-1.

After the game, the chapter cohosted a reception in their VIP area for the academy hockey players, coaches, and team staff members. About 25 guests joined an equal number of fans for a buffet of pasta and chicken.

Waring said this is the third year the chapter has hosted the hockey reception.

No Bomb Required

Described as one of the star weapon systems in the wars in Afghanistan and Iraq, the B-1B also got a rave review from one of its pilots at the April meeting of the **Iron Gate Chapter (N.Y.).**

Maj. Jennifer Fullmer, who has flown the B-1B since 1996, led an October 2001 strike on the first night of Operation Enduring Freedom in Afghanistan. She spoke to the Iron Gate audience about the bomber's capabilities, including its ability to provide close air support and the upgrades that permit en route retargeting of its Joint Direct Attack Munitions.

According to Chapter President Frank Hayes, Fullmer told the audience that, at least in one instance, the B-1B didn't even have to drop a bomb to affect events. She related an anecdote about US troops in a convoy, harassed by enemy gunfire when they stopped to change a vehicle's tire. A B-1B responded to their call for support by making a high-speed pass at 2,000 feet, dropping flares. The noise and pyrotechnics alone suppressed the enemy gunners.

Fullmer has been a B-1B flight instructor and now attends the Naval War College, where she is a member of the **Newport Blue & Gold Chapter (R.I.).**

Weekend in Space

The **Leigh Wade Chapter (Va.)** helped a group of students spend a weekend in space.

Members of the Space Club at Colonial Heights (Va.) Middle School carried out a simulated space mission on a Friday night and Saturday morning in March. Using computers, webcams, radios, and headsets, they simulated the operations of a mission control center, space shuttle, space station, and remote-controlled lunar rover (made from Legos).

The Space Club is sponsored by two teachers who are also chapter members, Melinda Kelley and Sheila Padlo Burroughs. Kelley received AEF's Christa McAuliffe Memorial Award in 2000, as teacher of the year.

In her remarks about the weekend Space Club overnight activity, Kelley told a local newspaper, "We really appreciate the Leigh Wade Air Force Association for helping us achieve our goals. They sponsor us with grants and encouragement."

Annual Drill—Perennial Winner

Nineteen AFJROTC units in Florida sent teams to the annual state AFA drill competition in Valrico, Fla., in April.

The Sunshine State's AFA chapters provided 49 trophies for the event. The top four awards went to Pine Ridge High School of Deltona, Fla. John R. Vick, a member of the **Brig. Gen. James R. McCarthy Chapter,** heads this AFJROTC unit, which took home the top trophies last year, too.

Presenting the awards at this 16th annual contest were Raymond Turczynski Jr., state president; Richard A. Ortega from the **Central Florida Chapter;** Dennis E. Foley, president of the **John C. Meyer Chapter;** and Wayne Gallant, secretary of the **Jerry Waterman Chapter.** Harvey W.C. Shelton, a senior aerospace science instructor and Central Florida Chapter member, served as master of ceremonies. He is also the state AFA AFJROTC liaison.

Enlisted Retirement Villages

While in Florida for the Air Armament Summit in March, AFA National President Condon spent a morning learning about the Air Force Enlisted Foundation from **Eglin Chapter** member retired CMSAF James C. Binnicker.

Binnicker, who was USAF's top enlisted leader from 1986 to 1990, is president and chief executive officer of the foundation. He briefed Condon on the nonprofit agency and its independent-living facilities, Bob Hope

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.

Village in Shalimar and Teresa Village in Fort Walton Beach.

The Air Force Enlisted Foundation, organized in the late 1960s, offers housing and financial assistance to surviving spouses of USAF's enlisted members and eligible retired enlisted couples. The foundation states that the Air Force is the only military service that supports retirement communities exclusively for widows of career enlisted members.

In the two villages, the foundation houses some 400 residents. Its current goal is to build an assisted-living medical facility, so residents don't have to leave their homes when they can no longer care for themselves.

Condon was accompanied on his tour by Raymond Turczynski Jr., Florida state president, and Kenneth E. Hair, foundation marketing director and an Eglin Chapter member.

Allen G. Harris, 1925-2004

Allen G. "Greg" Harris, former Northeast Region president (1994-95) and former New York state president (1993-94), died April 19 in New York. He was 78 years old.

Born in Chicago, Mr. Harris began his military service in World War II and graduated from advanced pilot training at Tuskegee AAF, Ala., in 1944. In his civilian career, he was a journalist.

A life member of AFA, Mr. Harris belonged to the **Gen. Daniel "Chappie" James Jr. Memorial Chapter (N.Y.).**

More AFA/AEF News

■ The **Central Florida Chapter** awarded $8,000 in scholarships to nine AFROTC cadets from the University of Central Florida in Orlando in March at their detachment's annual military ball. John Timothy Brock, chapter president, and Richard A. Ortega, VP for aerospace education, were among the chapter members present. Brock joined Lt. Col. Timothy D. Wieck, the cadets' commander and also a chapter member, in presenting scholarships to Yalunda M. Akinloba, who received a $1,000 scholarship named for the late Gen. Bruce K. Holloway. Other award recipients were Charles E. Bay, Christopher S. Brooks, Jonathan J. Colley, David F. Gordon, Nicholas S. Hoefly, Christopher M. Mayo, Christina D. Simpson, and Joseph A. Vargas. ■

Mail unit reunion notices four months ahead of the event to "Unit Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

AFA Conventions

June 4-5	Oklahoma State Convention, Enid, Okla.
June 4-6	New York State Convention, Ronkonkoma, N.Y.
June 12	Virginia State Convention, Reston, Va.
June 14	Delaware State Convention, Dover, Del.
July 16-18	Pennsylvania State Convention, Altoona, Pa.
July 17	Florida State Convention, Tampa, Fla.
July 23-25	Texas State Convention, Fort Worth, Tex.
July 31	North Carolina State Convention, Asheville, N.C.
Aug. 6-7	Illinois State Convention, Galesburg, Ill.
Aug. 12	Alaska State Convention, Anchorage, Alaska
Aug. 13-14	Missouri State Convention, Kansas City, Mo.
Aug. 14	Georgia State Convention, Warner Robins, Ga.
Aug. 20	Colorado State Convention, Aurora, Colo.
Aug. 20-21	Iowa State Convention, Fort Dodge, Iowa
Aug. 21	Utah State Convention, Ogden, Utah
Sept. 13-15	AFA Air and Space Conference, Washington, D.C.

Unit Reunions

reunions@afa.org

1st Fighter Assn, including the 1st FW/FG, 27th, 71st, and 94th FSs. Sept. 14-19 in Seattle. **Contact:** Jim Graham (206-772-2752) (firstfighter@comcast.net).

4th AAA (SCARWAF) and 7th Air Division, 3910th BG, RAFs Wyton, Mildenhall, Lakenheath, Upper Heyford, and Fairford, UK, and all satellite stations (1950-53). Sept. 26-30 in Omaha, NE. **Contact:** Bill Parkhurst, PO Box #2881, Tulsa, OK 74101 (phone or fax: 918-446-6400).

6th Photo Tech/548th Recon Tech Sqs. Sept. 23-25 in Branson, MO. **Contact:** Guy Dille, 691 Ryland Dr., Pittsburgh, PA 15237-4279 (412-366-2094) (gddrd5k@comcast.net).

8th AF Historical Society Pennsylvania Chapter. June 26-29 at the Days Inn in State College, PA. **Contact:** Fielder Newton, 3301 Shellers Bend #914, State College, PA 16801-3068 (814-235-0889).

12th BG/TFW/FTW. Sept. 22-26 at the Marriott Hotel in Omaha, NE. **Contacts:** Wilbur Anderson, 270 Airport Rd., Pikeville, NC 27863 (919-736-3711) (wanderson6@nc.rr.com) or Mary Bushnell, 1000 Ferndale St. S., Mapelwood, MN 55119 (651-739-0051).

17th Photo Recon Sq (WWII) and related units. Sept. 29-Oct. 2 at the Holiday Inn in Bossier City, LA. **Contacts:** Joe and Helen Hafter, 9086 Campfire Dr., Shreveport, LA 71115 (318-524-0602) (jha4104382@aol.com) or John Rodolf, 2842 E. 32nd Pl., Tulsa, OK 74105 (918-747-6558) (jrodolf@sbcglobal.net).

27th Air Transport Gp, including 310th, 311th, 312th, and 325th Ferrying Sqs; 86th, 87th, 320th, and 321st Transport Sqs; and 519th and 520th Service Sqs. Sept. 30-Oct. 3 in Bossier City, LA. **Contact:** Fred Garcia, 6533 W. Altadena Ave., Glendale, AZ 85304 (623-878-7007).

86th FBG Assn (WWII). Aug. 11-15 at the Lodge of the Ozarks in Branson, MO. **Contact:** Sid Howard, 211 Brownstowne Dr., La Habra, CA 90631-7397 (phone or fax: 714-992-2504) (ww2gfu@juno.com).

99th BG (WWII). Sept. 8-12 in Baltimore. **Contact:** Jim LaVey, 2414 Girdwood Rd., Timonium, MD 21093 (410-252-5688).

303rd ARS. Sept. 8-12 at the Holiday Inn Riverwalk in San Antonio. **Contact:** Dick Moore, 16630 Neumann Dr., Houston, TX 77058 (281-488-2034) (moorex2@hal-pc.org).

366th Fighter Assn. September in Dayton, OH. **Contacts:** John France (817-860-2780) (luv_2_fly@sbcglobal.net) or Steve Pennington (425-774-7504) (gunfighterII@juno.com).

376th BG (H), including 58th Service Sq, North Africa-Italy, WWII. Sept. 8-12 at the Radisson Riverview Hotel in Covington, KY. **Contact:** Charlie Yates (817-292-5900).

384th ARS. Sept. 9-12 at the Navy Outdoor Recreation Area in Monck's Corner, SC. **Contact:** Ken Godstrey, 12018 Maycheck Ln., Bowie, MD 20715 (301-464-1150) (kengodstrey@comcast.net).

600th/601st Photo Sqs, Southeast Asia (1965-74). September in Albuquerque, N.M. **Contact:** Ron Marshall, 254 Quetzal Dr. S.W., Albuquerque, NM 87105-0304 (505-254-7984) (rronmarshall@aol.com).

686th AC&W Sq. Aug. 20-22 at the Park Vista Resort Hotel in Gatlinburg, TN. **Contact:** Jerry Hobbs (865-428-3123) (srheadhunter@aol.com).

Arc Light/Young Tiger (Vietnam). Sept. 2-6 in Colorado Springs, CO. **Contact:** Paul Maye, 72 Pleasure Trl., Penrose, CO 81240 (719-372-6293) (www.arc-light-reunion.us).

Pilot Class 53-A, all bases. Sept. 9-12 in Colorado Springs, CO. **Contact:** Ted Gesling, 2414 Condor St., Colorado Springs, CO 80909 (719-632-2156).

Pilot Training Class 52-F. Sept. 16-19 in Fort Worth, TX. **Contact:** J.C. Buehrig, 8105 Knotingham, Waco, TX 76712-3405 (254-399-8308) (jjbuehrig@juno.com).

Pilot Training Class 55-O. September 2005 in San Antonio. **Contacts:** Don Wallin (281-491-0647) (forepkw@aol.com) or Jerry Ohlson (623-546-9523) (jerryohlson@cox.net).

Seeking members of **Aviation Cadet Class F-18,** Lackland AFB, TX (December 1954) for a reunion in 2005. **Contact:** Joe Guinta, 607 E. Manley Ave., Metairie, LA 70001 (504-835-1987) (nanaandbamps@aol.com).

Seeking members of **Pilot Training Class 56-H,** Moore and Laredo AFBs, TX, for a reunion. **Contact:** Jim McDonnell (jim@thedrummer.com).

Seeking members of **UPT Class 75-05,** Williams AFB, AZ, for a reunion in 2005. **Contact:** Bob Ullman, 6922 205th St. S.E., Snohomish, WA 98296 (425-308-4737) (bpullman@earthlink.net). ■

AFA Field Contacts

Central East Region

Region President

James Hannam
6058 Burnside Landing Dr., Burke, VA 22015-2521 (703) 284-4248

State Contact

DELAWARE: Richard B. Bundy, 39 Pin Oak Dr., Dover, DE 19904-2375 (302) 730-1459.
DISTRICT OF COLUMBIA: Rosemary Pacenta, 1501 Lee Hwy., Arlington, VA 22209-1198 (703) 247-5820.
MARYLAND: Andrew Veronis, 119 Boyd Dr., Annapolis, MD 21403-4905 (410) 571-5402.
VIRGINIA: Mason Botts, 6513 Castine Ln., Springfield, VA 22150-4277 (703) 284-4444.
WEST VIRGINIA: John R. Pfalzgraf, 1906 Foley Ave., Parkersburg, WV 26104-2110 (304) 485-4105.

Far West Region

Region President

John F. Wickman
1541 Martingale Ct., Carlsbad, CA 92009-4034 (760) 476-9807

State Contact

CALIFORNIA: Dennis R. Davoren, P.O. Box 9171, Beale AFB, CA 95903-9171 (530-634-8818).
HAWAII: Jack DeTour, 98-1108 Malualua St., Aiea, HI 96701-2819 (808) 487-2842.

Florida Region

Region President

Raymond Turczynski Jr.
229 Crewilla Dr., Fort Walton Beach, FL 32548-3942 (850) 243-3649

State Contact

FLORIDA: Raymond Turczynski Jr., 229 Crewilla Dr., Fort Walton Beach, FL 32548-3942 (850) 243-3649.

Great Lakes Region

Region President

J. Ray Lesniok
11780 Jason Ave., Concord Township, OH 44077-9515 (440) 352-5750

State Contact

INDIANA: William R. Grider, 4335 S. County Rd., Kokomo, IN 46902-5208 (765) 455-1971.
KENTUCKY: J. Ray Lesniok, 11780 Jason Ave., Concord Township, OH 44077-9515 (440) 352-5750.
MICHIGAN: Billie Thompson, 488 Pine Meadows Ln., Apt. 26, Alpena, MI 49707-1368 (989) 354-8765.
OHIO: Daniel E. Kelleher, 4141 Colonel Glenn Hwy., #155, Beavercreek, OH 45431-1666 (937) 427-8406.

Midwest Region

Region President

Keith N. Sawyer
813 West Lakeshore Dr., O'Fallon, IL 62269-1216 (618) 632-2859

State Contact

ILLINOIS: Frank Gustine, 998 Northwood Dr., Galesburg, IL 61401-8471 (309) 343-7349.
IOWA: Marvin Tooman, 1515 S. Lakeview Dr., West Des Moines, IA 50266-3829 (515) 490-4107.
KANSAS: Gregg A. Moser, 617 W. Fifth St., Holton, KS 66436-1406 (785) 364-2446.
MISSOURI: Judy Church, 8540 Westgate St., Lenexa, KS 66215-4515 (913) 541-1130.
NEBRASKA: William H. Ernst, 410 Greenbriar Ct., Bellevue, NE 68005-4715 (402) 292-1205.

New England Region

Region President

Eric P. Taylor
17 Foxglove Ct., Nashua, NH 03062-1492 (603) 883-6573

State Contact

CONNECTICUT: Carolyn R. Fitch, 952 Tolland St., East Hartford, CT 06108-1533 (860) 292-2449.
MAINE: Eric P. Taylor, 17 Foxglove Ct., Nashua, NH 03062-1492 (603) 883-6573.
MASSACHUSETTS: Donald E. Wussler Jr., 3 Heritage Rd., Hanscom AFB, MA 01731 (781) 377-5767.
NEW HAMPSHIRE: Ed Josephson, 23 Ole Gordon Rd., Brentwood, NH 03833-6213 (603) 778-1495.
RHODE ISLAND: Joseph Waller, 202 Winchester Dr., Wakefield, RI 02879-4600 (401) 783-7048.
VERMONT: David L. Bombard, 429 S. Prospect St., Burlington, VT 05401-3506 (802) 862-7181.

North Central Region

Region President

Robert P. Talley
921 1st St. N.W., Minot, ND 58703-2355 (701) 723-3889

State Contact

MINNESOTA: Richard Giesler, 16046 Farm to Market Rd., Sturgeon Lake, MN 55783-9725 (218) 658-4507.
MONTANA: Al Garver, 203 Tam O'Shanter Rd., Billings, MT 59105 (406) 252-1776.
NORTH DAKOTA: Larry Barnett, 1220 19th Ave. S.W., Minot, ND 58701-6143 (701) 723-3390.
SOUTH DAKOTA: Ronald W. Mielke, 4833 Sunflower Trail, Sioux Falls, SD 57108-2877 (605) 339-1023.
WISCONSIN: Henry C. Syring, 5845 Foothill Dr., Racine, WI 53403-9716 (414) 482-5374.

Northeast Region

Region President

Raymond "Bud" Hamman
9439 Outlook Ave., Philadelphia, PA 19114-2617 (215) 677-0957

State Contact

NEW JERSEY: Robert Nunamann, 73 Phillips Rd., Branchville, NJ 07826-4123 (973) 334-7800, ext. 520.
NEW YORK: Fred Di Fabio, 8 Dumplin Hill Ln., Huntington, NY 11743-5800 (516) 489-1400.
PENNSYLVANIA: Edmund J. Gagliardi, 151 W. Vine St., Shiremanstown, PA 17011-6347 (717) 763-0088.

Northwest Region

Region President

O. Thomas Hansen
97-D Chinook Ln., Steilacoom, WA 98388-1401 (253) 984-0437

State Contact

ALASKA: Gary A. Hoff, 16111 Bridgewood Cir., Anchorage, AK 99516-7516 (907) 552-8132.
IDAHO: Donald Walbrecht, 1915 Bel Air Ct., Mountain Home, ID 83647 (208) 587-2266.
OREGON: Greg Leist, P.O. Box 83004-0004, Portland, OR 97283-0004 (360) 397-4392.
WASHINGTON: Kenneth J. St. John, 8114 29th St. W., University Place, WA 98466-2725 (253) 279-6832.

Rocky Mountain Region

Region President

Charles P. Zimkas Jr.
310 S. 14th St., Colorado Springs, CO 80904-4009 (719) 576-8000, ext. 130

State Contact

COLORADO: David Thomson, 29 Kyndra Ct., Canon City, CO 81212-9465 (719) 275-8818.
UTAH: Ted Helsten, 1339 East 3955 South, Salt Lake City, UT 84124-1426 (801) 277-9040.
WYOMING: Irene Johnigan, 503 Notre Dame Ct., Cheyenne, WY 82009-2608 (307) 632-9465.

South Central Region

Region President

Peyton Cole
2513 N. Waverly Dr., Bossier City, LA 71111-5933 (318) 742-8071

State Contact

ALABAMA: Albert A. Allenback Jr., 7325 Wynlakes Blvd., Montgomery, AL 36117-5196 (334) 834-2236.
ARKANSAS: Paul W. Bixby, 2730 Country Club Dr., Fayetteville, AR 72701-9167 (501) 575-7965.
LOUISIANA: Albert L. Yantis Jr., 234 Walnut Ln., Bossier City, LA 71111-5129 (318) 746-3223.
MISSISSIPPI: Leonard R. Vernamonti, 1860 Mcraven Rd. Clinton, MS 39056-9311 (601) 925-5532.
TENNESSEE: James C. Kasperbauer, 2576 Tigrett Cove, Memphis, TN 38119-7819 (901) 685-2700.

Southeast Region

Region President

Robert E. Largent
817 Forest Hill Rd., Perry, GA 31069-3645 (478) 987-2435

State Contact

GEORGIA: Art Bosshart, 100 Park Dr., Warner Robins, GA 31088-5167 (478) 929-1454.
NORTH CAROLINA: William D. Duncan, 11 Brooks Cove, Candler, NC 28715 (828) 667-8846.
SOUTH CAROLINA: David T. Hanson, 450 Mallard Dr., Sumter, SC 29150-3100 (803) 469-6110.

Southwest Region

Region President

Peter D. Robinson
1804 Llano Ct. N.W., Albuquerque, NM 87107-2631 (505) 343-0526

State Contact

ARIZONA: James I. Wheeler, 5069 E. North Regency Cir., Tucson, AZ 85711-3000 (520) 790-5899.
NEVADA: Robert J. Herculson, 1810 Nuevo Rd., Henderson, NV 89014-5120 (702) 458-4173.
NEW MEXICO: Ed Tooley, 6709 Suerte Pl. N.E., Albuquerque, NM 87113-1967 (505) 858-0682.

Texoma Region

Region President

Michael G. Cooper
1815 Country Club Dr., Enid, OK 73703-2027 (918) 596-6002

State Contact

OKLAHOMA: George Pankonin, 2421 Mount Vernon Rd., Enid, OK 73703-1356 (580) 234-1222.
TEXAS: Edward W. Garland, 6617 Honey Hill, San Antonio, TX 78229-5423 (210) 339-2398.

Special Assistant Europe

Special Assistant

Denny Mauldin
PSC 2, Box 9203, APO AE 09012 011-49-631-52031

Special Assistant Pacific

Special Assistant

Gary L. McClain
Komazawa Garden House D-309, 1-2-33 Komazawa Setagaya-ku, Tokyo 154-0012, Japan 81-3-3405-1512

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

Pieces of History

Photography by Paul Kennedy

Sled Slider

The John P. Stapp Air & Space Park at Holloman AFB, N.M., boasts an outdoor display of rockets, missiles, rocket engines, and other artifacts of US air and space development. Pictured here is Sonic Wind I, a famed rocket sled used to test the effect on humans of acceleration, deceleration, and G forces. The sled could reach speeds exceeding 600 mph. The 1,500-pound sled was mounted on a 2,000-foot-long railroad track, all supported on a bed of concrete. The sled's most famous and frequent rider was Col. John Paul Stapp, an Air Force flight surgeon who had been given the task of finding out whether a pilot could eject from an airplane at supersonic speed and live. On Dec. 10, 1954, the 44-year-old Stapp rode the sled to a record 632 miles an hour, decelerating to zero in a second and a quarter with a force of about 35 Gs, equivalent to a high-altitude ejection at supersonic speed. Stapp survived and went on to make many contributions in aerospace physiology.

MISSION DRIVEN ~~32,000~~ HOURS.

The only mission-proven choice, from Combat Search and Rescue to Executive Transport.

- Mission-proven worldwide: 45,000 flying hours and counting
- 170 mph speed
- 750-nautical-mile range
- 7-hour-plus endurance
- Can carry 30-plus troops, depending on configuration
- Air-transportable and self-deployable
- All-weather operation
- Exceptional systems redundancy
- Advanced survivability technologies
- The new standard in personnel recovery
- The next generation of helicopter, ready now

US101 REPORTING FOR DUTY

AGUSTAWESTLAND

LOCKHEED MARTIN

Bell Helicopter
A Textron Company


www.boeing.com
POINTING THE WAY FOR GPS.
As the GPS needs of the global user community expand, Boeing will continue to be there, providing innovative system solutions with unlimited potential. Our commitment carries with it thirty years of unmatched GPS expertise backed by a proven track record of reliability. For our customers that means a GPS partnership that's pointing straight to the future.
BOEING
Forever New Frontiers