

July 2004/\$4

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

The Courage of Lance Sijan

Securing the Space Arena
The Guard and Reserve in a Time of War
Pacific Airpower

IF THE MISSIONS WERE ANY MORE REAL,
WE'D HAVE TO ACTUALLY BRING IN THE BAD GUYS.



*"Launching the first HARM
of Operation Iraqi Freedom,
my flight location and
the tactics we used were
exactly like we had
practiced in the MTC."
—F-16 Pilot*



Lockheed Martin's F-16 Mission Training Center provides training missions that look and feel like the real deal for both the Air National Guard and the Air Force Reserve Command. In fact, we are the world leader in simulation and training. And with our advanced technology simulation and training hardware and software, we're able to meet both the current and projected F-16 training needs of the USAF Air Combat Command. We offer a foundation and flexibility to tailor a best-value, ground-based pilot training solution. One that meets any F-16 aircraft configuration, training philosophy and interoperability requirement. With our F-16 MTC, when the bad guys are real, our warfighters are ready for them.

LOCKHEED MARTIN
We never forget who we're working for™



AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION MAGAZINE

July 2004, Vol. 87, No. 7

www.afa.org

- 4 Letters
- 10 Aerospace World
- 17 Senior Staff Changes
- 18 Index to Advertisers
- 19 Action in Congress
- 21 Verbatim
- 43 Flashback
- 57 Books
- 71 This Is AFA
- 82 AFA/AEF National Report
- 86 Unit Reunions
- 87 Field Contacts
- 88 Pieces of History



About the cover: In this photo taken in Vietnam in 1967, 1st Lt. Lance Sijan boards an F-4C. See "The Courage of Lance Sijan," p. 50.

2 Editorial: Protect, Prevent, Prevail

By Robert S. Dudley
Few would disagree with Myers' missions. The question is: What kind of force is needed to execute them?

6 Washington Watch

By John A. Tirpak
The Tanker Delay; F-15s Meet Defeat?; Other Services Stay the Course on Space; More Emphasis on UAVs

22 Guard and Reserve in a Time of War

By James Kitfield
Recent years have seen the longest sustained, large-scale mobilization in Air Force history.

30 Securing the Space Arena

By John A. Tirpak
Air Force plans call for defensive and offensive systems to protect vital US spacecraft.

36 Airpower for a Big Ocean

By Adam J. Hebert
PACAF must contend with smoldering crises, vast distances, and the aging of its aircraft.

44 Storms of War

By Rebecca Grant
From Mideast deserts to Balkan mountains, weather has a big impact on combat operations.

50 The Courage of Lance Sijan

By John T. Correll
The ordeal in the jungle didn't break him. Neither did his North Vietnamese captors.

58 Force Shaping

By Bruce D. Callander
In the new drawdown, USAF won't just shoot for a number. It will also seek a proper force balance.



36

64 Sea Basing

By Otto Kreisher
The naval services—and maybe the Army—view this as one answer to the anti-access problem.

68 Finishing the Job in Iraq

Sen. John McCain, Arizona Republican, believes success requires seven steps.

72 The Secret at Complex J

By Dwayne A. Day
At Tyuratam, the Soviet moon booster emerged slowly and suffered disaster.

78 Rhythm and Blue

By Bill Getz
Songs tell the cultural history of the Air Force—and other services, too.

AIR FORCE Magazine (ISSN 0730-6784) July 2004 (Vol. 87, No. 7) 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. Trademark registered by Air Force Association. Copyright 2004 by Air Force Association.

By Robert S. Dudney, Editor in Chief

Protect, Prevent, Prevail

IN MID-MAY, Gen. Richard B. Myers, the Chairman of the Joint Chiefs of Staff, signed off on the first new military strategy in seven years. Its purpose, according to a DOD definition of the work, was to lay out the means for "distributing and applying military power to attain objectives in peace and war."

It wasn't the first time the subject had been addressed in the Bush years. In 2001, Defense Secretary Donald H. Rumsfeld unveiled a muscular new defense strategy. In 2002, President Bush issued a broader national security strategy, embracing pre-emptive or preventive war.

However, the last purely military strategy paper came out in 1997. Gen. John M. Shalikashvili wrote that US armed forces would be used to shape world conditions, respond to threats, and prepare for the future. After 9/11, this "shape, respond, prepare" idea faded away, but no formal military concept replaced it.

Myers has filled the void with "National Military Strategy 2004," which has circulated widely in Washington. In many ways, it is an impressive piece of work. Compared to the 1997 concept, it has a harder edge. It provides a bridge between broad civilian goals and real-world actions of service chiefs and combat commanders.

The Myers paper declares US military leaders and forces have three priorities. They are to win the war on terrorism, increase the powers of the four individual services to fight together, and transform the nation's military forces.

According to Myers, success in these areas will help the American military carry out its fundamental military missions. They are:

- Protect the United States. Taking an aggressive stance, the paper declares, "Our first line of defense is abroad," where the nation's forces can "counter threats close to their source." In addition, the military must secure air, land, sea, and space approaches closer to US territory.

- Prevent conflict and surprise attacks. Forward presence, good intelligence, and security assistance are vi-

tal. At a time when a foe might possess nuclear, chemical, or biological weapons, said the paper, the potential for "catastrophic" damage may require US forces to "pre-empt adversaries before they can attack." The US would target only those adversaries who pose "an unmistakable threat of grave harm" and are "not otherwise deterrable."

- Prevail in war. This is becoming a more complicated task, according to Myers. He warns that "the character of

Few would disagree with Myers' missions. The question is: What kind of force is needed to execute them?

conflict has changed," and the US needs capabilities to defeat a wide range of adversaries "from states to nonstate actors." The global battlespace is more complex and sprawling, encompassing blighted urban areas and remote, ungoverned wastelands. Technology of high military value is widely diffused and must be countered.

Few would disagree with Myers' missions. The question is: What kind of force is needed to execute them?

The military's force-sizing standard is unchanged. Myers' paper explicitly accepts the so-called "1-4-2-1" concept that Rumsfeld unveiled in 2001.

That concept says the force should be big enough to: defend the homeland, deter aggression in four key theaters (Southwest Asia, Northeast Asia, East Asia's littoral, Europe), "swiftly defeat" two aggressors simultaneously, and have the power to occupy and effect regime change in one of those aggressor nations.

Without doubt, these requirements place formidable pressure on America's smallish armed force of some 1.4 million active and 900,000 Guard and Reserve troops. Myers does not, however, believe the force is too small for the mission.

"Given current force levels and appropriate resources," said the paper, "this strategy is executable."

Even so, there are warning signs.

The strategy emphasizes "innovative and efficient" use of US troops to cover commitments, no doubt because the force margin is razor thin. The paper cites several factors as worthy of senior leader attention.

New Baseline. The war on terrorism is an addition to, and not a substitute for, pre-existing missions. And it is not going away. Its "extremely demanding circumstances," said Myers, are part of every commander's permanent bag of worries. These officers must find "options" and "trade-offs" to cope with increased risk.

Disengagement. The Pentagon has long claimed that, faced with a war, it would pull forces from smaller operations and make them available. However, Washington may be unwilling or unable to do so, warned Myers. Commanders are therefore instructed to "consider" this in planning for conflicts.

Escalation. Small operations can swiftly escalate to large-scale conflicts and unexpectedly draw in forces that may be committed elsewhere. Reducing the risk of this escalation requires forward presence and ability to "surge" reinforcements where needed.

Transformation. US armed forces will be transformed "in stride," said Myers, meaning the fielding of new concepts and systems must continue even at a time of high operational tempo. "Transforming" forces often will be taken off-line for training and be unavailable for operations.

Each of these factors increases risk—defined as the gap between actual requirements and the level of forces available to meet them. The actual level of risk is not stated; a classified annex deals with that issue. Myers does, however, admonish senior military leaders to find ways to "mitigate" risks by rethinking how, when, and where forces are deployed.

We don't doubt that Myers has produced the best possible plan for "distributing and applying military power to attain objectives in peace and war." Yet to be answered, however, is the question of whether there is enough of that power to go around. ■

US101



45,000
~~40,000~~

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 

BE! Helicopter
A Textron Company

Twentieth Air Force

Herman S. Wolk, in his excellent article "The Twentieth Against Japan" [April, p. 68], is in error when he states, "Historically, unity of command over Army forces resided with a theater commander, who held operational authority within a geographic area. Fleet units of the US Navy ultimately were commanded by the Chief of Naval Operations, who was commander of the US fleet and who reported to the JCS."

Virtually all US forces were assigned to the theater or "unified commanders," including naval forces. For example, the ships and aircraft of the US Seventh Fleet provided naval support to operations by Gen. Douglas MacArthur, the unified commander for the Southwest Pacific area and were under his direct control; the Eighth Fleet, established to conduct the amphibious landings at Sicily and Salerno, was under unified commanders in the Mediterranean. The Third and Fifth Fleets in the Pacific—which alternated control of the same naval forces—were under Adm. Chester W. Nimitz in his role as the unified commander for Pacific Ocean Areas.

Adm. Ernest J. King, as commander in chief of the US fleet, did have direct command of the Tenth Fleet, but that was a "paper" fleet established in May 1943 within the Navy Department to coordinate antisubmarine warfare. It had no ships assigned. Rather, the only ships over which Admiral King had operational control were a couple of flagships that did not leave coastal waters.

Twentieth Air Force was probably the only major US force in World War II that was not under a theater commander. While Twentieth Air Force "proved to be a landmark in demonstrating the independent use of airpower," as Dr. Wolk stated, in view of the German and Japanese refusal to surrender under conventional aerial bombardment, analysis may be warranted as to what impact the waves of B-17s and B-24s in Europe and B-29s in the Pacific could have had on the outcome of the conflict had they been directly subordinate to the theater/uni-

fied commanders. For example, B-17 and B-24 strikes on Germany in 1942-44 had little impact on German aircraft production. What would have been the impact of devoting one-half of their sorties against aircraft factories to operations against U-boats or bombing U-boat pens in France while they were still under construction?

Norman Polmar
Alexandria, Va.

Hurrah for Jumper

I didn't get the opportunity to serve with Gen. John P. Jumper during my career. But I wish I had. In "USAF Can Cut Mishaps 50 Percent," [*Aerospace World*, April, p. 20], he cuts right to the quick—responsibility and accountability from the top down.

Safety and mishap prevention is a 24/7 hands-on attitude. It's got to be second nature. Mishaps, which have always been caused by human error at some point in the equation, will go down when attention to detail and follow-up, follow-up, follow-up are key components in operations and program planning and execution, no matter what Air Force specialty code.

Three cheers for General Jumper. He's putting the horse back in front of the cart. We used to call it leadership.

CMSgt. Bill Leistiko,
USAF (Ret.)
Wichita, Kan.

About the Almanac

I wrote to you twice last year regarding my disappointment with "Guide to Aces and Heroes" (May, p. 72.). I had hoped that I could correct an

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

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

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

Production Manager
Butch Ramsey

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



Circulation audited by
Business Publication Audit



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 fldsvecs@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.

injustice, but see by the latest issue that I am wrong.

My previous point was that the use of the "victory credits" and "aerial victories" was misleading, in that you meant aerial combat between manned aircraft, without specifying that, and omitted credit for aircraft destroyed on the ground. You then sent me a copy of the preface to the records you used, and it clarified what you meant. The problem is that you did not include that definition in the article, leaving your readers to conclude that the named aces were the only ones there were.

My brother, George, is resting peacefully in Arlington, and the P-51 with his name on it and his nine swastikas—not the 5.5 you credit him with—is still flying.

Lt. Col. Robert J. Vanden-Heuvel,
USAF (Ret.)
Shalimar, Fla.

■ *The use of the term "aerial victory credits" is standard. There are many lists of aces, but we have chosen to run only the official list prepared by the Air Force Historical Research Agency.—THE EDITORS*

It is with great pride that I write to you regarding the latest issue of the *Air Force Magazine Almanac* issue.

Being the first sergeant for the 4th Combat Camera Squadron (the only Reserve combat camera unit), I always scour publications for photos that are taken by the personnel whom I serve. This issue of *Air Force Magazine* has not one but two!

This issue will hold a place of recognition in our squadron to show to our younger up and coming troops that not only are we "the eyes of the eagle," but we are also the "eyes" of AFA and *Air Force Magazine*!

MSgt. Brooke Raymond,
USAFR
March ARB, Calif.

The Snark

Many times over the years at 701st Tactical Missile Wing annual reunions, we have discussed the flight of the Snark that was lost to radar. [See "Pieces of History: The Cruise of the Snark," May, p. 176.]

When I reported to Patrick AFB, Fla., in February 1952 to join the Matador Field Test Crew, the so-called 1,000-mile missile range extended from Cape Canaveral, Fla., southeast through the Bahama islands.

Our "bird" was then designated the XB-61 Pilotless Bomber. We worked with the 6555th Pilotless Bomber Test Squadron while the 1st and 69th Pilotless Bomber Squadrons were preparing to deploy with the operational

B-61 Matador missile. The missile was later designated the TM-61, and the units were designated as tactical missile squadrons and became part of the 701st Tactical Missile Wing.

During the early 1950s, the Matador was the only operational missile consistently utilizing the range, but our test target was just southeast of Grand Bahama Island, only about 200 miles from Canaveral. There was concern that the expense of operating the downrange radar stations and other facilities was not justified because no missile was flying the entire range. One of the experimental Snarks was fitted with extra fuel tanks to extend its range and was launched to show range utilization.

We now know that the long lost Snark was found by a South American farmer in 1983. Ah, another topic for discussion over the liar's dice table at our Chicago reunion in October.

Fred Herbert
Preston, Conn.

DEW Line Letters

Ronald G. McGill's letter mentioned that at Frobisher Bay, a C-124 crashed on landing but none of the crew was seriously injured. [See "Letters to the Editor: More to the Story," April, p. 4.] The copilot sustained severe spinal, back, leg, and ankle injuries requiring surgery; the scanner received burns to hands and face (the heavy clothing protecting him); the radio operator (me) sustained neck, back, and crushed ribs injuries, along with one-and-a-half collapsed lungs and head trauma.

The plane broke up all over the runway, exploding and burning.

This was *deja vu* for me. Six months earlier, I was participating in landing capability tests with the Army, and we totaled a [C-124]. Being in two crashes, the squadron considered me the safest crew member to fly with. Being struck twice, near impossible. A third time, no way. Thanks for the memories, Ronald.

MSgt. Earl R. Reid,
USAF (Ret.)
Kapolei, Hawaii

Corrections

On p. 51 of the May Almanac issue, the Air Force Specialty Codes beginning with 21 should have had the utilization field title "logistics." Also in May, p. 153, the "Brief" for the C-40 aircraft should have said "Boeing 737-700."

In June, the caption on p. 75 should have said that the first flight of space shuttle *Columbia* lifted off from Cape Canaveral, Fla.

Washington Watch

By John A. Tirpak, Executive Editor

The Tanker Delay; F-15s Meet Defeat?; Other Services Stay the Course on Space; More Emphasis on UAVs

Rumsfeld Delays Tanker Decision

Defense Secretary Donald H. Rumsfeld has postponed until November any decisions about going ahead with a new aerial refueling aircraft program, the Pentagon announced on May 25.

Rumsfeld based his decision on a report from the Defense Science Board's Aerial Refueling Task Force, which said that corrosion on the Air Force's 44-year-old KC-135E tankers can be managed and poses no immediate threat to safety or operational capability.

As to the escalating cost of fixing the tankers—one of the Air Force's main reasons to undertake recapitalization—the Pentagon said that “operating and maintenance cost growth on the tanker fleet may not be as large as earlier estimates.”

Based purely on the metric of airframe fatigue life, the DSB said, the KC-135s could be viable until 2040. The board emphasized that the Air Force has a robust corrosion control program in place and has managed to decrease the number of hours the tankers must spend in depot. The task force believes that the costs to maintain the KC-135s will rise but not as steeply as the Air Force projected earlier.

However, the DSB acknowledged that depot maintenance costs per hour on the KC-135E fleet have doubled in the last eight years and that deferring recapitalization merely pushes the block obsolescence problem to the future.

The DSB also said that the whole issue would benefit from the results of a Mobility Capability Study, now under way by the Pentagon's program analysis and evaluation shop, and from an ongoing Air Force analysis of alternatives on aerial refueling options. Rumsfeld ordered that both studies proceed quickly and be wrapped up by November.

A Pentagon spokesman urged reporters not to assume that the tanker deal Congress approved last fall—leasing 20 Boeing 767s and buying 80 more—is dead.

“The deal that currently exists could be considered a reasonable option,” Pentagon spokesman Larry DiRita told reporters.

Sen. John Warner (R-Va.), chairman of the Senate Armed Services Committee, said Rumsfeld has “made the appropriate decision to return to square one and take a new look at the tanker issue from the ground up.”

However, Sen. John McCain (R-Ariz.), chief opponent of the tanker deal, said the Air Force should be excluded from participating in the studies, since, in McCain's view, the service cannot be objective in evaluating the issue. Both the Air Force and RAND, which McCain says is beholden to the Air Force because it receives millions in contracts from the service each year, “should be disqualified from the process.”

Rep. Duncan Hunter (R-Calif.), chairman of the House Armed Services Committee, said he supports looking at alternatives “beyond the first 100 KC-767 aircraft.” However, Hunter said, “we need to move ahead quickly with



Rumsfeld set November for a tanker decision.

USAF photo by SSgt. Jerry Morrison Jr.

the first 100 KC-767s before further jeopardizing our refueling capabilities.”

The House committee has inserted \$95 million for the replacement of refueling aircraft in its version of the Fiscal 2005 defense authorization bill. This action “expresses strong bipartisan opposition to further delays” in the tanker program, Hunter said. Because it will take 10 years to deliver the first 100 aircraft—and there are more than 500 KC-135s—“we need to begin this process early in Fiscal Year 2005,” Hunter said.

Trumping the F-15

Air Force Chief of Staff Gen. John P. Jumper has said for years that USAF pilots flying the latest Russian-made fighters can beat USAF pilots flying the service's F-15. Now, it seems that Indian Air Force pilots can, too.

That was one of the eye-opening outcomes of Cope India 2004, held earlier this year. It showed that a current Russian fighter flown by well-trained Indian pilots can best a front-line USAF fighter.

More to the point, it was graphic evidence that USAF can ill afford any more delay in bringing the F/A-22 into service.

The 3rd Wing, stationed at Elmendorf AFB, Alaska, took its F-15Cs to India for a few rounds of dissimilar air combat training. Those F-15Cs are the best equipped in the Air Force, featuring new long-range, high-resolution radars. When the exercise was over, the Indian Air Force pilots had triumphed in many of the engagements.

Details of the exercise remain classified, according to an Air Force spokesperson. However, industry and service officials report that the Indian pilots flying Su-30MKs and the American pilots in their F-15s were able to spot each other on radar at about the same time. The Indian pilots frequently took the first simulated shots and won a number of dogfights.

Another surprise was the quality of training the Indian pilots received. USAF fighter pilots log about 250 flight hours a year. The Indian fighter pilots said they've been getting as many as 300 flying hours per year and that the majority of those hours was spent in full-up combat training.

In most USAF aerial combat training, the service has "dumbed down" adversarial equipment and training to simulate what it believed to be the level of the enemy competence. The Indian Air Force aircrews, on the other

USAF photo by TSgt. Keith Brown



Cope India 2004 turned up some surprises.

hand, practice at full capability against their best fighter aircraft and pilots.

Cope India proved that older aircraft, such as MiG-21s, upgraded with sophisticated new avionics and missiles, can pose a formidable challenge.

Air Force officials noted that in nearly every exercise, the 3rd Wing aircrews were outnumbered, usually 2-to-1. That would be typical in many combat situations. The Air Force expects to deploy a limited number of fighters on short notice to austere fields.

For the USAF pilots to achieve air superiority over the IAF pilots, they would have needed a stealthy fighter—to deny the adversary a first-shot advantage—as well as a longer-range radar and the ability to coordinate data from a variety of offboard sensors. Those qualities reside in the F/A-22, which is expected to enter operational service next year.

The Air Force is also reportedly rethinking whether it will continue to dumb down adversaries in air combat training exercises, given the quality of the pilots encountered during Cope India.

Army and Navy In Space

The Army and Navy are doing their part in military space, the Air Force's top space official said.

In 2001, when DOD named Air Force as executive agent for space, some officials were concerned that the service would end up shouldering the responsibility for the entire space program.

The fear was that the other services would continue to demand space services but leave it to the Air Force to develop, manage, and pay for them.

That hasn't happened, according to Peter B. Teets, who is undersecretary of the Air Force as well as overseer of all military space activities and director of the National Reconnaissance Office. He said that the level of Army and Navy investment in military space programs is about the same as before the 2001 shift in responsibility.

"I think it's a really healthy situation," Teets told *Air Force Magazine*. "The Army and Navy are both active participants, they both want to have strong [space] cadres, they both know how much they use space, and they want to have knowledgeable people in their own services aware of what's going on in the space world."

Teets said the Army "is very involved and engaged" in developing space capabilities to enhance blue force tracking, the term used to describe processes used to identify and locate friendly troops. The Army, which is working with Air Force Space Command and the NRO on blue force tracking initiatives, is also "very actively engaged in ... the capability that can come from our transformational communications system," he added.

The Navy also maintains high involvement in space, Teets said. It has just published a new space policy that "shows very clearly that the Navy wants to stay engaged, involved, interested," he emphasized. He added that the Navy wants to develop a space cadre, both on the uniformed and civilian sides.

The Naval Research Lab is "still very much engaged" in designing systems for space and contributing to the NRO's advanced systems and technology directorate, Teets noted.

In addition, the Navy is "currently acquiring a next generation, narrow-band [communications] system called the Mobile User Objective System," which will be "on the order of a \$5 billion program," Teets said. "That's a very significant element of our military communications architecture."

The Navy's space contribution "is vitally important, and we welcome it," he said.

Nevertheless, becoming executive agent brought the Air Force some new space responsibilities which it didn't have to fund before. One was a ground-based space radar called the Navy Fence, which watches satellites and other objects in orbit.

"The transfer of the Navy Fence over to the Air Force obviously increased the amount of Air Force expenditures," Teets observed. It costs more than \$30 million a year to maintain the Fence, and an upgrade program of more than \$300 million was in the works when the Air Force acquired the system. The Air Force is considering whether to maintain the system or shift its functions to a new, satellite-based system. (See "Securing the Space Arena," p. 30.)

UAVs Come of Age

Unmanned aerial vehicles have made great strides in the past few years, and the time has come for DOD to stop treating them like technology experiments and integrate them throughout the force. So says the Defense Science Board in a recently released report.

The DSB declared that UAVs over the last few years "have at last come of age," registering operational triumphs and a markedly reduced accident rate. It urged the Pentagon to "accelerate the introduction of UAVs into the force structure" at all levels by increasing funding priority for UAVs.

The report, titled "Unmanned Aerial Vehicles and Unmanned Combat Aerial Vehicles," was completed in February and released in April. It was prepared by a task force chaired by retired Air Force Maj. Gen. Kenneth R. Israel, former head of the Defense Airborne Reconnaissance Office, and Robert F. Nesbit, a senior vice president at Mitre Corp.

The task force emphasized expanding "integration" and

"interdependence" of UAVs, rather than pursuing the present course of simply deconflicting disparate systems.

The DSB wants to see joint use of proven systems, such as USAF's Predator and Global Hawk UAVs, rather than development of similar aircraft "specifically tailored" to a particular service's requirements. It also wants the services to cooperate on the development of new UAVs and share the data they yield.

To foster such efforts, the task force recommended that DOD create an interoperability "advocate" post. This person would advise the undersecretary for acquisition, technology, and logistics on how one service's existing UAV program could satisfy another service's emerging requirements.

For instance, DSB suggested that the Navy buy Global Hawks until it can field its Broad Area Maritime Surveillance unmanned aerial vehicle and that USAF and the Navy join forces to develop a next generation common high-altitude endurance UAV. It said that the Navy and Marine Corps should quickly acquire and field the vertical takeoff Fire Scout UAV, which provides inland gunnery spotting for a naval task force.

The DSB noted that 10 types of drones were used in Operation Iraqi Freedom, but they couldn't communicate with each other. They are also vulnerable to shoulder-fired missiles and artillery and would benefit from

Northrop Grumman photo by Gene Yano



Global Hawk and other UAVs are no longer experiments.

more stealth, so they could operate safely deeper within enemy territory. Longer-dwell UAVs that offer persistence over an area are also a key requirement, the DSB said.

The Pentagon also needs to embed UAVs into its concepts of operation at all levels, rather than treating the systems like an experimental adjunct to intelligence-surveillance-reconnaissance systems. The DSB recommended that US Joint Forces Command take the lead in writing new doctrine that embraces UAVs and pushes for more cross-service utilization.

The DSB suggested that small, independent fighting units should have dedicated UAVs that are controlled not from a world away but by personnel within the unit. It urged the Army and Marines to equip more units with small, look-over-the-hill UAVs like the Marine Corps Dragon Eye and special operations forces Pointer. The benefits derived from UAVs are so great that the DSB called for the Army to take any drones now in storage, spend some money to upgrade them if necessary, and get them out to the field as quickly as possible.

The task force recommended, too, that DOD take steps to prevent the gold-plating—putting too many requirements on a single vehicle—that has led to high cost and

program cancellations. The DSB suggested that the Defense Secretary should set stiff rules to restrict new UAVs to "well-defined" unit costs that could only be exceeded with the specific permission of the service Secretary.

The panel also suggested that work be stepped up to address the bandwidth shortages problem, since the services will be using so many UAVs that they will need a bigger chunk of the spectrum in which to control them.

S&T Needs Earlier Commitment

The military services don't put enough emphasis on transitioning science and technology (S&T) projects into usable fighting systems, according to the Pentagon's inspector general. The IG wants to make procurement commitments earlier for advanced technology projects.

That, according to a response to the report by Sue C. Payton, deputy undersecretary for advanced systems and concepts, is not the right approach.

Payton maintained that it would be wrong to insist that all S&T projects yield a fielded system because such projects "may not be technically mature enough for a commitment to further develop and procure." She added that the Pentagon must "demonstrate them to decide which technology to pursue."

In its report, the IG looked at how efficiently the military services set goals for S&T projects, get potential end-users involved in them, and get a useful system out the other end.

According to IG auditor Mary L. Ugone, success in transitioning a system to the battlefield isn't taken into account when programs are evaluated for their usefulness, and the financial guidance on which programs are assessed for priority doesn't emphasize technology transition.

"Those conditions exist because ... the military departments' research officials believe that different standards exist among projects funded with advanced technology development resources," stated the IG report. "As a result, advanced technology development-funded projects were not sufficiently coordinated to ensure that successful technology would transition to the next development or acquisition stage."

At the heart of the report was the basic contention that the Pentagon must change its approach to S&T procurement decisions.

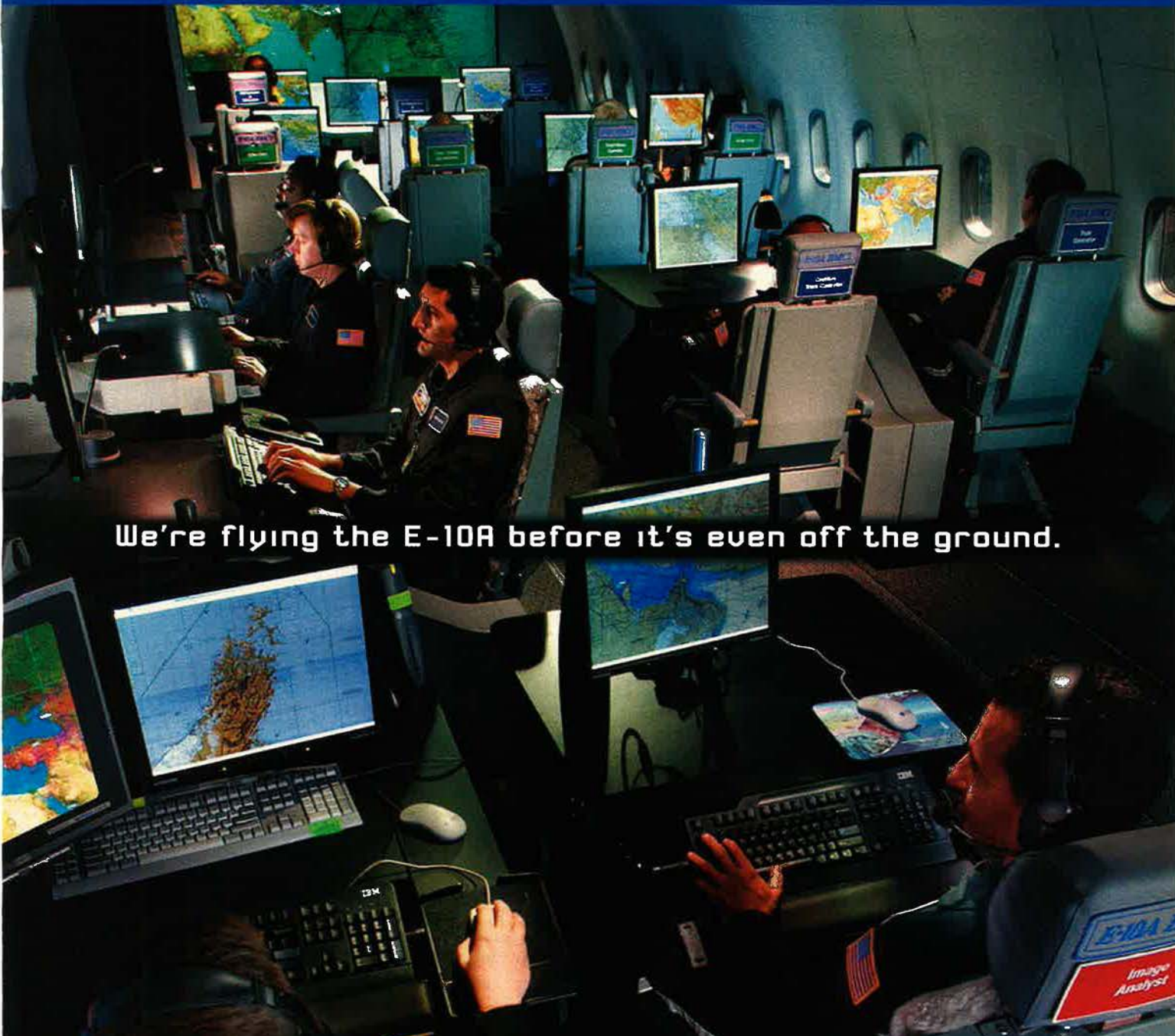
However, Payton maintained that the present research, development, test, and evaluation cycle, with its five progressive budget activities, provides "a logical progression of the RDT&E effort prior to acquisition." The IG wants to introduce a procurement commitment into budget activity three (advanced technology development). Currently that commitment is found in the next level, budget activity four.

At the third level, said Payton, demonstrations "compare and contrast competing technologies" before a service commits to "a specific acquisition program." Once a technology demonstrates the necessary "maturity for further commitment," it may move into level four.

To require the commitment at budget activity three, said Payton, would "lead to [fewer] systems being evaluated, increased risk, and less than optimal solutions for the acquisition community."

Payton concluded, "DUSD AS&C nonconcur with all recommendations in the report as written because they would require redefinition of budget activity three."

The IG responded that Payton's comments were "non-responsive to the report and do not address the recommendations." And, the IG said, it had the comptroller on its side. ■



We're flying the E-10A before it's even off the ground.

Developing the best network-centric solution for the Air Force E-10A Battle Management Command and Control (BMC2) subsystem requires experience, vision, leading-edge tools and team commitment to industry and the customer. Our enterprise-wide BMC2 team has demonstrated what it takes. "Live-Fly" testing, using our corporate Crew Area Virtual Environment as the E-10A component in our Cyber Warfare Integration Network, is validating early measures of performance and effectiveness to refine our BMC2 solution. By integrating combat proven simulation models with live events, we've created realistic future battle environments — providing tomorrow's warfighter with superior vision and decision-quality knowledge.



www.northropgrumman.com

© 2004 Northrop Grumman Corporation

NORTHROP GRUMMAN

By Adam J. Hebert, Senior Editor

F/A-22s Still in Hot Box

The Senate Armed Services Committee, in its May markup of the 2005 defense authorization bill, trimmed two fighters from USAF's F/A-22 request. It approved 22 rather than the 24 that the Air Force had sought. A key question for Air Force officials was whether that cut would stand when the full Senate in mid-June took up work on the measure.

The House in mid-May completed action on its defense legislation, authorizing purchase of all 24 Raptors. That sets up a potential clash, if the full Senate adopts the position of its defense panel.

According to the Senate committee, the Air Force needs "time to improve its production delivery schedule."

Air Force leaders believe they have overcome development issues and that tampering with the production numbers could have a negative effect on cost and schedule.

Sen. Orrin Hatch (R-Utah), a long-time supporter of the F/A-22, said it may sound "reasonable" to make a modest reduction, but it is not. Because there already has been a drastic reduction in the scale of the F/A-22 program, many have developed a "very real concern that there will not be enough aircraft to meet the operational needs of the Air Force," said Hatch.

USAF Saves A-10 Fleet

Air Force officials may have found a way to avoid having to retire some A-10s in order to upgrade others.

Senior leaders, early this year, had announced that USAF would have to cut its fleet of operational A-10s to fund upgrades needed to ensure the Warthog's long-term viability. (See "Battlefield Airmen," April, p. 26.)

Air Combat Command officials initially thought they might have to retire half of the fleet. However, Air Staff programmers found that ACC could help pay for re-engineing work if it delayed some A-10 maintenance work until needed, rather than when opportune, according to *Inside the Air Force*.

Lt. Col. Robert Silva, chief of A-10

USAF Seeks New Long-Range Strike Capability

The Air Force has settled upon a two-pronged approach to meet its future long-range strike requirements. The service plans to develop a midterm capability—ready by around 2018—in addition to pursuing a revolutionary next generation system—due in 2025-30.

This puts the Air Force on track for initial operational capability of a new interim platform around 2020, explained Maj. Gen. (sel.) Stephen M. Goldfein, USAF director of operational capability requirements.

Meanwhile, work will continue on the science and technology programs originally expected to yield a next generation system. Goldfein maintained that a revolutionary system, perhaps involving space-based weapons or hypersonic speed, is still highly desirable. However, he said in an interview, "an IOC out in the 2030s was just too far away."

Long-range strike "is at the heart of holding things at risk around the world" and is a pivotal Air Force mission, Goldfein said. "Last fall, it became clear that enough studying had probably been done," he added. "We needed to enter a process."

Consequently, Air Force Materiel Command and Air Combat Command have established offices to begin developing requirements and options. ACC will define what is needed, and AFMC will work with industry to determine the possibilities. Earlier this year, USAF put out a request for information to industry, calling for "a better understanding of what resources/mature technologies are available" to meet the new global strike requirements.

New capabilities should ensure that USAF can hit "a variety of targets, including hardened or deeply buried targets ... in nonpermissive environments until fielding of the next generation long-range strike capability," the RFI notice stated. "A development effort could start as early as 2006 with [IOC] in 2015."

While the revolutionary capability is undefined, the midterm bridging capability likely will feature something easily comprehensible. It could be a modification to an existing aircraft, such as new B-2 bombers or an FB-22. It could be a non-nuclear ICBM or an unmanned attack system. It will be something the Air Force can start to build in the next few years.

Air Combat Command has already competed a functional area assessment that essentially catalogued what capabilities are expected to be in service in 2011, based on the Pentagon's long-range spending plan. Next is a functional needs analysis to answer the question, "What do we need to do in the future—and when?" explained Lt. Col. M.D. Dates, who is leading the assessment for ACC's requirements directorate at Langley AFB, Va.

The functional needs analysis should be completed sometime this summer, when it will be taken to Goldfein for approval and forwarding to the Joint Staff's requirements council.

If everyone agrees on the plan, an analysis of alternatives would begin in Fiscal 2006 so that specific long-range strike solutions can be identified by the end of 2007.

requirements at ACC, told *ITAF* that this restructuring of the A-10 work should push a reassessment of the A-10 force structure out to at least Fiscal 2008.

House: More B-1Bs in 2005

The House has approved a measure that would raise by 10 the number of B-1B bombers the Air Force should reclaim from retirement. USAF had planned to restore only seven. The House defense authorization bill says 17 is better.

Congress late last year directed the service to restore 23 of the 32 B-1Bs that USAF had retired in 2001. However, Air Force officials said they did not have enough funds to reclaim all of those aircraft. (See "Washington Watch: Bringing Back the Bones," January, p. 8.)



Remembering President Reagan

Ronald Reagan, the 40th US President, died June 5. The photo above was taken on Air Force Day, Aug. 1, 1946, in Hollywood. Reagan participated in a coast-to-coast radio broadcast with several other Air Force Association members. He appears with (l to r) Army Air Forces fighter ace Lt. Col. John Meyer, film producer and former AAF Lt. Col. Jack Warner, and actor and former AAF Col. Jimmy Stewart. Reagan, a staunch backer of US armed forces, was a life member of AFA. At left, members of a joint honor guard carry Reagan's casket to a horse-drawn caisson for the June 9 funeral procession to Capitol Hill. The former President was buried in California on June 11.



USAF photo by MSgt. Jim Varthegyi

In February, Gen. Hal M. Hornburg, commander of Air Combat Command, said USAF had been slightly overzealous when it cut the B-1B fleet from 93 to 60 aircraft. (One B-1B was lost in a crash.)

The Air Force decided that, given available funds and current operational requirements, it should increase the B-1B fleet to 67 aircraft. However, to restore seven aircraft and upgrade them to Block E status, the service had to add \$200 million to the \$17 million provided by Congress, Gen. T. Michael Moseley, USAF vice chief of staff, told lawmakers in early March. Moseley also said USAF is considering other upgrades to the entire fleet of 67.

When pressed about restoring more B-1Bs, Moseley noted that some had been used to provide "major struc-

tural subassemblies" to the existing fleet, so they were no longer viable aircraft. "There are 17 that are retrievable," said Moseley.

That means another 10 could be upgraded if USAF had the money.

Smart Rack Doubles F-16 Load

A new "smart" weapons rack allows USAF's F-16 fighter to carry four 1,000-pound precision weapons—twice as many as it can at present.

The F-16 will be the first fighter to employ Lockheed Martin's new BRU-57 multiple weapon rack. Each device has two stations equipped with flight and targeting data interfaces. These permit in-flight reprogramming of smart weapons.

USAF recently certified the rack for use with weapons featuring the

Wind-Corrected Munitions Dispenser. Officials expect later this year to certify the new rack for use with Joint Standoff Weapons.

With a software change to the F-16, a company news release said, the rack could also carry 500-pound and 1,000-pound Joint Direct Attack Munitions.

House Votes To Delay BRAC

The House in mid-May voted to delay the upcoming base realignment and closure (BRAC) round for two years, setting up a possible showdown with the Bush Administration. President Bush threatened to veto the measure if it survives the House and Senate conference on the 2005 defense authorization bill.

A similar two-year delay was defeated—narrowly—in the Senate

JFCOM Finds Fratricide an Enduring Problem

According to a US Joint Forces Command draft review of lessons learned from Operation Iraqi Freedom, fratricide problems during OIF came from a lack of joint warfighting protocols.

JFCOM found that DOD has barely begun using joint solutions to prevent friendly fire deaths. As units deployed to Southwest Asia for OIF, there was "no joint standard" for combat identification and blue force tracking systems, stated the review, a copy of which was obtained by *Inside the Pentagon*.

Many of the systems designed to prevent fratricide were not interoperable. For example, ground forces were deployed with seven different systems unable to communicate with each other. US Central Command created an antifratricide working group to tackle the problem, and four combat ID systems were selected as common solutions to eliminate the confusion.

Unfortunately, "the integration problem at CENTCOM headquarters was considerably greater," the report noted. This was because the headquarters had to track air, land, sea—and enemy—forces. The hodgepodge of ID and tracking systems developed and fielded by the individual services was not "born joint."

A problem for the Air Force was that "company-level ground units and most air platforms possessed limited or no capability to develop or share a comprehensive picture of the friendly ground situation," increasing the risk of fratricide incidents.

JFCOM said the force needs two immediate improvements. First, "best practices" developed by CENTCOM must be pushed to the other warfighting commands. This will keep DOD from having to reinvent the wheel for the next war. Second, fratricide must remain a high priority within JFCOM, which develops joint solutions to warfighting problems.

It also was suggested that JFCOM "examine the feasibility of providing blue and red force tracking information [to] all aerial platforms and to small ground units." (See Better 'Blue Force' Tracking, June, p. 66.)

Officials have previously said that one of the frustrations in OIF was that the smaller units—including individual soldiers and aircraft—often have the greatest need to know where the friendly forces are, but frequently have only limited access to such information.

assigned to the 4th Aircraft Maintenance Squadron, Seymour Johnson AFB, N.C.

Combat Control Gains Members

This spring, the largest-ever group of Air Force combat controllers began training at Pope AFB, N.C. The class totaled 32 members. Graduates will join USAF's elite group of 360 combat controllers.

Controllers are key links between operational aircraft and special operations forces on the ground. Before attending the 13-week combat control school, a candidate must complete 15 weeks of USAF air traffic control school, three weeks of Army airborne school, and three weeks of Air Force basic survival school training.

The combat control career field is one of several battlefield airmen categories found on USAF's list of critical shortages.

Mobility Forces Get New Codes

The Air Force in May created new Air Force specialty codes for mobility pilots and navigators, according to a service news release. Gone are the old "A" for airlift and "T" for tanker designations. Replacing them are a common "M" for mobility.

According to USAF, all airlift and

Armed Services Committee's markup of the defense bill. The full Senate was slated to resume work on the measure in mid-June.

Under current law, a list of proposed base closures or realignments is due next year.

Some lawmakers tried a similar delaying move last year, but they were defeated after President Bush declared he would veto the measure to ensure BRAC went through on schedule. The Administration maintains that defense infrastructure cuts have not kept pace with force cuts, leaving excess capacity of about 25 percent.

On May 19, the White House released a statement saying the President will "strongly oppose" attempts to "weaken, delay, or repeal" the base closing legislation.

Airman Dies in Iraq

SrA. Pedro I. Espallat, 20, of Columbia, Tenn., died May 15 while on duty in Operation Iraqi Freedom. The Air Force announced that he succumbed to "nonhostile injuries" while deployed to Kirkuk Air Base in northern Iraq.

Espallat was a weapons loader,

3,600 Troops Deploying From Korea to Iraq

The Defense Department announced May 17 that approximately 3,600 troops assigned to the defense of South Korea will rotate to Iraq this summer. The move will reduce the US manpower presence in South Korea by nearly 10 percent.

Officials said Washington had not decided whether this will be a temporary relocation or a permanent reduction in the 37,000-strong US complement in South Korea. The advent of precision weapons and network warfare, coupled with improvements in intelligence-surveillance-reconnaissance systems and long-range strike capabilities, has led Pentagon officials to reassess what size force is needed to defend South Korea against Communist North Korea.

At a background briefing on the decision, a senior defense official said the move was being made in "the context of—and within the bounds of—our entire global posture realignment and discussion process."

The department previously announced plans to move almost all US military forces away from the Demilitarized Zone and Seoul and toward the Osan Air Base area.

"In this new world of increased capabilities, we were able to position ourselves differently throughout the world," the senior defense official said. The move will result in "absolutely no diminution of our capabilities either in the region or on the Korean Peninsula," the official added.

US Pacific Command recently rotated a group of B-52 bombers to Guam in the western Pacific to bolster PACOM's firepower in the region.

Light Airborne RED HORSE Tackles Heavy Work

The Air Force's new Airborne RED HORSE (ARH) units proved their merit during Operation Iraqi Freedom by quickly opening numerous airfields for coalition use.

Three 35-person ARH teams—each containing traditional RED HORSE construction and utility experts plus explosive ordnance disposal (EOD) personnel, firefighters, and nuclear-biological-chemical defense experts—deployed for Gulf War II. The units were created after operations in Afghanistan highlighted the need for a lightweight, rapidly deployable construction capability.

At Langley AFB, Va., ARH airmen recently poured out of a C-17 and demonstrated their ability to rapidly repair a runway crater. The airmen described their mission as one of performing heavy duty repairs with the lightest equipment possible.

The teams have a "set equipment package" that includes loaders, a backhoe, four-wheel all-terrain vehicles, and a tracked "dump truck." It is relatively light yet able to withstand airdrops and tactical landings on unimproved airstrips.

ARH airmen, already experts in their fields, undergo additional training, including Army airborne training at Ft. Benning, Ga.

Over the years, traditional RED HORSE units became increasingly heavy and, consequently, more difficult to deploy. In December 2001, Gen. John P. Jumper, Chief of Staff, ordered the creation of ARH, and the airmen had the opportunity to build their inventory from scratch.

One benefit, noted MSgt. Mike DeShon, noncommissioned officer in charge of the 819th RED HORSE Squadron, Malmstrom AFB, Mont., is that the airborne units are specifically designed

to be "tailorable" for each mission. Units take only the equipment needed for a mission, because "we're still trying to get lighter," he said.

TSgt. Steve Stanford is a heavy equipment operator with the 823rd RHS, Hurlburt Field, Fla. He was part of the ARH team that opened up Tallil and Baghdad airports to coalition aircraft. His unit set up the airfield lighting at Tallil and had to repair 11 bomb craters at Baghdad before aircraft could begin flowing in.

The teams are set up to make temporary repairs. The goal, notionally, is to fill a 25-foot bomb crater in eight hours—a patch that would let aircraft use the field until a traditional RED HORSE unit arrives to make a permanent fix. In Baghdad's case, Stanford said, commanders needed permanent repairs from ARH. It took longer, but the teams "made it work," he said.

SSgt. Brandon Livingston was with another ARH team that went into northern Iraq. An EOD technician based at Langley, Livingston was on hand for the opening of Bashur and Kirkuk Air Bases, as well as a third location he declined to name. Coalition aircraft started landing at Kirkuk just 36 hours after his unit arrived on-scene, he said.

ARH is highly expeditious. Livingston, for example, opened three bases but was only in the theater for 52 days. He said that ARH teams are designed to "deploy, do the mission, and go on."

The units were cobbled together in a short time. Training can sometimes be difficult to coordinate, DeShon said. The three ARH teams are based with the permanent RED HORSE units, but the supporting components come from other locations. They may eventually consolidate at common locations, DeShon said.



Soldier Tested. Combat Proven.

AN/PRC-150(C)

"The AN/PRC-150 was critical to our mission. We would've had a very hard time completing our mission successfully during Iraqi Freedom without it."

Major, U.S. Army
Operation Iraqi Freedom

Whatever missions lay ahead, Falcon® II radios with embedded encryption really deliver.

While what's being said over our radios may be private, what's being said about our radios is no secret. Testimonials from U.S. defense forces using Falcon II radios in Afghanistan and Iraq have repeatedly come through loud and clear. These radios save lives.

Read more at www.rfcomm.harris.com/testimonials.

www.harris.com

assuredcommunications™

HARRIS

tanker pilots and navigators will get the new codes. Air Mobility Command officials said the change provides a "generalist" code that fits both airlift and tanker officers, making it easier for personnel officials to fill mobility aircrew positions.

Included in the change is a separate code for pilots of C-130Js. Col. John Clatanoff, chief of AFMC's operations and training division, said the C-130J's unique characteristics set its pilots apart from those flying other Hercules variants.

Guard Gains New Space Asset

The Florida Air National Guard this spring received a new mobile space launch tracking system—the Ballistic Missile Range Safety Technology (BMRST). It can track rockets launched from Cape Canaveral AFS,

News Notes

By Tamar A. Mehuron, Associate Editor

■ President Bush nominated Maj. Gen. John A. Bradley to become the next chief of Air Force Reserve and commander of Air Force Reserve Command. The previous AFRC commander, Lt. Gen. James E. Sherrard III, retired June 1. Maj. Gen. John J. Batbie Jr., AFRC vice commander, is acting commander, pending Bradley's confirmation.

■ Northrop Grumman won an \$88 million contract April 30 to develop a demonstration radar system for the E-10 aircraft. The contract also includes delivery of three radars for Global Hawk unmanned aerial vehicles. Work is to be completed by May 2010.

■ The last Atlas II rocket rolled out from Lockheed Martin's Denver facility May 14. Production now shifts to Atlas V, one of the two new heavy lifters partially financed under USAF's Evolved Expendable Launch Vehicle program. The Atlas II series achieved 61 successful missions in 13 years. This last Atlas II was slated, on June 30, to boost a national security satellite into orbit from Cape Canaveral, Fla.

■ On May 6, NASA selected Maj. James P. Dutton Jr., an F/A-22 test pilot, as one of two new space shuttle pilots. The other was Marine Corps Maj. Randolph J. Bresnik. NASA also selected Navy Lt. Cmdr. Christopher J. Cassidy and Army Maj. Robert S. Kimbrough, as mission specialists. Shuttle flights resume in spring 2005.

■ Lockheed Martin finished the critical design review phase of the Advanced Extremely High Frequency (AEHF) satellite communications system and began production this spring, according to a company news release. AEHF, which is scheduled for launch in early 2007, will replace the Milstar communications system.

■ Investigators found that an Aug. 16, 2003, accident in which a T-1A trainer ran off the runway at Keesler AFB, Miss., was caused by several pilot errors. The student pilot, 2nd Lt.

Tiffany Ley, flew excessive approach and landing speeds and maintained too high a thrust for the first few seconds after touchdown. Instructor pilot, 1st Lt. Nancy Badgett, engaged the emergency brakes but the wet runway sent the Jayhawk into a skid. Both officers are assigned to the 86th Flying Training Squadron, Laughlin AFB, Tex. Neither was injured, but the aircraft had an estimated \$2.5 million in damage.

■ Two F-15E crew members ejected safely after their aircraft crashed near Roanoke, Va., on May 6. Assigned to the 4th Fighter Wing, Seymour Johnson AFB, N.C., the pilot, Capt. Darren Wees, and the weapon systems officer, Capt. Daniel Spier, walked away from the crash. USAF officials are investigating the cause of the accident.

■ Lockheed Martin, on May 5, received a \$53 million increment of a \$200 million contract to develop a Joint Common Missile for Army, Navy, and Marine Corps aircraft. The air-to-ground missile will replace the current Hellfire, Longbow, and Maverick systems. Full production begins in 2011. The Pentagon expects to buy 54,000.

■ A landing gear malfunction, on May 10, caused the pilot of a T-6A trainer, assigned to Randolph AFB, Tex., to land it with gear up at Kelly Field Annex, Tex. The two crew members were unharmed.

■ Earlier this year, several parts of the historic XC-99 were airlifted by a C-5 from the 433rd Airlift Wing, Lackland AFB, Tex., to the Air Force Museum at Wright-Patterson AFB, Ohio, where the XC-99 will be restored. (See "Big Fella," February, p. 70.) The huge airlifter has to be taken apart sequentially, as it was built, and will be delivered in three phases.

■ USAF awarded a seven-year contract to CPI Aerostructures, Edgewood, N.Y., worth \$214.8 million, to supply spares of 100 wing-related components for C-5 aircraft. Work is to be completed by May 2012.

■ US Joint Forces Command inaugurated a new Command Senior Enlisted Leader Capstone Joint Operations Module course earlier this year at its Joint Warfighting Center, Norfolk, Va. The new two-day course, which is open to all services and allies, is designed to help senior enlisted leaders understand joint command and control and planning, enabling them to aid joint task force headquarters. JFCOM expects to create an expanded program in the near future.

■ Air Force Reserve Command stood up the 710th Combat Operations Squadron last fall and, this spring, began seeking individuals to man the new unit whose mission will be to deploy worldwide within 72 hours to help manage an air campaign. The 710th, headquartered at Langley AFB, Va., expects to have 129 members, including 21 full-time reservists, one full-time civilian, and 107 traditional reservists. AFRC has a similar unit, the 701st COS, March ARB, Calif., but its focus is to support only the Pacific theater.

■ USAF took many honors in the Secretary of Defense's annual environmental awards for 2003, announced in May. The natural resources conservation award for small installations went to Columbus AFB, Miss., and for an individual to Gregory Lee, 347th Civil Engineer Squadron, Moody AFB, Ga. Robins AFB, Ga., won the industrial installation award for pollution prevention. Environmental restoration awards went to Tinker AFB, Okla., and the 45th Space Wing, Patrick AFB, Fla. Aeronautical Systems Center, Wright-Patterson AFB, Ohio, won the environmental excellence in weapon system acquisition team award.

■ Air Force officials honored retired CMSgt. Wayne Fisk, a pararescueman, by renaming a park at Gunter Annex, Maxwell AFB, Ala., after him and dedicating a monument to his career. Fisk, who was at the April 28 ceremony, earned two Silver Stars, a Defense Superior Service Medal, a Legion of Merit, two Distinguished Flying Crosses, and 18 Air Medals. The park is next to the Enlisted Heritage Hall museum.

Fla., and assist in their destruction, if necessary.

The Honeywell-built system will be operated by the 114th Combat Communications Squadron and the 114th Range Flight. The BMRST system consists of a control van and two trailer-mounted tracking antennas.

According to Lt. Col. Rembert Schofield, 114th CCS commander, a mobile system is the most efficient solution for space-launch tracking needs. "As opposed to keeping a seldom-used tracking site opened and manned year-round, you can use this system ... and only use it and pay for it when you need it," he said.

Airmen Express Satisfaction

The 2003 Air Force Climate Survey, completed by more than half of the members of the Total Force, found that airmen are generally satisfied in areas such as job characteristics, resources, values, and unit cohesion. Overall, 78 percent of respondents expressed general job satisfaction.

Results showed improvement in two longtime problem areas: recognition of exceptional performance and management of time, people, and equipment.

A USAF news release said that, while these areas "continue to score low in the survey," rankings in both cases "have continued to increase."

The climate areas in which airmen showed the highest satisfaction were unit performance (94 percent satisfaction), job characteristics (92 percent), core values (87 percent), team-

The Iraq Story Continues

Casualties

By May 24, a total of 797 Americans had died while supporting Operation Iraqi Freedom. This included 795 troops and two Defense Department contractors. Of those casualties, 582 were killed in action, while the other 215 died in noncombat incidents, such as accidents.

President Bush declared major combat operations in Iraq complete on May 1, 2003. Since that time, 657 troops have died in Iraq: 471 in combat and 186 in nonhostile incidents. The two DOD civilians were killed this year, also in the line of duty.

Airpower Proves Utility in Urban Setting

Air Force AC-130 Spectre gunships played a major role in the attack on Fallujah that preceded the US negotiated cease-fire in that city.

On April 27, aircraft and ground units were sent into Fallujah to quell a continued violent uprising in the city. That night, Marines saw enemy forces in two vehicles dropping off bundles in intersections—a pattern that previously had preceded attacks on coalition forces. The AC-130 and helicopters were called in. They attacked the vehicles and followed the occupants to a nearby building. The aircraft then attacked the building.

Army Brig. Gen. Mark Kimmitt, deputy operations director in Iraq, said the building contained a "large amount" of munitions and that "secondary explosions" continued for about 20 minutes after the air strike.

By April 29, reported the *New York Times*, three days of air strikes against Fallujah had destroyed at least 10 buildings and two occupied "sniper nests" in the city. Air Force F-15E and F-16 fighters also struck targets, as did Navy F/A-18s and F-14s.

Coalition Finds 8,700 Arms Caches

Coalition forces in Iraq have found more than 8,700 arms caches scattered throughout the country. Remnants of the former regime continue to complicate security efforts in the country.

"We continue to find them" said USAF Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff, of the weapons dumps. "We're up over 8,700 now, and tens are found every week," he told the Senate Appropriations Committee May 12.

Myers said the US has more than 6,000 people devoted to the task of finding and eliminating the arms caches, a total that includes both military personnel and contractors.

The vast number of weapons sites across Iraq has made it easier for insurgents and terrorists to obtain the weapons that have been used to deadly effect against coalition forces and members of the nascent Iraqi government.

Sarin Found in Roadside Iraq Bomb

An artillery shell used as a roadside bomb contained the nerve agent sarin, Defense Department officials said May 17. The bomb, referred to as an improvised explosive device (IED), was used to attack a military convoy traveling near Baghdad.

US troops discovered the IED intact, but it detonated before an explosives team could disable it, said Army Brig. Gen. Mark Kimmitt, deputy operations director in Iraq.

When it exploded, the device released a small amount of sarin, causing the two soldiers minor injuries consistent with low-level exposure to the gas.

Kimmitt explained that this sarin shell was a "binary chemical projectile," meaning it had two chambers filled with different chemicals, which, when mixed, create sarin. When used as an IED, the mixing is incomplete, creating what the general described as "very small traces" of sarin.

He said it was unlikely the perpetrators knew the artillery shell contained the deadly gas.

Saddam Hussein's defunct regime had used chemical weapons against Iran in the 1980s during the Iran-Iraq war and against the Kurdish minority in northern Iraq in the 1990s. Kimmitt noted that "the former regime had declared all such rounds destroyed before the 1991 Gulf War."

The Associated Press reported that roughly 20 percent of Hussein's chemical weapons production was of sarin-type agents. The *Wall Street Journal* further reported that, earlier in May, US forces had found Iraqi insurgents with a shell that contained inert mustard gas.

work (86 percent), and team members going above and beyond the call of duty (86 percent).

New AFRC Unit Supplies Haiti

Air Force Reserve Command activated the 84th Aerial Port Squadron at Greenville, S.C., in January and deployed it to Haiti in April. The Reservists are supporting Operation Secure Tomorrow—the DOD mission to provide stability and security to Haiti.

The new unit, normally assigned to Charleston AFB, S.C., is managing the aerial flow of supplies into and out of Haiti for US forces.

The Reservists run a well-rehearsed drill when aircraft land at the Port-au-Prince airport. They unload the inbound cargo and upload any outbound materiel within a matter of minutes, as the aircraft's engines are running.

As soon as the aircraft lands and



© 2004 AT&T

WE FOLLOW YOU.

**Unlimited Local
Unlimited State
Unlimited USA
Unlimited
International**

WHEREVER YOU GO, WE'VE GOT YOUR BASES COVERED.

Whether most of your calls go across the base, across the state, or across the border, AT&T has an unlimited plan that's perfect for you. You can choose from a variety of calling services from home, like unlimited local & unlimited state & unlimited USA & unlimited international*. Just call today and we'll help you find the unlimited plan that's right for you, your wallet, and your life. So you've got it made in the shade.

Call 1866 879-1522 Come together with &.
att.com/mil



*Not available in all areas. For residential, direct-dialed calls. Unlimited long distance calling applies to voice calls only. Unlimited international calling not available to all countries.

"the door comes open, we attack," said SrA. Alex Lowell Henson, a forklift operator. There is "no shutting the engines down—we just slam it and go," he said.

Task Force Pushes Changes

A Defense Department task force charged with strengthening prevention of sexual assault and improving the response to such crimes determined that DOD lacked a comprehensive plan for dealing with the problem.

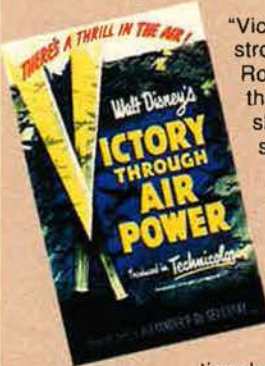
Ellen Embrey, task force director, recommended that the department create a single DOD office responsible for sexual assault issues. Embrey said this office should develop departmentwide policies and help the services and combatant commanders institutionalize the new policies.

Defense Secretary Donald H. Rumsfeld created the task force in February in response to reports of sexual assaults in Iraq and Kuwait.

According to a May 14 statement, the task force concluded that "DOD policies and standards focus on sexual harassment, not assault; commanders don't have the guidance, resources, [or an] emphasis on prevention and response; and efforts to hold offenders accountable are not apparent, due to Privacy Act concerns."

Further, each military service runs its own sexual assault prevention

"Victory Through Air Power" Returns



"Victory Through Air Power," the theatrical film said to have strongly influenced the thinking of Winston Churchill and Franklin Roosevelt on how to fight World War II, has been reissued by the Walt Disney Co. on DVD. The film has only rarely been shown since its 1943 release and has never been offered for sale.

The "Victory Through Air Power" film was Disney's adaptation of the 1942 book by aviation pioneer Alexander P. de Seversky. In that book, he made the case that long-range aircraft could take the fight to the enemy homeland and hasten the end of the war.

De Seversky appears in the film, explaining his theories. (See "Sasha the Salesman," August 2003, p. 74.) Additional archival footage of Maj. Gen. Billy Mitchell and others is included. Accompanying material describes the making of the movie.

The film is included in a Disney wartime films retrospective titled "On the Front Lines." It comprises 32 short subjects ranging from war production training films (e.g. "Four Methods of Flush Riveting") to numerous educational and propaganda cartoons starring various Disney cartoon characters. Disney's company was given over almost completely to making such films during the war, and they were a key element in bond drives.

Disney is issuing 250,000 sets of "On the Front Lines," which lists for \$32.00. Major book and video retailers are carrying the set, which was released in May.

—John A. Tirpak

program, and there is no "cohesive program" for the department as a whole.

The system that is used to report, respond to, and investigate sexual assault must be made timely and sensitive to victim needs, Embrey said. She noted that some of the task force's

recommendations are already being implemented.

CV-22 Flies Multiship Test

USAF conducted the first CV-22 Osprey multi-aircraft interoperability sorties this spring, according to a news release from Air Force Special

Senior Staff Changes

RETIREMENTS: Brig. Gen. Richard J. Casey, Maj. Gen. David F. MacGhee Jr., Maj. Gen. James E. Sandstrom, Brig. Gen. James M. Shames, Lt. Gen. Tome H. Walters Jr.

NOMINATIONS: To be **General:** Bruce A. Carlson. To be **Lieutenant General:** Michael W. Wooley, Jeffrey B. Kohler, Henry A. Obering III, John F. Regni. To be **Brigadier General:** Guy K. Dahlbeck.

To be **AFRC Lieutenant General:** John A. Bradley.

CHANGES: Brig. Gen. (sel.) C.D. Alston, from Cmdr., 341st SW, AFSPC, Malmstrom AFB, Mont., to Dep. Dir., Ops., AFSPC, Peterson AFB, Colo. ... Brig. Gen. (sel.) Thomas K. Andersen, from Exec. Asst. to Cmdr., STRATCOM, Offutt AFB, Neb., to Dir., Intel., STRATCOM, Offutt AFB, Neb. ... Brig. Gen. (sel.) Michael J. Basla, from Dir., Comm., Info. & CIO, AMC, Scott AFB, Ill., to Dep. Dir., Ops. Spt. Modernization, DCS, Warfighting Integration, USAF, Pentagon ... Brig. Gen. (sel.) Guy K. Dahlbeck, from DCS, NORAD, NORTHCOM, Peterson AFB, Colo., to Dir., Policy & Planning, NORTHCOM, Peterson AFB, Colo. ... Brig. Gen. (sel.) Charles R. Davis, from Cmdr., 412th Test Wg., AFMC, Edwards AFB, Calif., to Dep. Dir., JSF Prgm., USD AT&L, Pentagon ... Brig. Gen. (sel.) Daniel R. Dinkins Jr., from Dir., Resource Planning, DCS, Warfighting Integration, USAF, Pentagon, to Dir., Single Integrated Air Picture Sys. Engineering

Orgn., DCS, Warfighting Integration, USAF, Arlington, Va. ... Brig. Gen. (sel.) Jack B. Egginton, from Cmdr., 379th AEW, ACC, Al Udeid AB, Qatar, to Cmdr., 325th FW, AETC, Tyndall AFB, Fla. ... Brig. Gen. (sel.) Gregory A. Feest, from Dep. Dir., Rqmts., ACC, Langley AFB, Va., to Cmdr., 379th AEW, ACC, Al Udeid AB, Qatar ... Brig. Gen. (sel.) Blair E. Hansen, from Cmdr., 366th FW, ACC, Mountain Home AFB, Idaho, to Cmdr., 332nd AEW, ACC, Balad AB, Iraq ... Brig. Gen. (sel.) Stephen L. Hoog, from Asst. Dir., Aerospace Ops., ACC, Langley AFB, Va., to Cmdr., Air & Space Expeditionary Force Ctr., ACC, Langley AFB, Va. ... Brig. Gen. (sel.) Jan Marc Jouas, from Cmdr., 354th FW, PACAF, Eielson AFB, Alaska, to Cmdr., 18th Wg., PACAF, Kadena AB, Japan ... Brig. Gen. (sel.) Robin Rand, from Cmdr., 8th FW, PACAF, Kunsan AB, South Korea, to Cmdr., 56th FW, AETC, Luke AFB, Ariz. ... Brig. Gen. (sel.) Robert Yates, from Cmdr., 27th FW, ACC, Cannon AFB, N.M., to Asst. Dir., Aerospace Ops., ACC, Langley AFB, Va.

SENIOR EXECUTIVE SERVICE RETIREMENTS: James C. Barone, Lyle H. Schwartz.

SES CHANGES: Michael A. Aimone, to Asst. DCS, Instl. & Log., USAF, Pentagon ... Bobby W. Smart, to Dir., Info. Dominance Prgms., Asst. SECAF (Acq.), Pentagon ... John J. Thrasher III, to Principal Dep. Staff Judge Advocate, AFMC, Wright-Patterson AFB, Ohio.

Eglin Eyes New Weapons Range

Officials at Eglin AFB, Fla., hope to secure a new range for testing advanced long-range weapons through their full flight envelopes. Weapons such as the Joint Air-to-Surface Standoff Missile and the Small Diameter Bomb need more space than existing ranges can offer, they say.

"The nation does not have a test range where our most modern weapons can be tested in an operationally representative manner," noted Col. Robert Nolan, commander of Eglin's 46th Test Wing.

The wing soon will have access to new offshore testing capabilities that will meet some of the demand. Still, Nolan said, "Certain weapons will need to impact land-based targets."

This requirement has led to what is known as the Big Bend Range Initiative, an effort to secure a one-square-mile impact area in the sparsely populated "bend" of Florida—southeast of Tallahassee and west of Gainesville. Such a range would be operated by Eglin but would be hundreds of miles removed from the base proper. The area has a low population density, limited air and shipping traffic, and almost no development along the coast, said officials.

The Air Force wants to build trust with the nearby communities and work out a cooperative agreement, said Eglin spokeswoman Lt. Mae-Li Allison. All the land under consideration is currently owned by local citizens, Allison noted. While the service would like to get the range land as quickly as possible, a final site decision will probably not be made this year.

Once a location is approved, USAF will move to a demonstration phase before finalizing plans.

Operations Command. The test was successful.

The April 19 mission comprised two CV-22 tilt-rotors and was performed "to ensure that one aircraft's multimode radar did not interfere with the other aircraft's multimode radar while conducting terrain-following operations," said Maj. Greg Weber, CV-22 government flight-test director.

The CV-22's radar software recognizes a variety of terrains and adjusts flight profiles accordingly. In flight over rough terrain, the computer must be able to order a safe climb profile, Weber explained.

The CV-22, which combines the flying characteristics of both a helicopter and a prop aircraft, is being developed to transport AFSOC's commandos into and out of war zones.

Guardian Challenge Returns

The 37th edition of the Air Force's premier space and missile competition—Guardian Challenge—came to an end May 6. More than 200 active duty, Guard, Reserve, and civilian competitors participated in Guardian Challenge 2004 at Vandenberg AFB, Calif.

Air Force Space Command on May 7 announced the challenge winners. The top awards are the Blanchard Trophy for best ICBM wing, Aldridge Trophy for best space operations wing, and Schriever Trophy for best spacelift wing. The 91st Space Wing, Minot AFB, N.D., earned the Blanchard; 21st SW, Peterson AFB, Colo., took the Aldridge; and 45th SW, Patrick AFB, Fla., captured the Schriever.

Airmen Earn FAA Certification

The first two of what is likely to be

many Air Force enlisted aircraft maintenance personnel have earned Federal Aviation Administration certification through a new Community College of the Air Force (CCAF) program. The FAA credentials will make the maintainers more attractive to private sector employers.

TSgt. Mark Faught, Ramstein AB, Germany, and TSgt. Jeffrey Gunson, California Air National Guard, are the first airmen to be certified under the CCAF's Air Force Airframe and Powerplant Certification Program. USAF officials said there are more than 3,200 maintainers in the program now.

Even a maintainer with 20 years of aircraft maintenance experience would benefit, said J.R. Breeding, chief of CCAF licensing programs. "If they don't have the credentials to back it up, the chances to market themselves are greatly reduced," he explained.

Gunson said the first question he was asked by prospective employers was whether he had certification. "Now that I have successfully completed all FAA exams, I feel I'll now be very well positioned after retirement," the sergeant said.

Obituary

Retired Col. Robert Morgan, pilot of the famed World War II B-17 bomber *Memphis Belle*, died May 15 in Asheville, N.C., at the age of 85. Morgan successfully piloted his B-17 through 25 dangerous daytime bombing runs against Nazi Germany.

Memphis Belle was the first Army Air Forces bomber to complete 25 missions, and its crew returned to the United States in 1943 for promotional purposes.

Later in the war, Morgan returned to combat as a B-29 pilot against Japan. Morgan's first combat mission in the Pacific Theater was also the first B-29 attack directed against Tokyo. ■

Index to Advertisers

Agusta Westland	3
Air Force Memorial Foundation	63
AT&T	16
Bell Helicopter	29
General Atomics	Cover IV
Harris	13
Lockheed Martin	Cover II
Northrop Grumman	9, 35, Cover III
TEAC	49
AEF Planned Giving	84
AFA Air & Space Conference & Technology Exposition	77
AFA on the Green	85
AFA Member Services	81

Action in Congress

By Tom Philpott, Contributing Editor

End in Sight for Widow's Tax?; Congress Moves to Enhance Pay, Benefits; No to Commissary Variable Pricing

Ending SBP Widow's Tax

The House has approved a phase-out provision that would, by April 2008, eliminate the sharp drop in benefits that now occurs at age 62 for beneficiaries of the military's Survivor Benefit Plan (SBP). If the Senate agrees, SBP payments to some 270,000 surviving spouses, age 62 and older, would begin to rise in October 2005.

Within four years, the full Social Security offset, which critics have dubbed the "widow's tax," would disappear. The provision is contained in the House's 2005 defense authorization bill.

At age 62 most surviving spouses see SBP benefits fall from 55 percent of covered retired pay down to as low as 35 percent. The Air Force Association and other service groups have pushed SBP reform as a top priority this legislative year.

The House Armed Services Total Force Subcommittee, in early May, voted to start a phaseout but not until 2009. Days later, when the full committee marked up the bill, Rep. Jeff Miller (R-Fla.) announced a solution worked out with committee leaders to provide an earlier phaseout of the offset. Congress would use money previously earmarked to lease tanker aircraft for the Air Force. (See "Washington Watch: Rumsfeld Delays Tanker Decision," p. 6.) The three-and-a-half year phaseout would start in October 2005.

The committee approved Miller's amendment, and the full House passed the defense bill May 20 on a 391-34 vote. SBP reform advocates hope the enthusiasm spreads to the Senate. Senators had left "headroom" in their 2005 budget resolution to pay for phasing out the widow's tax, but the Senate Armed Services Committee, chaired by Sen. John Warner (R-Va.), did not include SBP reform in the defense authorization bill.

Sen. Mary Landrieu (D-La.) planned to offer an amendment to phase out the offset when the Senate, in mid-June, resumes floor debate on the defense bill.

Rep. Duncan Hunter (R-Calif.), chairman of the House Armed Ser-

vices Committee, said, "This year we will fix the inequity of the Survivor Benefit Plan." His goal, he said, is "to get this on the President's desk as soon as possible."

In a formal statement on the House defense bill, Office of Management and Budget officials expressed concern over the cost of the SBP provision. They stopped short of recommending a Presidential veto, though.

OMB's position was that the \$5 billion being diverted to improve SBP is "needed to maintain and enhance the readiness of the armed forces."

Congress Enhances Pay, Benefits

The House-passed version of the 2005 defense authorization bill would deliver pay and benefit gains for active duty and Guard and Reserve component forces. In the Senate, the armed services committee voted out its own defense bill, but the full Senate delayed final action until mid-June.

Following are the personnel initiatives found in both the House legislation and the Senate Armed Services Committee bill, which make them almost certain to become law later this year.

- The basic pay increase, effective Jan. 1, 2005, would be 3.5 percent for all active duty, Guard, and Reserve members.

- The basic allowance for housing would increase overall next January by \$367 million to complete the last of a five-step plan to end service members' out-of-pocket costs for off-base housing in Stateside areas.

- Last year's increases to the monthly family separation allowance (up \$150) and imminent danger pay (up \$75) would be made permanent. They are set to expire in December. Congress hasn't accepted a Pentagon suggestion to roll back increases to these allowances in favor of a rise in hardship duty pay. The Administration believes hardship pay could be targeted more precisely to service members who serve in Iraq and Afghanistan.

- Two temporary gains last year in reserve health care access would be made permanent. One opened Tri-

care to Guard and Reserve members 90 days before they are to report for active duty. Another provided reserve component personnel (and families) up to 180 days of Tricare coverage following separation of the member from active duty.

- DOD would be required to award separate campaign medals for Operation Enduring Freedom and Operation Iraqi Freedom, rather than the one medal it currently authorized. (See "Aerospace World: The Battle Over Medals," May, p. 19.)

The House bill differs from the Senate Armed Services Committee version in several areas. One key House initiative is a mandated, three-year increase of nearly 40,000 troops. The Army's end strength would be increased by 10,000 per year and the Marine Corps by 3,000 per year. The Senate committee version would authorize—but not require—the Army to increase its active duty strength by 30,000 troops through 2009.

Pentagon leaders have maintained that no service, at this time, needs a permanent end strength increase.

The House supports the Pentagon request to raise the monthly ceiling on hardship pay from \$300 to \$750, leaving where and when to pay higher amounts up to defense officials and the services. The House also included a provision to repeal the meal subsistence charge for all hospitalized service members, not just those injured in combat. Another provision would enable military retirees and their dependents, age 70 and over, to obtain permanent ID cards, eliminating the hassle of periodic renewal.

The House bill includes several initiatives directed toward Guard and Reserve personnel. One would eliminate the inequity between reserve and active duty bonus and incentive authorities to provide the same incentives for reservists deployed alongside active duty troops of equal rank and job specialty.

Another provision would provide extra pay—from \$50 to \$3,000 a month—to replace monthly income losses of Guardsmen and Reserv-

ists mobilized involuntarily, if they meet certain length-of-service criteria. To be eligible, a reservist must have: 12 continuous months on active duty, 18 months of active duty during the previous 60 months, or a period of mobilization within six months of a previous active duty tour. House lawmakers expect the initiative to produce better management of reserve deployments in order to avoid having to provide the extra pay.

The House also wants to extend by three years, at 10 sites, a test to open Tricare to reservists who are unemployed or lack employer-sponsored healthcare. The test is to determine whether better access to care improves medical readiness, recruiting, and retention. The Senate Armed Services Committee would also extend the test, but by only two years, and would not limit it to just 10 sites or to any particular states or region.

The Senate committee's bill contained several reserve provisions not found in the House legislation, including a provision to offer non-drilling reservists and their families a chance to participate in Tricare under a new option called Tricare Reserve Select.

Tricare Reserve Select would operate under a cost-sharing arrangement like that found in the Federal Employees Health Benefits Program, in which the government pays 72 percent of the cost and a federal civilian employee pays 28 percent. A reservist's civilian employer would pay 72 percent of costs and the reservist 28 percent in either Tricare Standard, the fee-for-service option, or Tricare Extra, the preferred provider network option.

Another reserve health care initiative would make permanent two demonstration authorities to help reservists control health costs. One waives Tricare deductibles for reservists called to active duty for more than 30 days. The other authority protects reservists against balanced billing. That's useful when a reservist has an existing relationship with a civilian provider who doesn't accept Tricare fees as payment in full. Tricare will pick up an additional 15 percent that insured providers can't claim.

Once the Senate committee bill passes the full Senate, differences between the two versions of the authorization legislation will be reconciled by House-Senate conference committee.

Combat Tax Penalty

Combat-zone tax exclusions for 5,000 to 10,000 service members

who fought last year in Iraq and Afghanistan affected eligibility for more valuable tax breaks like the Earned Income Tax Credit (EITC) and therefore lowered some family incomes, say Congressional auditors and defense officials.

For some families, the net loss in tax benefits exceeded \$4,000. The number of affected families could be even higher in the current tax year given longer combat tours being served in 2004, officials said.

A DOD proposal to address the problem failed to clear the White House's Office of Management and Budget this spring, said Charles S. Abell, principal deputy undersecretary of defense for personnel and readiness.

The notion that combat-zone tax exclusions actually can lower overall tax breaks for low-income military families is "counterintuitive," Abell said. So when complaints began to surface in January, he was skeptical, but no longer.

Victims of the net loss in tax benefits typically are lower grade enlisted personnel or junior officers who serve seven months or more in combat zones, are married with children, and have little or no other family income, either from spouses or investments, said the General Accounting Office in a May report to the Senate Finance Committee.

Even some service members with working spouses would see net declines in tax benefits. Those numbers are harder to estimate but likely didn't exceed several thousand personnel in tax year 2003, GAO said.

Combat-zone tax exclusions continue to benefit most warfighters. Income earned in war zones—basic pay, bonuses, and special pays—is fully tax exempt for enlisted personnel. Officer combat tax exclusions are controlled by a cap, with no more than \$5,958 of income excluded monthly in 2003.

However, GAO confirmed "unintended consequences" when combat-zone tax exclusions cross with other tax breaks like the Earned Income Tax Credit.

EITC lowers tax liabilities for 21 million working Americans. Some not only pay no income tax but receive refundable tax credits that put government cash in their pockets. The maximum credit in 2003 was \$4,204 for a taxpayer with two or more qualifying children; \$2,547 for a taxpayer with one child; and \$382 for a taxpayer without a child. To qualify for EITC, a taxpayer must meet a cer-

tain level of earned and adjusted gross income, based on marital status and number of children.

Combat-zone tax exclusions affect eligibility for EITC by lowering the service member's taxable income. Because low-income military families don't pay income taxes anyway, the combat tax exclusion can block tax credits that otherwise would raise net income. Conversely, service members who usually earn too much to qualify for EITC can benefit from positive unintended consequences of combat tax exclusions. It lowers their taxable income so they qualify for refundable tax credits.

"This thing works in a perverse way," said Abell, noting that combat tours can qualify even senior enlisted personnel and, in some cases, full colonels for EITC.

To end this "inversion," DOD proposed draft legislation to ignore combat-zone tax exclusions for the purpose of calculating EITC or other special tax credits, so "colonels don't qualify and my privates do," said Abell.

OMB rejected the proposal after Treasury officials said it would reduce revenues.

"We will continue to work it and try again next year," said Abell.

Variable Pricing Nixed

To the relief of its many opponents, including Rep. John M. McHugh (R-N.Y.), chairman of the House Armed Services Total Force Subcommittee which oversees military store operations, the concept of variable pricing in commissaries is dead.

Maj. Gen. Michael P. Wiedemer, director of the Defense Commissary Agency, announced this spring that an independent study on variable pricing recommended against adopting it for base grocery stores.

Defense officials had directed the agency to study varying commissary item prices between stores as a way to reduce taxpayer support for commissaries while providing shoppers with average savings of 30 percent.

Variable pricing in the commercial grocery industry allows retailers to set prices to maximize profit margins, based on factors such as local market conditions, competition, or how much customers expect to pay for items locally. Commissary prices are based on cost, not profit margins, however, which makes variable pricing impractical, the study confirmed.

McHugh had expressed doubts last year about the value of conducting the \$500,000 study, but defense officials proceeded anyway. ■

Verbatim

By John T. Correll, Contributing Editor

Zinni's Charge

"In the lead-up to the Iraq War and its later conduct, I saw at a minimum, true dereliction, negligence, and irresponsibility, at worse, lying, incompetence, and corruption."—**Retired Marine Corps Gen. Anthony C. Zinni, former commander, US Central Command, in Battle Ready** (by Tom Clancy, Zinni, and Tony Koltz), Putnam, June 1.

The Tactic of Torture

"Look, history shows—and I know a little bit about this—that mistreatment of prisoners and torture is not productive. It's not productive. You don't get information that's usable from people under torture, because they just tell you what you want to hear."—**Sen. John McCain (R-Ariz.), who was tortured as a prisoner of war in Vietnam**, New York Times, May 10.

Cut and Shuffle

"Political fashion in Washington holds that the war is unwinnable. It's still taboo to talk about cutting and running, but the phrase 'cut and shuffle'—whatever that may mean—is gaining currency."—**Tom Donnelly**, Weekly Standard, May 17.

Not Yet a Program

"Joint warfighting space is first and foremost a concept, not a program. It's not a collection of acquisition activities."—**Lt. Gen. Daniel P. Leaf, vice commander, Air Force Space Command**, Inside the Pentagon, May 6.

Got That?

"We're trying to explain how things are going, and they are going as they are going. ... Some things are going well, and some things obviously are not going well."—**Secretary of Defense Donald H. Rumsfeld**, Pentagon news briefing, April 7.

Contesting Airspace

"The problem with air superiority is that everybody now takes it for granted, as if it's a given and that you don't have to work for it. Well, it's something we're going to have to continue to work for, as we watch new generations of airplanes being

built that are very, very capable. They're being deployed around the world, they're for sale around the world to do something—I would assume, to contest airspace. ... We have new generations of surface-to-air missiles out there being developed. To do what? To contest airspace."—**Air Force Chief of Staff Gen. John P. Jumper**, interview with Inside the Pentagon, April 16.

The Basic Relationship

"We have disagreements. We accept that. We have to live with it. We can live with the idea that our closest friend and ally, the United States of America, does not always agree with us."—**Jean-Maurice Ripert, French Foreign Ministry**, Washington Times, May 6.

A Threat From al-Sadr

"When our city and holy sites are attacked, we will all be time bombs in the face of the enemy."—**Radical Shi'ite cleric Sheik Muqtada al-Sadr, threatening suicide bomb attacks on US troops**, Associated Press, April 24.

Lone Rangers

"Paradoxically, the two nations that have suffered the worst terror attacks—the United States and Russia—are regressing more and more to national strategies. They have been unwilling to make the extra effort to reap the benefits of real international cooperation."—**William J. Perry, US Secretary of Defense from 1994 to 1997**, Moscow Times, May 7.

Two Dubyas for Powell

"He's still respected in Europe. But the two letters I associate with this name are 'W' and 'W'—the wise but weak man."—**Dominique Moisi, French Institute for International Relations, about US Secretary of State Colin Powell**, Wall Street Journal, April 30.

Count on Australia ...

"The Australian government and, I believe, most Australians understand the consequences of a premature and predetermined withdrawal of forces.

And that's why Australian defense force personnel will remain in Iraq until their task is complete. Australians understand that we cannot sit back and expect others, principally the US, to bear the load of making the world a safer place. Such isolationist thinking is dangerous and ill-conceived."—**Australian foreign minister Alexander Downer**, signed column, Wall Street Journal, April 27.

The Bad News News

"I've stopped reading the newspapers."—**Rumsfeld at "Town Hall Meeting" with US troops in Iraq**, May 13.

Not Russia's Problem

"Al Qaeda doesn't see Russia as an enemy, while those countries that seek WMD do not plan to use them against Russia."—**Konstantin Kosachyov, chairman of Duma International Affairs Committee**, Moscow Times, April 23.

Short Count

"It's approximately 500, of which—I can get the exact numbers—approximately 350 are combat deaths."—**Deputy Secretary of Defense Paul D. Wolfowitz, on number of US troops killed in Iraq, House Appropriations Subcommittee on Foreign Operations**, April 29. Actual numbers at that point: 726 dead, of which 524 were combat deaths.

What It Means

"This is a symbol we are leaving other generations that sometime in your life, you may be called upon to make a sacrifice for your country."—**Former Sen. Robert Dole on the new World War II Memorial in Washington, D.C.**, CBS News, May 27.

Brother Guide

"Libya, which led the liberation movement in the Third World, has decided to lead the peace movement all over the world."—**Libyan leader Muammar Qaddafi, who is known in his country as "Brother Guide"**, New York Times, April 28.

Guard and Reserve

A photograph of a C-130 aircraft silhouetted against a sunset sky at Baghdad Airport. The sky is a mix of dark blue, orange, and yellow. The aircraft is in the foreground, and the background shows the airport tarmac and some lights.

A C-130 belonging to the Tennessee Air National Guard is silhouetted against the sky at Baghdad Airport. Guard and Reserve mobility forces have played critical support roles in the recent wars in Afghanistan and Iraq.

Recent years have seen the longest sustained, large-scale mobilization in Air Force history.

in a Time of War

By James Kitfield



On a recent flight from Kuwait to the Baghdad Airport, a Georgia Air National Guard aircrew banked its C-130 hard into a corkscrew descent that had passengers practically dangling from their webbed constraints. The roar of the aircraft rose in pitch as its four turbine engines strained to maintain lift through the tight maneuver. A continuing threat from man-portable surface-to-air missiles in Iraq dictated the stomach-churning approach. Once the C-130

was on the ground, the crew quickly unloaded their passengers and cargo and took on a new load. Within an hour, the C-130 was trundling back down the runway on the next leg of what amounts to a daily commuter service in support of Operation Iraqi Freedom.

The flights are only a small cog in the massive military machine carrying out ongoing operations in Iraq and Afghanistan, but they illustrate the unprecedented strains the Global War on Terror is put-

USAF photo by SSgt. Cherie A. Thursday

ting on National Guard and Reserve forces.

The Georgia Air Guard wing responsible for the flights planned for 2,900 flight hours annually in peacetime, yet had flown 13,000 hours in 2003 largely in support of operations in Iraq. The high pace of operations has made it difficult for the unit to meet training requirements such as tactical formation flying, thus lowering its readiness ratings. The Iraq deployment and harsh operating environment in the Gulf region have also taken a toll on the unit's aging C-130 aircraft, evidenced by the squadron's need to replace 11 turbine engines and 20 propellers to keep eight aircraft operational in theater.

"The readiness of nondeployed Army and Air National Guard units for wartime missions has declined because of the high pace of operations since Sept. 11 [2001]," Janet A. St. Laurent, the General Accounting Office's director of defense capabilities and management, said in testimony before the House Government Reform Committee. "Although the Air Guard is maintained at a higher level of readiness overall than the Army Guard, its readiness has also declined."

Several Air National Guard units—such as those that conduct combat patrols over US cities, provide airlift capability, or conduct tanker refueling operations—have reported that the pace of operations has led to training shortfalls. Laurent said, "Some state

officials we spoke with were concerned about the Guard's preparedness for homeland security missions as well as state requirements such as natural disaster response because of the large numbers of personnel and equipment that have been alerted or deployed for federal missions."

Those tensions and strains are the inevitable result of what Lt. Gen. James E. Sherrard III, recently retired chief of Air Force Reserve Command, called "the longest sustained, large-scale mobilization in the history of the Air Force."

The sheer numbers are certainly impressive.

The Numbers Grow

Since the Sept. 11, 2001, terrorists attacks, the Air Force has mobilized nearly 65,000 ANG and AFRC members in some 100 units and "many more" individual reservists, Lt. Gen. Richard E. Brown III, USAF deputy chief of staff for personnel, told lawmakers earlier this year. He said that reservists comprise 20 percent of USAF's air and space expeditionary force (AEF) packages supporting operations in Southwest Asia and conduct 89 percent of Operation Noble Eagle, maintaining patrols over American cities.

Last year, roughly 10,000 Air Guard members deployed for more than 220 days, and 6,400 Air Guard members have deployed for more than 401 days over the last two years.

"Our contributions over the past

two years, and specifically in Operation Iraqi Freedom, have been tremendous," said Lt. Gen. Daniel James III, ANG director, testifying recently before a Senate Appropriations subcommittee. Since 9/11, ANG aircrews and maintainers have conducted more than 110,000 sorties, accounting for more than 340,000 flying hours. In Iraqi Freedom, he said, that translated into the Air Guard supplying one-third of all aircraft.

ANG flew 86 percent of the Gulf War II tanker sorties, initially manning the tanker task force with volunteers who were ready within 24 hours, said James. The task force comprised 18 units, 15 of which were Air Guard. During Operation Enduring Freedom in Afghanistan, ANG conducted 100 percent of the A-10 mission. For Iraqi Freedom, A-10s flew more combat missions than any other aircraft, and the Air Guard supplied 66 percent of those sorties, he said. The Guard also flew 45 percent of the F-16 sorties in Iraq.

Sherrard reported that AFRC, which has only eight percent of the Air Force conventional bomb crews, had flown 42 percent of all the B-52 combat missions for four combat deployments in Afghanistan and Iraq. AFRC also supported C-17 sorties in Afghanistan and Iraq, including the massive Army airdrop into northern Iraq. In 2003, he said, AFRC had met "virtually 100 percent" of both aviation and support commitments, deploying more than 23,000 personnel, both mobilized and volunteer.

The Defense Department has estimated that the "steady state" over the next three to five years will likely require the contribution of 100,000 to 150,000 Guardsmen and Reservists, with activations of a year or more being the norm. As of May 26, DOD had nearly 166,000 Guard and Reserve troops—including 11,355 ANG and AFRC members—mobilized.

Recasting the Reserves

Those increased demands, and anticipation that operations tempo will remain high for years as the United States prosecutes the Global War on Terror, have prompted wholesale reorganization and restructuring within the Guard and Reserve.

Much of the work focuses on the Army's reserve components, which

USAF photo by SSgt. Cherie A. Thurby



A Tennessee Air National Guard C-130 lands at Baghdad Airport. Last year, roughly 10,000 Guardsmen deployed for more than 220 days in support of combat operations.

today are still in a strategic reserve mode that was designed for the Cold War. The Air Force began shifting the Air National Guard and Air Force Reserve to quicker reacting operational reserve components more than 20 years ago.

"It can take several weeks to months to prepare an Army National Guard unit to mobilize and deploy—compared to the Air Guard model where units deploy in a matter of hours or days," Army Lt. Gen. H. Steven Blum, chief of the National Guard Bureau, told lawmakers.

The Air National Guard is "manned, equipped, and trained to be a ready, relevant, reliable, and accessible force," said Blum.

The Air National Guard and Air Force Reserve Command began to integrate their activities and training with the active duty Air Force in the 1970s and 1980s. Equipment and training that had lagged behind were improved. By the early 1990s, when USAF launched its AEF concept, ANG and AFRC were full partners in the AEF rotation schedule.

The expeditionary approach has enabled the Air Force to spread the burden of operations evenly across most of its active and reserve forces. However, some active and reserve functions are in greater demand in the post-9/11 environment.

Pentagon leaders have recognized that the military has an unbalanced force consisting of high-demand units that are in short supply and low-



USAF photo by MSGlt. Michael Ammons

Guardsmen and Reservists are key to the homeland air defense mission, Operation Noble Eagle. Here, F-15s from the Oregon ANG and a Reserve KC-135R soar over the Cascades on a training mission.

demand units that are in abundant supply. The consequences of that imbalance, they say, are already evident. Within the reserves, for instance, fully 92 percent of all military police units in the National Guard have been activated since 9/11. Some of those Army Guard units were tasked to support USAF bases, because the Air Force had to send most of its security forces, including ANG and AFRC troops, overseas.

According to DOD officials, reserve personnel provide the majority of force protection to military personnel and installations worldwide.

Within the Air Guard and Air Force Reserve, security forces were among those critical specialties mobilized for more than a single year.

Air National Guard security forces were "the first security forces on the ground in Iraq," James told lawmakers. He noted that 60 percent of ANG security forces participated in Iraqi Freedom.

Other high-demand fields in the Air Guard include tanker pilots and flight engineers—more than 80 percent of each group has deployed at least once since September 2001. In its review of the Guard, the GAO reported that about 10,000 Air Guard members were deployed for more than 220 days in the past year and about 6,400 of them were deployed for more than 401 days in the last two years.

Within AFRC, there are similar critical specialties. For instance, many E-3 AWACS airborne control, MC-130 Combat Talon, and HC-130 and HH-60 rescue aircrews were activated for a second year.

The Defense Department has concluded that using more than 17 percent of the personnel in a given career field annually indicates an unsustainably high pace of operations in that career field. Yet usage rates for personnel in some reserve career fields have exceeded 50 percent over the last two-and-a-half years.

"Through December 2003, about 37 percent of the Selected Reserve



USAF photo by SSgt. Cherie A. Thuribby

Some specialties have been heavily tasked. Security forces, tanker pilots, flight engineers, and rescue aircrews have been in high demand. Pictured, in Baghdad, is TSgt. Wendell Witt, a Reserve pararescueman.

force was mobilized in just over two years," said Thomas F. Hall, assistant secretary of defense for reserve affairs, testifying before a House Armed Services subcommittee. "However," he added, "the usage rate is not consistent across the force."

Career fields identified as overstressed include aircrews, military police, civil affairs, intelligence, and force protection. Underutilized career fields include medical administration, legal affairs, and field artillery. Currently, the highest utilization, said Hall, is concentrated in about one-quarter of the career fields.

To address such imbalances, DOD has identified 100,000 billets in the active and reserve forces for possible restructuring by 2009. The plan includes movement within and between the active and reserve forces. The rebalancing strategy has already resulted in about 10,000 changes in military billets between the active and reserve components to relieve stress on overtaxed career fields, and an additional 20,000 more are expected to be completed by the end of this fiscal year. The Fiscal 2005 budget supports about 20,000 additional changes to the career mix.

The Air Force portion of the Fiscal 2005 rebalancing initiative will involve about 4,000 conversions to relieve stress in security forces, aircrews, and maintenance career fields.

"Easing or reducing the stress on the force requires a multifaceted



Lt. Gen. Daniel James III, ANG director (left), observes an aircrew of USAF's new blended 116th Air Control Wing, Robins AFB, Ga. The wing uses mixed crews of active duty and ANG airmen on its E-8 Joint STARS aircraft.

approach by the department—no single solution will resolve the challenges faced by the services," said Hall. "By employing innovative force management practices, the services can perhaps achieve the greatest degree of flexibility in utilizing the Total Force, while reducing stress on critical career fields and the need for involuntary mobilization."

New Missions, New Strains

Hall cautioned that rebalancing will "not happen overnight." He said it would be an "iterative and ongoing" process as demands change.

As part of the transformation process, the National Guard and Reserve have also identified new missions and mission concepts that are good fits for reserve forces. For instance, when a midcourse national missile defense capability is fielded, perhaps within the next year, it will be operated by a Guard unit. The Air Guard is already operating the ground alert sites for domestic combat air patrols under the direction of US Northern Command.

In a novel approach, the Air Force recently stood up a new unit to operate and maintain Predator unmanned aerial vehicles. The unit draws on personnel from the active Air Force, the California and Nevada Air National Guard, and Air Force Reserve Command. It is the first time ANG members from one state have been made part of a unit in another state. (See "Aerospace World: ANG Crosses Lines for UAV Unit," May, p. 18.)

The National Guard, including some ANG troops, also has activated 32 of an anticipated 55 civil support teams to assist in emergency response in the event of an attack using a weapon of mass destruction. That threat and the demands of two wars in as many years also prompted the Air National Guard to reconfigure its medical services into expeditionary medical support teams. This expeditionary medical support system allowed 10 percent of Air Guard medical personnel to deploy for Iraqi Freedom, compared to only three



An AFRC A-10 from Whiteman AFB, Mo., heads out from Kirkuk AB, Iraq. Warthogs, flown primarily by Guard and Reserve forces, conducted the most combat missions in the theater.

USAF photo by SSgt. Lee A. Osberry, Jr.

USAF photo by SMSgt. Tom McKenzie

percent during the 1991 Persian Gulf War.

The EMS system can “simultaneously” provide expeditionary combat support for AEF missions, homeland defense emergency response capabilities to the states, and support to Air Guard wings, James told lawmakers earlier this year.

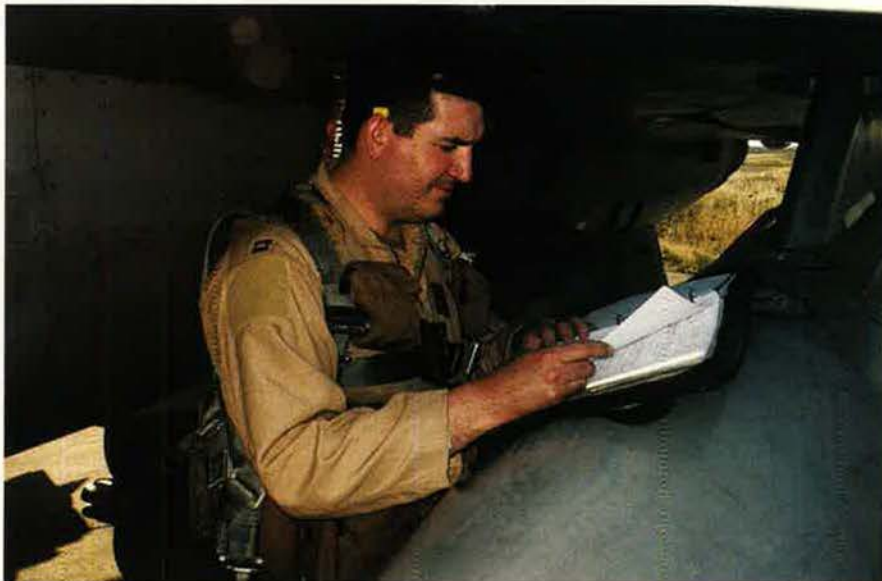
He said ANG is expanding its intelligence collection and production capability to fill a growing Air Force mission. Among several initiatives, the Air Guard is enhancing its F-16 theater airborne reconnaissance system and established a new unit to support reconnaissance aircraft operations at Offutt AFB, Neb.

ANG has converted several units to support space missions, such as



USAF photo by TSgt. Keith Brown

USAF photo by MSgt. Glenn Wilkowitz



At top, TSgt. Robert Algeo marshals a Colorado ANG F-16 as it arrives at Balad AB, Iraq. Above, Capt. Andy Aspey, Michigan ANG, goes over his preflight checklist in Iraq. Reservists comprise 20 percent of USAF's expeditionary force.

missile warning, satellite command and control, and launch range safety.

Air Force Reserve Command is expanding its associate program, in which Reservists share aircraft with active duty airmen. For years, Reservists have helped operate and maintain mobility aircraft. More recently, AFRC has added space operations and flying training to its list of associate programs.

“AFRC provides over 1,100 trained space officer, enlisted, civilian, and contractor personnel at more than 15 locations,” Sherrard told lawmakers. Currently, AFRC has nine space associate units, and, because they “have been highly success-

ful,” he said, they will grow in the future.

Sherrard said the Air Force and AFRC were considering developing associate units for space control, launch operations, ICBM communications, and for Air Force Space Command's Space Operations School.

With a host of new missions on the plate of the Air National Guard and Air Force Reserve Command, and no end to the global war on terrorism in sight, some experts worry that the reserve components are in danger of overload.

For instance, in its recent review of the National Guard, the GAO found that there has been “a steady

decline in the warfighting readiness of nondeployed units.” The Congressional agency did say that the greatest negative impact was on the Army Guard; however, it said, “Air National Guard units have also experienced difficulty in maintaining their warfighting readiness while conducting overseas and homeland defense missions and reported overall declines in readiness.”

In her testimony, Laurent said that USAF and ANG attributed the Air Guard's readiness decline to “the high pace of operations and problems associated with aging aircraft.”

For example, Laurent reported that the US combat air patrol missions flown by ANG fighter units in New Jersey, Oregon, and Texas reduced the number of aircraft available for training. That meant the few training aircraft were flown for more hours than planned, creating scheduling and maintenance problems.

James also acknowledged that ANG had to leave some equipment overseas to support continuing operations. That has caused a shortage at home for training.

Laurent said GAO found “that the Defense Department, the states, and Congress face significant near- and long-term challenges in readying and resourcing National Guard units for overseas and domestic missions in the global war on terrorism.” She added, “In the longer term, the Guard's ability to successfully organize for its missions in the new strategic environment will depend on whether adequate resources are identified for



these efforts and whether DOD's readiness and funding policies are consistent with the Army Guard's expected high utilization for the foreseeable future."

The New Reality

Many lawmakers are concerned that the Guard and Reserve are being overused in ongoing operations.

"The new reality is that this war demands more from the reserve components than previous conflicts," said Rep. John M. McHugh (R-N.Y.), chairman of the House Armed Services Total Force Subcommittee. He noted that during Operation Desert Storm in 1991, a mobilized reservist served about 156 days, while during today's operations the average is about 319 days.

"The longer-term planning metric is that each reserve component member can expect to be mobilized at least once every five years, if not more frequently, for periods of up to a year or longer," said McHugh. "That's a far cry from one weekend a month."

Recent surveys have indicated that as many as 25 percent of Guard personnel intended not to re-enlist once their tours were completed. Those surveys correspond with recent data which indicated that active duty service members leaving the military are less likely to sign up for duty in the reserves. Traditionally, the Air Guard and Air Reserve components have gotten about 25 percent of their members from former active duty troops.

ANG troops have elected to stay in the force.

"Because we have retained more of our people, our recruiting goals are higher than need be," said James. "We will retain enough people to make our end strength."

According to DOD officials, the reserve components across the board have not experienced a significant exodus of personnel.

The question for many lawmakers and defense analysts is: How long will that hold?

Blum expressed concern but maintained, "The sky is not falling." He said, "The potential for higher losses in the future is certainly there, but if we continue to address the concerns we're hearing, I think the youth of



At top, a California ANG C-130E tackles a fire in the western US. Above, a C-17, sitting at Balad AB, Iraq, has both AMC and AFRC shields, evidence it is flown by both active and Reserve crews.

Defense leaders told Congress that the Air National Guard has fallen short of its recruiting goal. At a June hearing, Marine Gen. Peter Pace, vice chairman of the Joint Chiefs of Staff, said ANG recruiting was off "about 23 percent."

However, according to James, the recruiting number is "inversely proportionate" to the Air Guard's retention number. ANG retention is much higher than officials predicted. The retention estimate was about 88 percent, but more than 95 percent of

this country will stick with us."

Blum continued: "You have to understand that this is the first real test of the all-volunteer force in the 30 years of its existence. This is the acid test. We're being put through the crucible of a war with sustained casualties over an extended period of time. And indications are that the all-volunteer force is reliable and resilient enough to withstand those pressures, which are pretty extraordinary. So far it looks like a success." ■

James Kitfield is the defense correspondent for National Journal in Washington, D.C. His most recent article for Air Force Magazine, "The Guard and Reserve Stand Fast," appeared in the March 2003 issue.

THE

BEST WAY

TO GET IN AND OUT OF THE PLACE THEY

LEAST EXPECT YOU TO BE.



- 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.

©2004 Bell Helicopter Textron Inc. / The Boeing Company, all rights reserved.



Team Osprey

USAF photo by SSgt. Suzanne M. Jenkins

Securing the Space Arena

Air Force plans call for defensive and offensive systems to protect vital US spacecraft.

By John A. Tirpak, Executive Editor

THE Air Force—with mounting urgency—is seeking new ways to protect and preserve the nation's assets in space. In the minds of senior service leaders, it's no longer a question of whether the so-called "Space Control" mission is necessary, only how soon it will have to be performed.

Air Force leaders have set a near-term goal of increasing the service's awareness of what's happening in space at any given moment. This will enable it to know whether a spacecraft is, in fact, under attack. At the same time, the service has begun planning to field defensive and offensive space systems to protect US satellites against an enemy assault and to disable those of an adversary.

Given American dependence on its space assets, Air Force leaders believe, space defenses are necessary.

"Our adversaries have taken note of the asymmetric advantage that we have in space today," said Peter B. Teets, undersecretary of the Air Force and the Pentagon's space "czar." In addition to coordinating the space functions of all the services, he is also the director of the National Reconnaissance Office. "The success of our networking ability in the field, the success of our getting actionable intelligence information to the warfighters hasn't gone unnoticed. Our adversaries are certainly thinking about how they could exploit whatever vulnerability we might have."

Such an attempt took place during the second Gulf War, when Iraqi troops tried to jam Global Positioning System satellite signals used to guide US precision munitions to their targets. It didn't work—the weapons used to destroy the jammers were themselves GPS-guided—but the attempt was a taste of things to come.

Air Force leaders have already moved to strengthen the GPS signal and make it more jam resistant. They worry that smarter adversaries with more technological know-how might be successful.

Current military dependence on space is great and still growing. In Iraq, US forces counted on space systems to underwrite the functions of communication, navigation, weather forecasting, targeting, and intelligence-surveillance-reconnaissance functions—all critical to the speed

The satellite dishes at left are with the 379th Expeditionary Communications Squadron, located in the Middle East. US forces use satellites in almost every aspect of operations. At right are Global Positioning System-guided JDAMs in a B-1B weapons bay. The Iraqi forces that tried to jam US satellite signals were themselves destroyed by JDAMs.



USAF photo by SSgt. Larry Stumma

and precision of the US operation. Satellites provided reachback capabilities that greatly reduced the number of support personnel needed to deploy into the theater of operations. Precise command and control—exercised through space assets—led to the toppling of the Iraqi regime by a force far smaller than many thought possible.

Such a swift and decisive operation would have been unthinkable without space-based resources.

The ability to enhance a force's speed, precision, and lethality through global networking is the main underpinning of the Pentagon's transformation strategy. The future military will be even more dependent on space than it is today.

Beyond the military aspects, the US depends on space-based resources that provide high-speed data and voice communications, navigation, weather data, and other capabilities. These systems represent hundreds of billion of dollars worth of investment and play a significant role in the national economy. Such national resources must be protected.

More and more countries can acquire their own space systems or purchase access to space through the

commercial launch services of numerous other countries. That constitutes a mounting threat, said Teets.

"As time goes by, more and more nations will become spacefaring nations," he said, emphasizing, "We need to ensure our freedom to operate in space."

Knowing the Playing Field

The potential vulnerability of US space assets makes it "important for us now to focus some attention on this whole space control arena," Teets said. "We have been focusing attention, first of all, on space situational awareness."

The US maintains a catalog—"the ephemeris"—of the 10,000 or so mostly man-made objects now orbiting the Earth, said Teets, but "we really don't know as much about those objects as we would like to."

Air Force Space Command tracks the objects, ranging from active and inactive satellites to asteroids to spent boosters and what Teets called "relics" of the space age. The command keeps tabs on these objects both to prevent collisions between spacecraft and to highlight any that behave unexpectedly and could pose a threat.

The Air Force currently tracks



This is an artist's conception of a space-based telescope, which is needed to view objects in a geostationary orbit, 23,000 miles away. It has become necessary to examine every object that could threaten US satellites, upon which both the US military and the economy depend.

these objects by means of ground-based sensors—mainly telescopes and radars, which collectively are called the Space Surveillance Network (SSN).

The telescopes offer good resolution on objects in low Earth orbit—at altitudes of about 500 miles—but they are far less useful for imaging objects in geosynchronous orbit—about 23,000 miles above Earth. They are also limited by the weather. A huge radar complex called the Navy Fence (now under Air Force control) can spot objects as small as 12 inches in the “geo belt,” but it, like other radars, doesn’t offer visual data.

Another drawback for ground-based sensors is that they lose track of objects that move temporarily out of view. That leaves information voids to be filled.

“We find that space situation awareness is by far the top priority” in the space control arena, said Col. Susan J. Helms, former chief of requirements at Air Force Space Command’s Space Control Division and now vice commander of the 45th Space Wing, Patrick AFB, Fla. “It’s very difficult to take defensive action ... unless you have a very sound information base on which to act.”

USAF has proposed three different steps to improve space situational awareness, said Helms. The first is the Space Based Space Surveillance System (SBSS), an orbiting telescope that will be able to fix its optical eye on objects in the geo belt, affording far better views than ever before possible.

“We’re just in the early phases of that,” Teets said, “but that will be a dramatic improvement. That will give us some capability to really start to identify what these space objects are.” Today, many of the objects merely have a catalog number with no other identification available.

Helms explained that the US must “go to space” to be able to watch objects in the geo belt “doing maneuvers within a time that is militarily significant.” She said SBSS is an optical sensor that is “no longer Earthbound,” and, consequently, it can “revisit space objects on a much more frequent basis.” SBSS will be able to monitor objects without regard to weather or other ground-based limitations, said Helms, and “detect space maneuvers that we were not anticipating.”

Under current concepts, SBSS would orbit Earth every 90 minutes.

If a space object were to break up, said Helms, “we would be able to get a much better feel for the number of pieces and the debris field in a much more timely fashion.”

AFSPC’s Space and Missile Systems Center Los Angeles AFB, Calif., expects to have a preliminary “pathfinder” system ready for launch in 2007. The current SBSS concept calls for USAF to field a full system of four to eight satellites around 2012-13.

The second situational awareness system in the pipeline is the Orbital Deep-Space Imager. This, too, will be a telescope system, but it will be a “drifter.” It will continuously move around the geo belt and take pictures of objects of interest, whether US or foreign.

The imager would be used, for instance, to get “up close and personal information” on any US satellite that might have been damaged, for whatever reason, said Helms.

A vexing problem of defensive counterspace is the need to determine whether a problem is the result of natural phenomena or an attack, she noted. Solar flares, fluctuations in the Earth’s magnetic field, cosmic rays, and other space events can affect a satellite’s systems. An attack could come in the form of a laser beam fired from another satellite or a burst of artificially generated electromagnetic energy.

“The way you can tell is to collect information from a variety of sources, and do ... the detective work in a timely manner and arrive at what would appear to be the only answer,” Helms explained.

The satellite may be “smart enough” to say that it is under attack, Helms said. If not, there may be clues in the flow of data from the vehicle that help determine whether it’s the victim of space weather or a man-made attack.

This information is paired with “what the space weather team is telling you” about natural phenomena going on and whether other satellites in the area are having similar problems. If they are, the culprit is likely the space weather. If not, “and if that trouble began over a certain part of the world, well, that points to a different solution,” Helms noted.

A third element in USAF’s situational awareness approach would aid the attempt to differentiate between natural phenomena and a man-

made attack but it is also “characterized as a defensive counterspace program,” she said. It is called Rapid Attack Identification, Detection, and Reporting System (RAIDRS).

The system is not a separate spacecraft. Rather, it is a program to develop “decision-making tools specifically for the goal of recognizing an attack on a satellite,” said Helms. RAIDRS would be integrated on an existing satellite or those in development to provide “extra artificial intelligence elements” to the data available to the satellite controller, she explained. USAF plans to have the capability ready in 2007.

While working on these new space-based systems, the Air Force will upgrade the ground-based portions of its Space Surveillance Network. For instance, the Ground-based Electro-Optical Deep Space Surveillance system—a set of telescopes that watch starfields and look for objects moving within them—will be upgraded to digitally enhance what the telescopes see and improve their data overlay with other sensors.

USAF has not yet decided whether to upgrade the Navy Fence. The Air Force took over the Fence in 2000, along with an annual operating cost of \$33.5 million. Currently, USAF is considering an upgrade valued at \$333 million, but the funds would have to come from programs elsewhere within the Air Force.

Just before handing over the program, the Navy awarded a contract that would have enhanced the system to see objects as small as two inches in size. The Air Force deferred the upgrade, which it would have to fund, until it finalizes plans for the entire space surveillance network.

Adding Protection

The Air Force not only is becoming more aware of what’s happening in orbit, but also is providing physical protection of satellites and ground elements.

Military satellite communications (MILSATCOM) systems are so crucial that many of the satellites in the MILSATCOM fleet already have some “hardening” against electromagnetic pulse and other antisatellite measures.

Helms said that all new satellite programs go through a series of as-

sessments that determine their importance, vulnerability to attack, and impact if they were lost. This provides a context for determining whether it makes sense to add weight to armor the satellite or otherwise provide for its self-defense.

Overall, Teets said, the anticipated vulnerability of satellites to space threats has not spurred a radical shift of design toward small microsattellites or large, heavy spacecraft. It is more a matter of function.

The Space Based Radar, for example, will be “an important sensor that will provide very valuable information to the warfighter and therefore could be subject to attack,” said Teets. In planning SBR, the Air Force has asked for a “broad range of alternative concepts,” including operating procedures and different orbits, explained Teets.

The SBR might be safer at medium Earth orbit, where it will be out of reach for many current rocket-launching countries; however, putting SBR at that altitude would require more power and greater antenna size to avoid reducing resolution. The better option, said Teets, might be to place more SBRs in low Earth orbit—with some countermeasures—knowing they

would be somewhat more vulnerable. “We’re trying to run through those trade-offs right now,” he said.

Ground stations—the key link between satellites and command centers—have become the subject of extensive vulnerability assessments, said Teets.

“We’ve done a serious investigation of it, and so I think we know where our vulnerabilities lie,” he said. The Air Force is looking at “a wide range of corrective measures” to address those weaknesses.

Taking the Offense

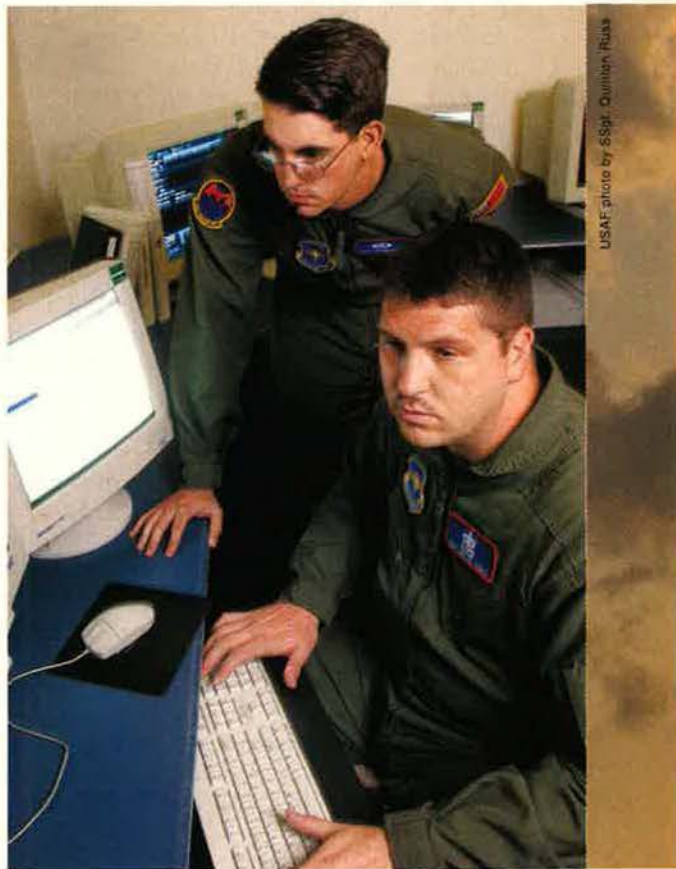
For the Air Force, “denial of an adversary’s access to space services” has become a pivotal capability needed to fulfill DOD’s transformation goals.

In its transformation flight plan, released in February, USAF lists two “key unclassified” offensive counterspace programs designed to achieve space superiority:

- Counter Communications System (CCS)—a near-term ground-based, mobile system to disrupt enemy satellite communications.

- Counter Surveillance and Reconnaissance System (CSRS), a near-term ground-based, mobile system able to disrupt and degrade enemy

SSgt. Rolan Jones (at keyboard) and SSgt. Ryan Reed issue commands to a GPS satellite. Determining whether a problem satellite is a victim of rough space weather or an attack requires considerable detective work.



USAF photo by SSgt. Quinlan, Russ



Over the years, the Air Force has experimented with ASAT (antisatellite) capabilities. At left is a shot against an orbiting target in 1985. USAF has no active ASAT program, but other countries may be pushing toward such a capability. Space awareness is now USAF's top priority for space control.

space-based surveillance and reconnaissance systems.

Space Command's "Strategic Master Plan: FY 2006 and Beyond," released last fall, lists one other concept, a Counter Navigation System that will deny an adversary use of satellite navigation signals. It is slated for fielding by 2017.

According to Teets, the first CCS, also known as Counter Comm, was fielded earlier this year with the 76th Space Control Squadron, Peterson AFB, Colo. Teets told Congress in February that the Air Force plans to deliver two more systems in Fiscal 2005 and "then will begin work on the next generation."

Teets said the goal for initial operational capability for the CSRS is Fiscal 2009. In April, Lt. Gen. Brian A. Arnold, SMC commander, told reporters that the system is headed toward a program definition review in July.

Each of these new systems, said officials, complies with an Air Force policy that target satellites be temporarily disabled, not permanently destroyed. The systems will create what is termed "reversible" effects.

The Air Force is looking to the long-term, as well, and expects that

the threat to its space systems will be substantially more advanced in the next 15 to 20 years. For that time period, Helms said, "escort satellites" have been brought up as a concept that is "worthy of investigation."

Such vehicles would stand by in the vicinity of crucial ISR satellites and could be directed from the ground to intercept any threatening vehicle that tries to approach.

Industry officials who have looked at such concepts said they range from "kill vehicles"—in which the whole satellite steers to a collision with an attacking object—up to "space battle-wagons" that can launch interceptor rockets or fire destructive lasers at attacking objects.

Teets declared that the Air Force isn't ruling out anything. At present, it is conducting a review of "a wide range of corrective measures to decrease our vulnerabilities." He did say, however, that the service prefers in the short run to pursue non-destructive means of neutralizing threats. He called it "our main thrust." In explanation, Teets notes that an enemy may be using another country's commercial space asset. Outright destruction of the

third party's satellite likely would severely strain the US relationship with that country, whereas temporarily disabling the satellite might not. However, Teets said, "As time goes on and you start to look to the future, it's certainly wise for us to be keeping our thought processes open" to other approaches.

The Air Force has looked at destructive space-based lasers, but Teets said, "I think space-based weapons themselves are still out there in the relatively distant future."

Even now, however, critics predict that the Air Force's approach to space control will ramp up a new arms race in space and break treaties. USAF insists none of its programs violate standing agreements.

"Treaty restrictions are not really in question," Teets said. "The Outer Space Treaty says that you will not put nuclear weapons or any weapon of mass destruction on a celestial body or ... in orbit around the Earth. And we have no plans to do that."

On the other hand, said Teets, the US must "be able to fend off attacks." He continued, "The whole idea of knowing whether or not you are under attack is a fair subject for us to be addressing."

The space czar's own assessment is that the threat of physical attack from other countries is "a few years out," but he believes the capability to defend against such an attack should be in hand before then.

"In the next few years, we need to be able to deal with that kind of threat," said Teets. He gave a disturbing example of why the new space awareness tools are needed as soon as possible.

In mid-April, he said that the Air Force had recently discovered that a Defense Meteorological Satellite Program spacecraft had broken into six pieces. "That's a little unsettling, actually," said Teets. "This is not an active satellite, it's a satellite that was launched a good number of years ago and is currently dormant, but, candidly, this is not an event we've [ever] witnessed before, and DMSP has been around for a long, long time."

That event highlights the need for space situational awareness, he said.

"We need to know more, sooner, about what's happening up there. And it's hard work." ■

Take your IR missile
and jam it.



Northrop Grumman Electronic Systems, the leader in infrared countermeasures, has been bringing aviators home safely for more than 35 years. Today, we are the only company producing a Directional Infrared Countermeasure (DIRCM) system that uses laser energy to disrupt missile guidance. Even the most advanced heat-seeking missiles are no match for our countermeasures, which provide autonomous, 360° protection for both rotary- and fixed-wing aircraft. Fast, accurate and proven effective, our DIRCM system can defeat IR threats. So if you don't point those missiles somewhere else, we'll do it for you.

www.northropgrumman.com
www.dsd.es.northropgrumman.com
© 2004 Northrop Grumman Corporation

NORTHROP GRUMMAN DEFINING THE FUTURE™

Electronic Systems



PACAF must contend with smoldering crises, vast distances, and the aging of its aircraft.

Airpower for a

When the Cold War ended, some parts of the Air Force were forced to take drastic cuts in force structure and personnel, and nowhere was this more true than in Europe. United States Air Forces in Europe in 1990 had 10 tactical fighter wings. Within a few years, USAFE had lost seven of them, leaving only three.



By Adam J. Hebert, Senior Editor

Big Ocean

By contrast, the Air Force draw-down barely touched the service's Pacific contingent. The Cold War version of Pacific Air Forces (counting forces in Alaska) comprised seven fighter wings. It still has six—two in Japan, two in South Korea, and two in Alaska. PACAF disbanded only its Philippines-based wing, after the destruction of Clark Air Base by the 1991 eruption of Mount Pinatubo.

PACAF has for more than a decade overshadowed USAFE. The number of PACAF personnel—both uniformed and civilian—declined only 17 percent, compared to a 50 percent drop in USAFE. The 42,000 airmen in PACAF exceed the number in Europe by 7,000. Things unfolded as they did because, in the Pacific region, the fall of the Soviet Union was not the millennial event that it was on the



PACAF's area of responsibility covers more than half the Earth's surface. Here, an F-16 based at Eielson AFB, Alaska, near the Arctic Circle, approaches Andersen AFB, Guam, near the equator.

other side of the world. The Soviet naval and bomber threat vanished from the Far East, but other military problems—in Korea, Taiwan, and elsewhere—continued as before. In fact, the threat has diversified, as new forms of danger appear in the South Pacific and Indian Ocean areas.

To better address a hodgepodge of requirements in a vast region, PACAF is taking a fresh look at its basing structure and transforming itself with precision weapons, advanced intelligence-surveillance-reconnaissance systems, and stronger long-range aircraft capabilities.

The Guam Factor

At present, much of the Air Force's attention is focused on Guam, the 30-mile-long tropical island situated in the Western Pacific, roughly 3,500 miles west of Hawaii and 1,200 miles east of the Philippines. It has about 150,000 residents and more than 7,000 military personnel and family members. It is home to Andersen Air Force Base.

The Air Force thinks Guam has great potential as a staging area for combat forces, though none have been permanently based there since 1990, when a B-52 wing, moved there during the Vietnam War, was inactivated.

In the intervening years, however, the Air Force has continued to invest heavily in Andersen's infrastructure, which has allowed it to become a valuable contingency location. The air base also has enormous capacity

to bed down aircraft, and USAF used it to great advantage during recent operations.

Gen. William J. Begert, PACAF commander, told a group of defense reporters in January that he would like to add force structure in Guam. He noted that Andersen hosted more than 150 B-52 bombers during the Vietnam War. More recently, in the American buildup to Operation Enduring Freedom in Afghanistan, he said, the base went from having no airplanes on the ground to "literally 75 ... within 48 hours."

And in what has become a regular

occurrence, a detachment of B-52s earlier this year deployed to Andersen.

Guam has many attractive qualities. Among them is the fact that it is US territory and PACAF does not have to obtain foreign approval to base aircraft there or to employ them in combat operations. Moreover, fighter forces on Guam would be within combat range of the Korean Peninsula, Japan, and the Taiwan Strait but still far enough from China and North Korea to be beyond the range of most missiles.

"Guam's geostrategic importance cannot be overstated," declared Adm. Thomas B. Fargo, commander of US Pacific Command, in a recent session before Congress.

Fargo said that Guam has an "increasing role as a power projection hub" and that, as a consequence, Navy and Air Force facilities there need continuous improvement.

Guam is located in what's known as "Typhoon Alley," Begert said. The Air Force has enhanced some of its aircraft facilities to be able to withstand the severe storms that frequently sweep through the area. The base already has one large, typhoon-proof hangar. A second has been funded and "will be going up shortly," said the PACAF commander.

At present, Andersen serves mainly as a valuable logistics hub. Begert believes, however, that USAF could decide, in the not-too-distant future, to return aircraft to Guam permanently. Andersen, he went on, could



In recent years, USAF bombers have become regular visitors to Guam. In February, a contingent of B-52s and airmen from Minot AFB, N.D., deployed to the island. They were replaced in May by B-52 units from Barksdale AFB, La.

serve as a home for a fighter wing, tankers, Global Hawk unmanned aerial vehicles, or bombers. All are "attractive options" that "make good sense," Begert said.

Hickam AFB, Hawaii, like Andersen, offers much unused capacity. Compared to similar bases on the US West Coast, Hickam is thousands of miles closer to the East Asian rim. Like Andersen, Hickam features plenty of ramp space, enormous fuel storage capability, and ample munitions storage capacity.

However, Hawaii is in the middle of the Pacific Ocean and can in no sense be viewed as a forward base. It is still more than 5,000 miles from Taiwan and more than 4,500 miles from South Korea. Hawaii-based fighter forces could not provide large numbers of sorties for a conflict in either area.

Begert believes that PACAF needs, first, to modernize and enhance its existing force structure and "right-size" its forces at existing locations. The command operates nine major bases in Alaska, Guam, Hawaii, Japan, and South Korea.

"I think we need to keep what we have and see what we can do to enhance what we have in terms of capabilities," he said.

The Equipment Is Old

PACAF's operational units comprise more than 300 aircraft, including 260 or so fighters. The fighters are among the oldest in USAF's inventory. Keeping them at a high level of readiness has become difficult and expensive.

Maj. Gen. David A. Deptula, PACAF's operations director, points out that the command must meet demands from Alaska to the equator, from the US West Coast to India, with what he calls "a geriatric fighter, tanker, and mobility force." It is a problem with which he has some personal experience. (See "Captain Deptula's F-15," at right.)

Begert has said that aging airplanes are his "biggest readiness issue" and singled out the F-15s based at Kadena AB, Japan, for special concern. Those fighters have failed to meet their target mission capable rate of 79 percent in every year since 2000. They were "down to about 70 percent last year," according to Begert.

The PACAF commander noted that, as a result of structural failures,



Maj. Gen. David Deptula and the infamous Kadena F-15.

Captain Deptula's F-15

Maj. Gen. David A. Deptula, Pacific Air Forces' director of operations, was the source of a now-famous anecdote about a 25-year-old F-15.

In 1999, Deptula was commander of Operation Northern Watch at Incirlik AB, Turkey. A detachment of F-15s from Kadena AB, Japan, arrived for duty. They had been sent to help enforce the so-called "no-fly zone" over northern Iraq.

Some 20 years earlier, Deptula had been stationed in the Far East. "I was a young captain at Kadena in 1979" when the base was making a transition to F-15 operations, he recounted in an interview. He was naturally interested in the arriving Kadena fighters. One day, he was scheduled to fly, and he noted the F-15's tail number: 78-500.

It was the fighter he had flown at Kadena.

"The difference was, in 1979, it was a brand-new airplane," he said. By 1999, this particular Eagle had accumulated more than 5,500 flying hours.

Partway into his Northern Watch sortie, Deptula left Iraqi airspace to meet a tanker for aerial refueling. That's when the fighter's emergency light panel lit up "like a Christmas tree," he said.

He described the situation: "I've got more than 50 percent of the lights on. I'd flown the F-15 for more than 20 years at the time, and I'm kind of familiar with the emergencies in the F-15. I'd never seen anything like this. I mean, I've got generator lights, I've got hydraulics lights, I've got a 'fuel low' light, ... so I turn back to Incirlik.

"Meanwhile, the fuel gauge goes down to nothing, which is kind of disconcerting," he said. After landing, maintenance crews determined that a wiring bundle that runs from the sensors in the back of the airplane to the instrument panel had rotted with age.

"All the insulation on that wiring just corroded, disintegrated, to the point where it just shorted out that wire bundle," Deptula said.

Five years later, the aircraft is still flying at Kadena.

the Air Force had to replace the wings on five of its 48 fighters at Kadena just in the past year. In Begert's words, "It's just one thing after another."

When an airplane goes down for maintenance, Deptula said, several bad things happen. Overall readiness drops. The command has to find a replacement aircraft. And the Air Force spends "an enormous amount of money" to fix the airplane.

"We need new aircraft," said Dep-

tula, "not just because we want new airplanes but to reduce the cost and improve the capability."

Fargo told the House Armed Services Committee, "We continue to be concerned about low Pacific Command aircraft mission capable (MC) rates." He pointed out that, in Fiscal 2003, only one of PACAF's six F-15, F-16, and A-10 wings met minimum MC standards. In addition, said Fargo, many of the F-15Cs at Kadena are 26 years old—11 years beyond



SSgt. Michael Wiest, USAF, and TSgt. Norihiro Matsumoto, Japan Air Self-Defense Force, go over maintenance procedures during Exercise Cope North. Numerous exercises foster strong bilateral relationships in the region.

the Air Force's maximum desirable age for fighter aircraft. "We must recapitalize our fighter force structure," he warned.

Deptula pointed out that the problem is not limited to PACAF. "The bottom line here," he said, "is we need new iron in our Air Force—in all these categories—or we simply are not going to have an Air Force to sustain our superpower capability in the future."

Deptula said that PACAF will get newer fighters as USAF fields its new F/A-22 at Langley AFB, Va., beginning next year. When that happens, Langley's less aged F-15s will become available and could flow to Kadena as replacements.

It is also "very much a possibility," said Deptula, that F/A-22s themselves could be sent to the Pacific region just after the initial deployment at Langley.

Fargo encouraged lawmakers to support the fielding of the F/A-22 in the Pacific. He said, "The transformational capabilities of this remarkable aircraft will have enduring relevance for our warfighting needs."

The PACOM commander also asked for unmanned aerial vehicles (UAVs), saying early fielding of Global Hawk in the Pacific Theater is essential because of the "broad expanse" and "lack of access into denied areas."

Reducing the Distance

Beginning in 2005, PACAF will be getting new C-17 strategic airlift-

ers to replace C-130 tactical transports. A C-17 fleet will help overcome huge distances in the Pacific region.

Command plans call for initial stationing of eight C-17s at Hickam by the end of 2005. Later, another eight new C-17s will go to Elmendorf AFB, Alaska.

When the C-17s bed down at Hickam, it will be the first time the Air Force has permanently based strategic airlifters outside the continental US, said Col. Raymond G. Torres, commander of the 15th Airlift Wing at Hickam.

Pushing aircraft such as the C-17 out to the theaters makes them more responsive, said Torres, who expects Hickam to play a larger role in future mobility plans.

According to Deptula, PACAF had some "challenges" getting equipment to India to participate in joint exercises earlier this year. That should not be a problem "when we have our own C-17s," he said.

The addition of C-17s will improve the airlift picture. However, increased mobility is only one facet of Air Force plans for meeting its combat needs in the region. Brig. Gen. Polly A. Peyer, PACAF's logistics director, points out that commanders "can't depend upon airlift for munitions in wartime." That is why PACAF maintains stocks of munitions at key forward locations—and why it wants to do more.

Guam and Hawaii both host large

quantities of bombs and fuel. Other supplies are pre-positioned at various locations, said Peyer, with the most "sophisticated" in South Korea.

She explained that some prepared airlift packages are stored in the US, ready for emergency deployment, while huge inventories of "swing stocks" are deliverable by sea.

However, noted Peyer, pipeline times "can be difficult" if the US needs to quickly deliver equipment and supplies from the US to the theater. For this reason, it is critical that the Air Force maintain a robust forward posture.

Changes in the global security environment, Fargo told lawmakers, have provided "both the opportunity and the necessity to improve our force posture, positioning forces where they have the greatest warfighting relevance while reducing irritants to host nation citizens."

He emphasized that Pacific Command is "not looking to move combat power back toward the US mainland."

Facing Three Threats

Fargo cited as his top three security concerns the danger of war on the Korean Peninsula, a "miscalculation" resulting in war in the Taiwan Strait or over Kashmir in the border between India and Pakistan, and "transnational" terrorist operations.

Northeast Asia is home to more than 90,000 American troops in Japan and South Korea. It is, therefore, the Pacific Theater's "center of gravity," said Fargo.

The Pacific commander termed the military forces of North Korea "the most immediate security threat." To deal with that threat, PACOM maintains about 37,000 US troops in South Korea and nearly 54,000 troops in Japan. In 2003, Japan contributed about \$4 billion to the upkeep and support of these US forces, said Fargo, calling that commitment "the most generous of any US ally." That partnership, said Fargo, is focused primarily on the Pyongyang threat.

"Although the likelihood of war on the peninsula remains low," he said, "the stakes posed by the North Korean conventional threat remain high and are even higher if North Korea continues its pursuit of nuclear programs."

North Korea maintains more than

70 percent of its forces within some 60 miles of the Demilitarized Zone (DMZ). Fargo stated that Pyongyang's missile production and missile technology exports pose a grave proliferation concern. Its missile inventory includes more than 500 short-range Scud missiles and medium-range No Dong missiles capable of delivering conventional or chemical payloads well beyond the peninsula. And, said Fargo, ongoing research on a multiple-stage variant of the Taepo Dong missile may give North Korea the means to target the continental US.

Washington plans to shift most of its forces in South Korea away from the DMZ and out of Seoul, South Korea's huge and crowded capital. This will be done as the Pentagon makes its first major change in the size of the force on the peninsula in half a century. In June, US and South Korean officials were in negotiations to decide how best to realign the forces.

With 37,000 US troops now in South Korea, the Pentagon may cut some 12,500 uniformed personnel. However, officials say any reductions will be made with overall capabilities in mind, ensuring no net loss in combat power. In many ways, advances in airpower and land warfare, as well as the shift to more joint warfare, are making the reduction of ground forces in Korea possible.

The US will spend \$11 billion over the next five years to upgrade force



USAF photo by SSGT. Corey Clements

USAF tries to keep Pacific aircraft at high readiness, but advancing age makes this increasingly difficult. Here, SSgt. Sedrick Byrd, an aerospace propulsion craftsman at Osan AB, South Korea, inspects a jet engine.

structure on the peninsula, and South Korea will pay to relocate and bed down US forces at new facilities farther from the DMZ.

Fargo said that PACOM plans to create two hubs of enduring installations—an air-oriented hub focused on Osan Air Base and a sea-oriented hub in the southeast near Pusan. "These consolidations will improve unit readiness, force protection, and quality of life while reducing adverse impact on our host nation," said Fargo.

Osan, one of PACAF's two bases on the peninsula, anchors a hub of-

fering "access to six C-17-capable airfields, two world-class port facilities," and a mature rail and road network, said Army Col. Daniel Wilson, chief engineer for US Forces Korea.

Some 9,000 airmen in South Korea, most stationed at Osan and Kunsan Air Bases, are fully integrated with ground forces as well as other US and South Korean air assets. Air and space power gives the defenders in Korea an asymmetric advantage, and airpower would play a critical role in defeating a North Korean invasion. (See "Keeping Watch on Korea," June, p. 28.)

Nonetheless, said Begert, the air defenses of North Korea present a "very difficult challenge." He explained, "They've had a long time to [set up their structure], to harden their facilities, and it would be a tough challenge for us."

According to the PACAF commander, there probably are other countries with "more daunting" air defense systems than North Korea, but, he said, in planning for an offensive by Pyongyang, PACAF must consider both air-to-air threats and surface-to-air threats. The surface-to-air threats, said Begert, "are becoming more and more sophisticated, and we're finding ourselves, in some cases, behind the power curve."

Begert maintained North Korea's SAMs are one reason PACAF needs the F/A-22 because "it's what gets you in and gets to knock down that



USAF photo by SSGT. Adrian Cadiz

Some of the Air Force's oldest F-15s are at Kadena AB, Japan, and some of the newest Eagles are at Elmendorf AFB, Alaska. Pictured are F-15s of Elmendorf's 90th Fighter Squadron in an operational readiness inspection.



PACAF's 5th Air Force in Japan comprises fighters, mobility aircraft, and intelligence-surveillance-reconnaissance airplanes at Kadena, Misawa, and Yokota Air Bases. Pictured are F-15s flying past Mount Fuji, near Tokyo.

door so the rest of the forces can flow in."

North Korea has had 50 years of freedom to set up its air defenses. "Unlike Iraq," said Begert, "where we had years and months to deliberately take down their capability, in North Korea, should they attack, it will be all at once, and it will be a standing start."

The second PACOM threat—a miscalculation leading to war—could apply to either the China-Taiwan or the India-Pakistan situations. Communist China and democratic Taiwan remain at odds over reunification. India and Pakistan are nowhere near a resolution of their border conflict.

Political sensitivities mean that the United States has no treaties with Taiwan and no military presence on the island, but there is no doubt the US would come to its defense if Communist China attempted to seize the island by force. Fargo stated that Taiwan's status "remains the largest friction point between the United States and China," and the US opposes "unilateral action by either party to change the status quo across the strait."

In a war, China would pose a major challenge. It boasts significant numbers of advanced aircraft, missiles, and air defense systems, and geography dictates that airpower would play the leading role in the early days of a battle.

Begert told defense reporters ear-

lier this year that Taiwan had made "some incremental improvements" in its military. PACAF has "quietly worked with the Taiwan Air Force," he said, particularly "describing how we fight jointly." He went on to describe the Taiwan Air Force as "very capable."

China has been investing heavily in the sophistication of its airplanes and surface-to-air missiles and the ability to project power, noted Begert. "It is on a glide path to continue to increase significantly."

What Fargo termed "transnational threats" includes terrorism, which has reared its head in the Asia-Pacific region.

Fargo noted that Exercise Cobra Gold, one of DOD's largest multinational exercises, "is specifically designed to develop cooperation against these transnational threats."

Cobra Gold 2004, held in Thailand in May, included the armed forces of Mongolia, the Philippines, Singapore, Thailand, and the US. The exercise is typical of US efforts to nurture a web of relations in the region with as many prospective allies as possible. Officials note that five of the United States' seven mutual defense treaties are with Pacific nations—Australia, Japan, the Philippines, South Korea, and Thailand.

Begert said that the US has had "some very quiet success" working with other nations against terrorists. "There has certainly been a problem in Asia; ... it's been a transit point

for money as well as personnel," he noted.

Contingency Access

To help meet this broad range of threats, PACOM has been moving "to diversify contingency access opportunities in the Pacific region," Fargo told lawmakers. He said that having additional access options "improves training opportunities, contributes to theater security cooperation objectives, and, most important, provides warfighting flexibility when we need it most."

Fargo termed these contingency options "cooperative security locations," which, he said, would be "places rather than bases" ranging throughout the Pacific.

The goal for the region is to have a large, varied menu of solutions.

Because the United States can never be certain where its next fight will be, it is best to develop an array of allies across the region, said retired Gen. Richard E. Hawley, a former commander of US Forces Japan and Air Combat Command. That way, he said, the "odds are, someone will have coincident interests" and be willing to provide basing or other assistance.

Several US territories besides Guam could provide permanent basing options. These include the Aleutians, Kwajalein, Midway, and Wake Island. But "look at the range arcs," said Hawley. These territories probably don't offer anything not already available on Guam.

Building long-term bilateral relationships through exchanges and exercises reduces the need to construct new bases in the region. "Instead of wanting to go in and build US air bases, it is probably best for all concerned" if USAF continues relationship building, said Deptula, "so bases can be made available when needed."

Hawley said, "It's called being expeditionary."

According to Begert, a "lily pad" concept "is something that can be pretty cost effective." He said that PACAF has had "very good success in Asia, ... getting access to the bases that we need." Although such deployments are often unpublicized, Begert emphasized that "the countries in Asia like our presence in Asia." He added, "They don't see us as threatening; quite the opposite, they see us as stabilizing." ■

Re-enlistment



After World War II, many aircraft were placed in storage at Davis-Monthan AFB, Ariz., and other Air Force installations. During the Korean War, the Air Force brought some of them back into service. In this 1952 photo, workers strip a Boeing B-29 Superfortress of material that helped preserve it outdoors for years in the Arizona desert. A 1952 Boeing press release stated that Air

Materiel Command had stored "hundreds of acres" of these four-engine bombers in this fashion.



From Mideast deserts to Balkan mountains, weather has a big impact on combat operations.

Storms of

By Rebecca Grant

MILITARY aviation was born sensitive to how weather affects navigation, safety of flight, and tactics. Cloud cover, winds aloft, and even moonlight conditions altered planning for air strikes in all major campaigns of the 20th century. During World War II, commanders considered it vital to know whether airfields—Allied or enemy—and the target area would experience bad weather.

Today's airmen have an even greater appreciation of weather and its importance to combat operations. Since Operation Desert Storm in 1991, a decade of advances has made weather

forecasting one of the prime tools for shaping joint operations.

A 1937 decree by the War Department turned over the military's weather mission to the Army Air Corps. Ten years later, the newly independent US Air Force took over that responsibility.

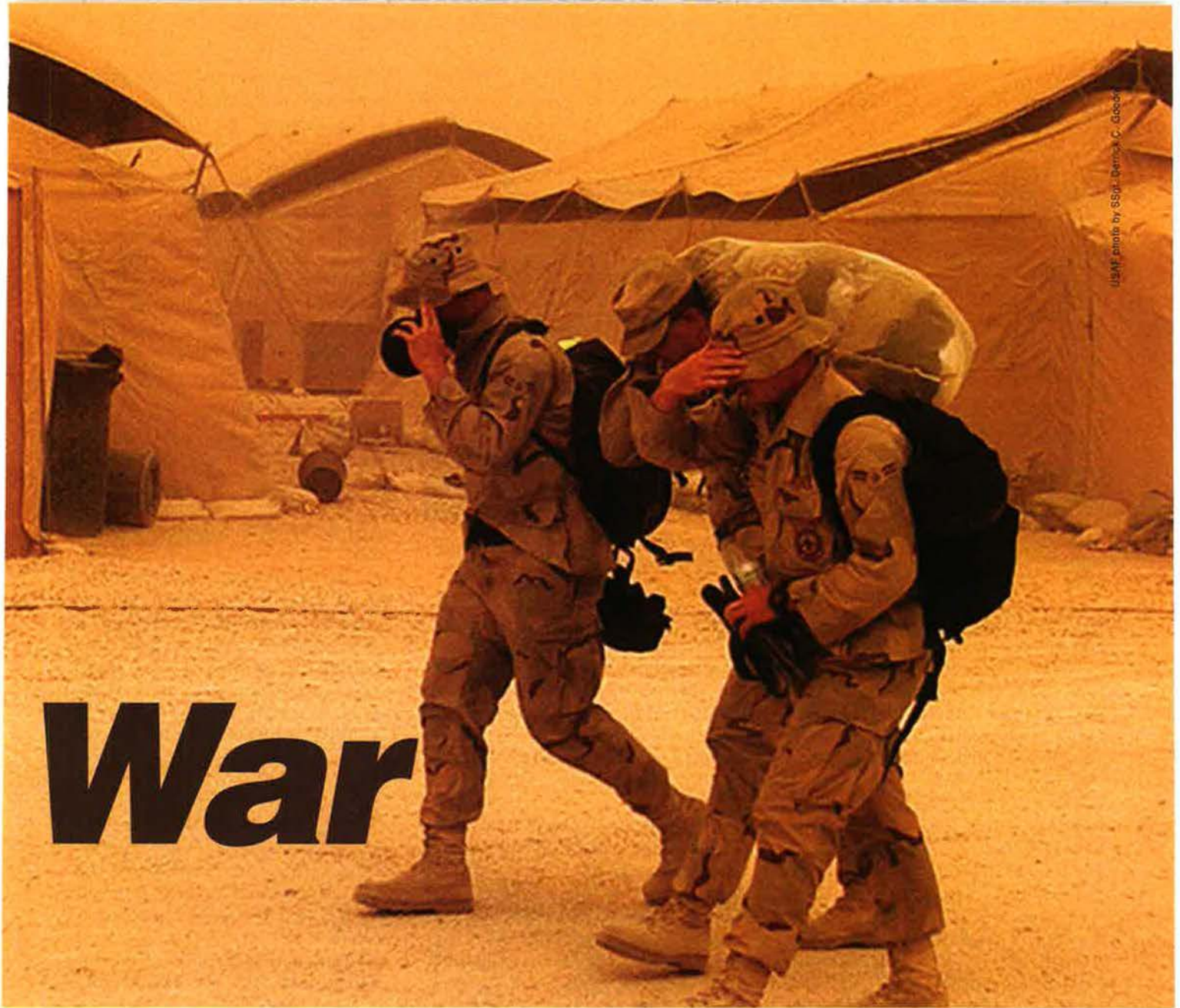
Over the years, Air Force weather personnel have supported operations of all US armed forces. They were among the first US forces deployed to combat zones in Korea, Vietnam, the Persian Gulf, and Afghanistan.

The Air Force Weather Agency (AFWA), headquartered at Offutt AFB, Neb., has worldwide operations, including two major centers—the Air Force Combat Climatology Center,

Asheville, N.C., and Air Force Combat Weather Center, Hurlburt Field, Fla. The North Carolina center analyzes historical weather data to aid military operations and design of weapons systems. The Florida center focuses on developing and employing new tactics, techniques, and technology. Each was a key player in recent combat operations.

Air Force weather personnel also serve under other Air Force units, including Air Combat Command and Air Force Special Operations Command, both of which oversee combat weathermen—commando-trained troops who work primarily alongside Army ground forces.

Over the years, the weather mis-



USAF photo by SSGT Dennis C. Goeckel

Airmen struggle against a brutal sandstorm during Operation Iraqi Freedom.

sion has shifted from Cold War scenarios to the rapid expeditionary operations. It was not an overnight process and involved advances not only in weather processes but also in weapons.

In 1991, during Operation Desert Storm, it took the efforts of almost 500 Air Force weather personnel deployed to the theater to provide the up-to-the-minute forecasts and observations necessary to employ the precision weapons of the time.

Desert Storm was the first campaign of airpower's precision age, but it was cursed by "the worst weather in 14 years," Gen. Merrill A. McPeak, then Air Force Chief of Staff, commented at a postwar Pentagon brief-

ing. Clouds and storms interfered with the new infrared targeting pods used to guide laser-designated bombs launched from the F-111, F-117, and a few other aircraft.

The staff of the joint force air component commander (JFACC) needed constant weather updates to make decisions on whether to cancel sorties or push ahead and to decide what type of weapons could be used.

"The decision to load TV-guided Maverick missiles, for instance, depended on the forecast of optical slant ranges," recounted retired Gen. Charles A. Horner, in his Gulf War memoir written with Tom Clancy. Horner, who was the JFACC for Gulf

War I, said the issue was: "Could the pilot see through the haze with his Maverick, so he could lock the missile onto the target?"

In 1999, in Operation Allied Force—the air-only war in the Balkans—the stormy spring weather "just kicked our butts for the first 45 days," said now-retired Lt. Gen. Michael C. Short during a 1999 PBS interview. Short, who was the operation's combined force air component commander (CFACC), said many pilots had to return with their bombs. On some nights, most missions were called off because of weather.

Weather was a crucial factor as air strike planners in the combined air operations center (CAOC) calculated



After the 1991 Gulf War, USAF began work on the JDAM satellite guided bomb. Aircrews wanted a precision weapon that would not be affected by smoke, haze, clouds, or dust—all of which hampered laser guided bombs.

how to mitigate collateral damage and how to ensure survivability of the aircrews. Air Force weather personnel, working with the CAOC planners, managed to find gaps in the cloud cover and times to schedule packages of strike aircraft.

Now-retired Brig. Gen. Randall C. Gelwix, the CAOC mission director for Allied Force, viewed the weather windows as critical factors. He defined them as tempting opportunities to shift strike plans to a certain time because “we think the weather is going to be good.”

Still, the Air Force suffered shortfalls in its ability to “locate and attack moving armor and other ground forces in poor weather,” said the USAF lessons-learned report “The Air War Over Serbia: Aerospace Power in Operation Allied Force.”

Weather and Munitions

Four years later, in time for Operation Iraqi Freedom, the situation had changed. The Air Force had a new all-weather weapon in the Joint Direct Attack Munition (JDAM) and new weather tools.

The arrival of JDAM did not eliminate the need for accurate weather forecasts. Weather data still were vital for other precision weapons and for intelligence-surveillance-reconnaissance platforms. “Owning” the weather became more of a reality with the arrival of new computer modeling tools, enhanced

high-resolution satellite imagery, and reachback communications. New weather tools greatly enhanced the “degree of sophistication” with which USAF could “numerically model the atmosphere,” said the commander of the Air Force Weather Agency, Col. Charles L. Benson Jr.

At Offutt, huge computers ingest weather observation data from around the world. “We have a suite of IBM supercomputers that run here in the Air Force Weather Agency, and we kick those off four times a day, six hours apart,” said Benson. The models generate forecasts for cloud cover, visibility, wave height, and other factors.

Another significant advance linked weather personnel via the Internet. The Air Force Weather Agency became a Web-based enterprise, as modem connections got faster, with the ability to move information at the unclassified, secret, and sensitive-compartmented-information levels. It became possible, said Benson, for someone with a laptop hooked up to the Internet to get back to AFWA weather products at all three levels of classification. “That’s a fundamental revolution from Desert Storm for the vast majority of the people in the field,” he noted.

With such reachback technology, USAF combat weather teams (CWTs) assigned to Air Force, Army, and special operations forces units could deploy in handfuls and still tap the

advanced resources of weather modeling back in the States.

The tactical level CWT—sometimes just one weatherman—could reach back to one of several operational weather squadrons, such as the 28th Operational Weather Squadron at Shaw AFB, S.C., which had the lead for forecasting weather in Southwest Asia. The Internet-provided reachback capability can deliver all available forecasting power on a single deployed location whenever necessary.

The One-Man Shop

That was the experience of TSgt. Dohn Terrell Jr., who deployed to several locations in Southwest Asia as the one-man weather cell for a tanker airlift control element (TALCE) team.

“Being a weather shop of one, I found myself working around the clock and focusing my duties on adverse weather conditions and times of flights,” Terrell later wrote in *Observer*, the official Air Force weather magazine. Terrell was one of 10 Air Mobility Command weather specialists assigned to TALCEs for Gulf War II. The AMC teams are designed to conduct airfield operations, including communications, maintenance, cargo and passenger handling, and security, where little or no support exists. Each TALCE is a self-sustaining package with about 65 troops.

Terrell took local observations and collaborated with the 28th OWS at Shaw to produce tactical forecasts. The Shaw “hub” helped out by eliminating the need for “access to charts, numerical models, and [satellite] data,” noted Terrell. “They were taking care of the forecast process for me, which enabled me to focus on taking observations and relaying information to the TALCE [command] and aircrews.”

Terrell and the other TALCE members moved several times, setting up operations for fighters and tactical mobility aircraft. In the early days of OIF, Terrell said, he and four others set up operations at H1 airfield in western Iraq after US and British forces had secured the airfield. TALCEs travel light and lean, and that applied to the weather guy, too.

Terrell’s primary tools were a handheld weather tracker, a model output statistics kit, and Iridium sat-

ellite telephone. He found he could access defense or commercial telephone networks easily and was "on the phone with them [the 28th OWS] 20 to 30 times a day."

Reaching back to the forecasting resources was also essential for air operations planners at the Gulf War II CAOC. The CAOC became a major consumer of both long- and short-range forecasts. Accurate weather briefings were cut to fit each of the coalition's many weapons systems. Icing, turbulence, runway crosswinds, low ceilings, cloud decks, and visibility over the target area might affect a Predator unmanned aerial vehicle (UAV) far differently than it would a B-52 carrying a bomb bay full of JDAMs.

Weather data became part of the battle rhythm. CAOC staff got updates on current and forecast conditions at the beginning of each of the twice-daily major briefings on operations. Screens continuously displayed current weather conditions. Five-day forecasts outlined upcoming conditions at major bases and over key target areas.

The goal was "to make sure the people who are executing the ATO [air tasking order] are not surprised and they're able to continue to execute it despite what weather challenges they encounter," said Lt. Col. Fred Fahlbusch in an Air Force news article on the workings of the CAOC. Fahlbusch was the director of operations for the 28th OWS at Shaw—until he deployed to the CAOC as weather officer.

Each forecast was tailored for specific aircraft, sensors, and weapons guidance systems. "Most systems we have are weather sensitive, so weather predictions must be integrated into the planning at all times," explained Fahlbusch. In the CAOC, the weather cell was situated "right next to the chief of combat ops," making inputs "throughout the entire ATO process," he said.

It was a major step forward. A decade earlier, said Benson, the typical weather briefing for an air operations center might simply have been, "OK, here's where it's raining." Since then, it had evolved "into more of a predictive [process] of trying to anticipate what the impacts of weather are going to be," he explained. "It's not 'where is it raining now,' but 'where is the

rain going to be in six hours or three hours or 12 hours.'" He added, "I think we're getting pretty good at that."

Gen. T. Michael Moseley agreed. The Air Force vice chief of staff was the CFACC during Operation Enduring Freedom in Afghanistan and Iraqi Freedom. After Gulf War II, he told Weather Channel reporters: "The forecasters are almost not in the business of forecasting as much as they are in the business of telling you what's going to happen. ... The levels of confidence are such that you are able to plan a campaign based on this."

The Sandstorm

Two days into the war, on March 22, 2003 (Baghdad time), the five-day forecast detected the first signs of trouble. In weather terms, a major short wave trough and a frontal system were about to converge over Iraq.

The forecast for the next few days was dire. A storm front developing over the Mediterranean would move west to east through parts of Egypt, Jordan, and Syria, then begin to push across Iraq. Thunderstorms would form along the storm line. Behind the thunderstorms, strong winds would churn dust from the Saudi Arabian desert into a major sandstorm covering southern and central Iraq and Kuwait.

Coalition forces were spread out on the ground and just entering the

pause phase after the first days of their drive into Iraq. The coalition air campaign was ramping up attacks on Iraqi forces. Determining when and how the sandstorm would affect operations was up to Air Force weather personnel both in the theater and back in the US.

One new tool available to track the storm's impact was new software called Dust Transport Application (DTA). Modified from a NASA model by scientists at Johns Hopkins University, the DTA had only been in use for a little over a year when Gulf War II began. In late February 2003, AFWA had loaded it into the joint Air Force and Army weather information network for theaterwide use. The model combined wind speed, precipitation, and other factors with a dust source database to evaluate the type of dust particles the storm fronts would lift into the atmosphere.

With precise forecasts from the DTA and other atmospheric models, Air Force weather personnel predicted just how bad visibility would be at locations across the combat theater and how long it would take dust to settle out of the atmosphere after the storm systems passed.

SSgt. Julie Moretto was a combat weather airman assigned to the Army's 3rd Infantry Division. On March 25, the big storm hit. "In less than five minutes, it was completely pitch-black, and it was only 4:30 p.m. local time," Moretto later wrote in *Ob-*



TSgt. Kurt Rohl, a combat weatherman, consults a weather instrument. Rohl was part of a combat weather team at the Mosul Airport in Iraq, where he gave aircrews up-to-date weather information.

USAF photo by TSgt. Stephen Faulisi

How's the Weather in Space?

Besides the major sandstorm in Iraq during the height of Operation Iraqi Freedom, 2003 saw another major weather event—a solar weather event. The “weather” in space can affect air and space operations. The solar flare-up occurred last October.

The designated DOD provider for space environment information is the Air Force, and the Air Force Weather Agency runs the Space Weather Operations Center (Space WOC) at Offutt AFB, Neb.

Solar events and atmospheric properties create their own disturbances. A solar event is a perturbation to the sun's surface or the sun's mass, which causes the sun to spew out energy that travels through space and disrupts the upper atmosphere and the space environment close to Earth.

The October 2003 solar event was severe enough to affect spacecraft, aircraft, and power grids. NASA issued a flight directive to the International Space Station for astronauts to take precautionary shelter. Aircraft scheduled to fly over the poles had to reroute their missions to avoid the hazard of increased radiation.

Bad weather in space can mess with combat operations, too.

It can disrupt long-distance radio or satellite communications, precision navigation and timing, over-the-horizon or tactical radars, high-altitude manned aerial reconnaissance, orbiting spacecraft and sensors, and space launch.

SMSGt. Richard Conklin, weather training superintendent at Keesler AFB, Miss., explained in an *Observer* article, that solar flares cause scintillation of GPS satellites, meaning errors will be sent to the munitions.

Scintillation in the ionosphere can also fracture ultrahigh frequency communications to autonomous aerial vehicles like the wide-ranging Global Hawk UAV.

The Space WOC, in cooperation with the National Oceanic and Atmospheric Administration, has access to a network of solar observational sites that monitor the sun.

Another tool is the Solar X-ray Imager (SXI) which, from a NOAA satellite, can take a full-disk image of the sun's atmosphere every 60 seconds. That allows observers to pinpoint the longitude of a solar flare and more accurately predict the time of maximum particle radiation. The instrument “will provide the kind of improvements in space weather forecasting that satellite imagery did for tracking hurricanes,” said Conrad C. Lautenbacher Jr., a retired Navy vice admiral who is now NOAA administrator.

server. “Then it started to rain. It literally was raining mud.”

At the CAOC, the advance weather forecasts had already led to a quick change in plans. Dust would block out infrared sensors for laser guided weapons that were being heavily used for precision targeting. To compensate, the Air Force shifted over to satellite guided JDAMs, which were largely impervious to the dust.

The air component kept up operations in spite of the sandstorm. Weather briefings provided continual assessments of operating conditions for aircraft ranging from Predators to the high-flying U-2. The CAOC tasked the synthetic aperture radar sensors of platforms like Joint STARS aircraft and Global Hawk UAVs to take up some of the slack during the storm.

Air Force weather forecasters also had a daunting task in finding the right time for the Army's airdrop at Bashur in northern Iraq. While the sandstorm was sweeping across southern and central Iraq, it was raining hard in the northern areas. The mountainous sections of northern Iraq had more vegetation and did not experience the same fierce dust storms, but bad weather over the drop zone could have interrupted the mission.

The Army's 173rd Airborne Bri-

gade paratroopers, equipment, and more than a dozen USAF C-17s at Aviano AB, Italy, awaited the signal to go. They would have a flight of several hours, followed by a low-level combat jump. It all depended on finding a weather window for nearly a thousand soldiers and several battlefield airmen jumping with them into Bashur.

Special Forces was already on the ground at the bare bones airfield in Iraq. With them was one Air Force weather technician who had the capability to feed local observations back to the Special Operations Forces Weather Operations Center (SOFWOC) at Offutt, where the analysis was done.

SOFWOC technicians developed a five-day forecast. It identified a two-hour window in which the weather would be clear enough for a massive jump.

“We gave them the best forecast possible, based on the information we had available,” said Maj. Dave Wood, who was SOFWOC chief, in an *Observer* article. With that forecast in hand, the Air Force and Army launched the mission and opened the northern front in Iraq.

AFWA plans to improve integration of weather functions with other aspects of campaign planning and execution. The Air Force is also working to further refine weather tools to make weather forecasting for expeditionary operations even more sophisticated within the next few years.

Also in the works is a new satellite monitoring system known as the National Polar-orbiting Operational Environmental Satellite System (NPOESS). “That's going to give us increased ability to measure the atmosphere and give us observational data in remote parts of the world that we don't have today,” said Benson. “We'll take that data from NPOESS and ingest it into the models. We think that will definitely help our forecast capability in remote areas like Afghanistan and Iraq.” ■

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, “Marine Air in the Mainstream,” appeared in the June issue.

Winning requires the best intelligence!



MDR-80



MDR-87

Solid State Mission Data Recorders

Friend or Foe. Shadow or Target.

Verification of Action, Hot Debrief, Battle Damage Assessment (BDA), Time Critical Targeting and RECON. Reliable recording and fully synchronized/GPS time referenced replay of battlefield images are essential for key employment decisions, post-mission review, and training. TEAC's MDR-80/87 digital Mission Data Recorder and integrated Mission Data Debrief Station lend support to the digital battlefield.

- Solutions for MPEG-2 video/audio, 1553, and ACMI applications
- Over 50 "plug and play" configurations to meet your mission needs
- Mission data loading and recording in one LRU
- Compact Solid State - Removable Memory Module (SS-RMM) configurations from 2GB to 25GB; Hard Disk version available
- Environmentally qualified for the most rugged applications
- Video Image Capture transmission/receive option
- Full featured ground debriefing stations with synchronized data

Critical decisions require the best available information. Put our flexible MDR-80/87 digital Mission Data Recorder onboard any airborne or ground vehicle platform to ensure you record the images and data you need. And remember, it's TEAC...Your guarantee of performance, reliability, and worldwide logistic support.

If it's worth a mission, it's worth a
TEAC[®]
AEROSPACE TECHNOLOGIES

www.teac-aerospace.com
Tel. 323.727.4866 • Fax 323.727.4877
e-mail: airborne@teac.com

© 2003 TEAC America, Inc. All rights reserved.

The ordeal in the jungle didn't break him.
Neither did his North Vietnamese captors.

The Courage of Lance Sijan

By John T. Correll

IN THE fall of 1967, traffic was surging on the Ho Chi Minh Trail, the lifeline by which North Vietnam sustained the war in the south. The trail ran down the western side of the Annam Mountains, through the Laotian panhandle and Cambodia, into South Vietnam.

Truck convoys departing from the supply hub at Vinh in North Vietnam gained access to the Ho Chi Minh Trail through the Mu Gia and Ban Karai Passes in the mountains. The passes were heavily defended with anti-aircraft artillery.

Traffic on the trail moved mostly at night. During daylight hours, the trucks hid under camouflage or in concealed parking areas in the jungle.

In a renewed effort to interdict the flow of troops and supplies, the Air Force, in November 1967, doubled the number of attack sorties flown against the trail. The targets included not only the truck convoys but also the choke points, like the passes.

Among the units taking part in the intensified operation was the 366th Tactical Fighter Wing, which flew the Air Force's newest fighter, the F-4C. The wing was located at Da Nang, the northernmost of the Air Force's principal bases in Vietnam.

First Lt. Lance Peter Sijan, a 25-year-old pilot from Milwaukee, had been stationed at Da Nang since July.

He graduated from the Air Force Academy in 1965 and went from there to pilot training, F-4 fighter crew training, and survival school. Da Nang was his first duty assignment.

Sijan was flying as a backseat pilot in the F-4C. He was crewed with Lt. Col. John W. Armstrong, commander of the 480th Tactical Fighter Squadron, to which Sijan was assigned. So far, he had flown 66 combat missions. He was looking to upgrade to the front seat of the F-4 before his tour was over.

Sijan was big—6 feet 2 inches, 210 pounds—and athletic. He was an all-city football player during high school in Milwaukee. He had been on the swim and track teams as well. He played two years of varsity football at the Air Force Academy.

There were other sides to Lance Sijan as well. He had been president of the student government association at Bay View High School. He was interested in photography and drama. At the academy, he had demonstrated a flair for sculpture. Photos show him as a good-looking, muscular young man with a friendly smile.

Ban Loboy Ford

On Nov. 9, Armstrong and Sijan briefed for a night attack mission. The target was the Ban Loboy Ford,





Air Force Academy cadet Lance Sijan undergoes survival training. He was big—6 feet 2 inches tall, 210 pounds—and athletic. Though badly injured in a crash, he survived in the jungle and eluded the enemy for more than six weeks.

a river crossing on the Ho Chi Minh Trail, just inside Laos at the Ban Karai Pass.

It was a two-ship flight. The call sign for Armstrong and Sijan was AWOL 01, with the second aircraft, AWOL 02, flying on their wing. It was dark when they took off from Da Nang at 8 p.m.

Central Vietnam is narrow. Not very far inland, the landscape rises to form the Annam Cordillera chain, which divides Vietnam from Laos. The Ban Karai Pass cuts through the mountains close to what was, in 1967, the border between North and South Vietnam.

Over the pass, the F-4s linked up with a forward air controller, who marked the Ban Loboy Ford for them with flares. Each F-4C was carrying six 750-pound bombs. At 8:39 p.m., AWOL 01 rolled in on the target and released the bombs.

Suddenly, the aircraft exploded and was engulfed in a ball of fire. It plunged into the jungle below.

Initial reports attributed the explosion to ground fire, but there is considerable belief now that defective fuzes caused the bombs to detonate prematurely, exploding within 50 feet of the airplane.

Neither AWOL 02 nor the forward air controller saw a parachute, but there was a survivor. AWOL 01 Bravo—Sijan—had gotten out. Armstrong was not heard from again and is presumed to have been killed in action.

Sijan struck the trees and then the granite slope in the darkness. The combination of the explosion, the ejection, and impact with the mountain left him badly injured. He had a compound fracture of his left leg, a skull fracture, and a concussion. His right hand was mangled, with the fingers bent backward. He lay on the mountainside, amid high trees, about three miles northwest of the Ban Loboy Ford.

Aircraft circled above, listening for a signal, but heard nothing. That night and all the next day, Sijan was unconscious or delirious.

A Signal From Sijan

At first light on Nov. 11, however, F-4s from Ubon and F-100s from Phu Cat picked up a signal from Sijan. They made voice contact with him and were soon joined by other aircraft.

Sijan identified himself as AWOL 01 Bravo. One of the pilots asked him several prearranged authentication questions to be sure it was really Sijan and not an English-speaking enemy, using his radio to lure the rescue aircraft into a trap.

One of the questions, chosen by Sijan ahead of time, was, "Who is the greatest football team in the world?" He knew the answer to that: "The Green Bay Packers."

The search and rescue team assembled rapidly. It included a C-130 airborne command post, code-named Crown, Jolly Green Giant rescue helicopters, A-1 Sandy es-

corts, O-2 forward air controllers, F-4s, and F-100s. Sijan had expended his flares early, signaling to the fighter aircraft before the Sandys and the Jolly Greens got there.

The attempt to locate Sijan and get him off the mountain went on all day. Eventually, 108 aircraft were involved in the rescue operation on Nov. 11. Anti-aircraft guns, some of them as large as 37 mm, were firing from all directions. Nine of the rescue aircraft were hit by ground fire, and one, an A-1 Sandy, went down in the jungle.

Sijan was difficult to find in the triple-canopy jungle. The rescuers couldn't see him, and he couldn't see them. They tried homing in on Sijan's beeper signal as well as having him tell them when the aircraft engines sounded loudest. The best chance for success came late in the day when a Jolly Green helicopter got a fix on his approximate location.

Sijan told the Jolly to send down its jungle penetrator cable but not to put a pararescue jumper on the ground, where North Vietnamese Army patrols were moving.

"There's bad guys down here," Sijan said. "Just drop the penetrator." Then: "I see you, I see you. Stay where you are, I'm coming to you." The helicopter dropped the penetrator and hovered for 33 minutes, but could not raise Sijan again on the radio. Finally, with ground fire increasing, the Jolly Green pulled out.

The search and rescue effort resumed the next morning, but there was no further signal from Sijan. The rescue aircraft returned to base.

Sijan was listed as missing in action for the next seven years. He was promoted to captain in 1968, posthumously as it turned out. The Air Force and his family did not learn what had become of him until the prisoners of war returned from North Vietnam in 1973.

Captured

What we know of Sijan after he lost contact with the search and rescue aircraft is from the reports of Robert R. Craner and Guy D. Gruters, with whom Sijan spent three weeks in captivity. Today, Gruters lives in Minister, Ohio, and talks often about Lance Sijan. Craner died in 1980, but he was interviewed extensively in 1977 by now-retired Lt. Col. Fred Meurer for *Airman Magazine*. Meurer



On the night that Lance Sijan disappeared, AWOL 01's target was Ban Loboy Ford, a river crossing on the Ho Chi Minh Trail, just inside Laos at the Ban Karai Pass. North Vietnam sent supplies and troops down the trail to sustain Viet Cong insurgents in the south. To interdict the flow, the Air Force struck convoys and choke points, such as Ban Loboy Ford and the mountain passes. They were heavily defended with anti-aircraft artillery.

ter. He subsisted marginally on ferns, cress leaves, moss, grubs, and insects. He obtained water from the dew, rainfall, and occasionally, a mountain stream.

He could have attracted the attention of the North Vietnamese Army at any time by firing his handgun, but gaining shelter as a prisoner was the last thing Sijan wanted. He was determined not only to survive but also to evade capture.

The North Vietnamese took him to a road camp near the Ban Karai Pass and put him in a bamboo hut with a thatched roof. He lay on a bamboo mat. When he regained consciousness, the shredded remains of his flight suit had been stripped away, and he was dressed in a black cotton shirt and trousers. The left leg of the trousers had been cut away to accommodate his swollen leg.

His captors gave him rice and boiled greens. He drank some water but was not able to eat much. The North Vietnamese did not give him any of their scarce medical supplies.

Several days after he was captured, Sijan noticed a mountain tribesman outside the hut. He took him to be a Montagnard. He had been told in training that if he could make contact with the Montagnards, they might get him into the hands of a US reconnaissance patrol.

Sijan's account of what happened next was later confirmed by "The Rodent," a North Vietnamese officer who talked to Craner and Gruters in Vinh.

made his interview tapes available for this article.

The next 46 days were painstakingly reconstructed by Malcolm McConnell in his book, *Into the Mouth of the Cat* (Norton, 1985). Shortly after dawn on Dec. 25, a North Vietnamese truck convoy—able to move in daylight because of a bombing halt for Christmas—found Sijan lying in the road. He was three miles from where he went down Nov. 9.

Somehow, he had survived and had eluded the enemy for more than six weeks. He had lost his survival kit. His radio batteries had run down. He was intermittently unconscious or delirious and able to move only by crawling.

He had no real food and little wa-



Sijan was flying in the backseat of an F-4C. It was armed with 750-pound bombs, as are these Phantoms. Many now believe AWOL 01 was destroyed by the premature explosion of the bombs, caused by bad fuzes.



USAF launched a massive effort to recover Sijan. Here, four A-1 Sandys escort an HC-130P refueling an HH-3E Jolly Green Giant on a typical rescue mission. In all, some 100 aircraft searched for Sijan. One Sandy was lost.

Sijan waited until a single soldier was left to guard him. He lured the guard close, then overcame him and rendered him unconscious with a left-handed chop to the base of the skull. He tied the guard's shirt around his swollen leg, took his carbine, and crawled into the jungle.

He was recaptured within half a day.

The Bamboo Prison

Maj. Bob Craner and Capt. Guy Gruters, flying an F-100F from the Misty forward air control wing at Phu Cat, were shot down over North Vietnam on Dec. 20.

Craner was paraded around the local villages, where he was put on display. The villagers were allowed to yell at him and hit him with sticks and their fists. He was astounded at the number of trucks he saw, especially on Christmas Day. "They were lined up, bumper to bumper, as far as the eye could see," he said.

Although US intelligence would not realize it until later, the heavy traffic on the Ho Chi Minh Trail in November and December 1967 was part of the buildup for the assault on Khe Sanh, which began Jan. 1, and for the Tet Offensive, which began Jan. 30.

Eventually, Craner and Gruters were brought together again, put on a truck, and taken on Dec. 26 to a holding point in Vinh. It was a North Vietnamese Army facility known variously to POWs as the "Bamboo Prison," "Bao Cao," or "Duc's Camp." The prison

was a wood and frame structure, with dirt floors, bamboo partitions, and small cells on either side of a hallway that ran down the center.

Craner and Gruters were interrogated and tortured by an English-speaking rat-faced officer they called "The Rodent." (All American POWs were tortured, both locally—as Craner, Gruters, and later Sijan, were in Vinh—and with more sophistication in the prisons around Hanoi.)

Lance Sijan was brought into the Bamboo Prison on Jan. 1, 1968. His weight was down to 100 pounds, and he was covered with sores. They put

him in one of the end cells, directly across from Craner. Gruters's cell was on the same side of the hallway as Sijan's, but there was an empty cell between them.

It was night when Sijan arrived, and the prison was unlit, except for the interrogator's flickering lamp. Craner couldn't see him through the partitions, but at a distance of 10 feet, he could hear everything.

The Rodent pressed Sijan for military information. Sijan's voice was weak but determined. "Sijan! My name is Lance Peter Sijan!" He gave his name, rank, and service number, but refused to answer questions, even when The Rodent twisted his injured arm.

"The whole affair went on for an hour-and-a-half, over and over again, and the guy just wouldn't give in," Craner said. "He'd say, 'All right, you son of a bitch, wait till I get better, you're really going to get it,' and giving him all kinds of lip but no information."

Repeated attempts at Vinh to force Sijan to talk did not succeed.

Sijan had a cast on his left leg, reaching from his thigh to his ankle. It had been put on at the Ban Karai Pass, not for medical reasons but to immobilize him. The Rodent told Craner they had found Sijan on the road and given him medical aid, and that Sijan struck and injured a guard and ran away. "You must not let him do this any more," The Rodent said.

Sometimes, Sijan was conscious and clearheaded, sometimes incoherent and



Sijan was held at Hoa Lo prison, the notorious "Hanoi Hilton" where many POWs were tortured. Already badly injured, Sijan developed pneumonia in his cold, wet cell and was frequently delirious. Up until his death, he planned escape.

rambling. Even when he had to struggle to get the words out, he asked, "How are we going to get out of here?" He dwelled on the point that he had escaped once, at the Ban Karai road camp, and could do it again. He did not talk about pain, and when asked, he minimized the importance of it.

After several days, Craner and Gruters were taken to Sijan's cell to help him to a truck that would transport the prisoners to Hanoi.

"We were both tall men," Gruters said. "When we had him upright and saw that he was taller than we were, I said, 'This guy is pretty big.' He had a large frame, but he was just skin and bones."

Sijan looked at Gruters and said, "Aren't you Guy Gruters?"

"I was taken aback, for I could not recognize Lance, even though he had been a squadron mate of mine at the Air Force Academy just three years before this date," Gruters said. "I said, 'Yes,' and then I asked, 'Who are you?' He said, 'Lance.' I said, 'Lance who?' He said, 'Sijan, Lance Sijan.'"

The trip north from Vinh was miserable. The prisoners were shackled and rode in the back of an open truck. They were continuously buffeted by the shifting of two 55-gallon drums, in which the driver carried fuel for the truck. The roads were potholed from bombing and rutted by the monsoon rains. Even when the truck moved at slow speeds, the prisoners and the fuel drums bounced around.

Gruters and Craner screamed at the driver to slow down, at no avail. One of them would cradle Sijan while the other tried to keep the fuel drums from rolling on them. They traveled at night and hid in villages under camouflage during the day.

Once Craner was convinced that Sijan was dead. "Then he stirred," Craner said. "Whenever he was lucid, he was caught up with going ahead—what are we going to do next, how are we going to get out of this situation? He was full of drive."

The Hanoi Hilton

The truck rolled up to Hoa Lo, the downtown prison the POWs called the "Hanoi Hilton," in the middle of the night on Jan. 13.

"We got Lance off the truck," Craner said. "They brought out a wooden pallet used as a stretcher, just four boards nailed together. We carried him into the Hoa Lo com-



Guy Gruters speaks at a 2003 memorial service for Sijan. Gruters, a POW imprisoned with Sijan, helped tell the story of how his cell mate survived and evaded, escaped, and resisted his captors.

plex, and that's where we met 'The Bug,' the most infamous English speaker in Hanoi."

The Bug was short and fat, with a cataract in one eye. As an indication of his specialty, some of the POWs called him "Mr. Blue," after the color of the torture rooms at one of the prison camps.

The Bug took Craner and Gruters to a cistern and told them to wash Sijan. "We did the best we could with cold water," Craner said.

Initially, they were taken to the "New Guy Village" section of the Hanoi Hilton, where the North Vietnamese made a special effort to break the Americans early in their captivity. The prisoners were kept apart except at meal time, twice a day, when Sijan was brought to Craner and Gruters so they could help him eat. It was difficult to get him to take food.

After a few days, the three were put in the "Little Vegas" section of the Hoa Lo in a triple cell with three board bunks. There was standing water on the cement floor, and the cell was cold and dank.

A medic they called "Camp Doctor" came in periodically, wearing a Red Cross armband. Camp Doctor would "look and cluck, walk back out," Craner said. Eventually, he cut the cast off Sijan's leg and gave him shots of a yellow fluid presumed to be an antibiotic. He also set up an intravenous feeding apparatus, but Sijan pulled the needle out at night "when he was

off in space somewhere," Craner said.

Often, though, Sijan was lucid, aware, and focused. "It was always, 'How secure is this place? How are we going to get out of here?'" He tried to do some arm exercises so he would be ready to take part in the escape," Craner said.

"He really, really kept the faith, under horrific punishment," Gruters said.

Sijan developed pneumonia Jan. 18 and was removed from the cell on Jan. 21.

He died Jan. 22, but it was awhile before Craner and Gruters knew that. They were transferred to "The Plantation," a smaller prison camp a couple of miles away. Craner encountered The Bug in the courtyard there and asked him about Sijan.

"Sijan spend too long in the jungle," The Bug said. "Sijan die."

When the POWs came home in 1973, Craner nominated Lance Sijan for the Medal of Honor. "He was what the military hopes it can produce in every man but very rarely does," Craner said.

Medal of Honor

Lance Sijan's remains were returned to the United States in 1974, along with the headstone used to mark his grave in Vietnam. He is buried at Arlington Park Cemetery in Milwaukee.

He was awarded the Medal of Honor, posthumously, March 4, 1976.



Lance Sijan was awarded the Medal of Honor in 1976, the only Air Force Academy graduate thus far to be so honored. This memorial, dedicated in 2003, is at Arlington Park Cemetery, in his hometown of Milwaukee.

It was presented to his parents, Sylvester and Jane Sijan, at the White House by President Gerald R. Ford.

"During interrogation, he was severely tortured; however, he did not divulge any information to his captors," the citation said. "During his intermittent periods of consciousness until his death, he never complained of his physical condition, and, on several occasions, spoke of future escape attempts."

Also in 1976, Sijan Hall, a new dormitory at the Air Force Academy, was dedicated in Lance Sijan's memory. A large portrait of Sijan, painted by Maxine McCaffrey, hangs in Sijan Hall.

Lance Sijan is the only Air Force Academy graduate thus far to receive the Medal of Honor, and he is remembered there with special honor. The academy library displays a collection of Sijan memorabilia, including the headstone from Vietnam. It is marked with Sijan's initials in English and the date of his death.

He is also well remembered in his hometown. Jane and Sylvester Sijan are members of the Air Force Community Council at General Mitchell Airport in Milwaukee, where the 44th Airlift Wing has placed a replica of Sijan's F-4 at the base entrance and where the dining hall is named after him.

In June 2003, a Lance Sijan memorial was dedicated at the Arlington Park Cemetery. It is a 10-foot marble monument in the shape of a stylized

F-4, pointing straight upward. His parents, his sister, Janine Sijan Rozina, and his brother, Marc Sijan, were joined for the event by a host of dignitaries. Speakers included Lance Sijan's cell mate from Vietnam, Guy Gruters.

There are other remembrances. There is a Sijan Circle at Langley AFB, Va., a Sijan Street at Whiteman AFB, Mo., and, in Colorado Springs, Colo., home of the academy, the Lance P. Sijan Chapter of the Air Force Association. Air Force ROTC cadets at Boston University have formed the Lance Sijan Squadron of the Arnold Air Society.

The Air Force presents the Lance P. Sijan Award to four people each year for outstanding leadership. This year, the awards were presented at the Pentagon on Sijan's birthday, April 13. His parents attended, as they have every year except one since 1981, when the awards were first given.

The Code of Conduct

The Code of Conduct for the US armed forces was adopted in 1955 in response to the use of American prisoners for political propaganda in the Korean War, induced "confessions," and the collaboration with the enemy on the part of some POWs.

It was taught to every member of

the force and covered again in survival training, part of helping those going into combat to know what to expect and how to respond if they are captured. Former POWs have said it gave them something to hold onto during their captivity.

Lance Sijan embodied the Code of Conduct, particularly three articles of it. They read:

Article II: "I will never surrender of my own free will."

Article III: "If I am captured, I will continue to resist by all means available. I will make every effort to escape and aid others to escape."

Article V: "When questioned, should I become a prisoner of war, I am bound to give name, rank, service number, and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause."

The North Vietnamese routinely ignored the Geneva Convention and tortured POWs. In part, they were seeking military information, but equally important were written and oral statements they could broadcast as propaganda to undercut allied morale, buck up the North Vietnamese home front, and feed the anti-American movement around the world.

John McCain is now a US Senator, but in 1967, he was a prisoner in the Hanoi Hilton. He was a naval aviator, shot down over Hanoi on Oct. 26, a few weeks before Lance Sijan's last mission on Nov. 9.

McCain wrote in *Faith of My Fathers* (Random House, 1999): "I never knew Lance Sijan, but I wish I had. I wish I had had one moment to tell him how much I admired him, how indebted I was to him for showing me, for showing all of us, our duty—for showing us how to be free.

"Few of us ever seriously contemplated escape, and our senior officers never encouraged it. A few brave men tried. All were caught and tortured. Neither did every prisoner refrain from providing information beyond the bare essentials sanctioned by the code. Many of us were terrorized into failure at one time or another. But Captain Sijan wasn't. He obeyed the code to the letter." ■

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

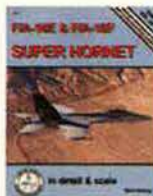
Books

Compiled by Chequita Wood, Editorial Associate

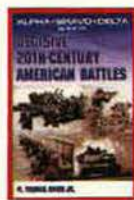
A-10s Over Kosovo: The Victory of Airpower Over a Fielded Army as Told by the Airmen Who Fought in Operation Allied Force. Col. Christopher E. Haave and Lt. Col. Phil M. Haun, eds. Air University Press, Maxwell AFB, AL (334-953-2773) 332 pages. \$33.00.



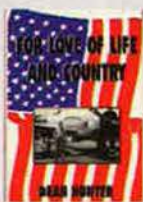
F/A-18E & F/A-18F Super Hornet in Detail & Scale. Bert Kinzey. Squadron/Signal Publications, Carrollton, TX (800-527-7427). 79 pages. \$14.95.



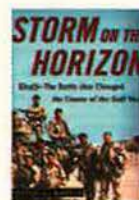
SBD Dauntless: Walk Around No. 33. Richard S. Dann. Squadron/Signal Publications, Carrollton, TX (800-527-7427). 79 pages. \$14.95.



Alpha Bravo Delta Guide to Decisive 20th-Century American Battles. W. Thomas Smith Jr. Alpha Books, New York (800-788-6262). 306 pages. \$16.95.

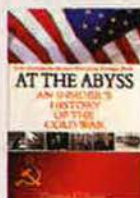


For Love of Life and Country. Dean Hunter. Vantage Press, New York (212-736-1767). 402 pages. \$25.00.



Storm On the Horizon: Khafji—The Battle That Changed the Course of the Gulf War. David J. Morris. Free Press, New York (800-323-7445). 317 pages. \$25.00.

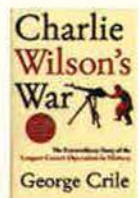
At the Abyss: An Insider's History of the Cold War. Thomas C. Reed. Ballantine Books, New York (800-726-0600). 368 pages. \$25.95.



Fulcrum of Power: Essays on the United States Air Force and National Security. Herman S. Wolk. Air Force History Office. Download at <http://www.airforcehistory.hq.af.mil>. 297 pages.



Surviving Against the Odds: A Bomber Pilot's Memories From World War II in the Solomons and Elsewhere. John H. van Schaick. Order from: Kleinkinderen Publishing, Schenectady, NY (518-372-7711). 267 pages. \$20.00.



Charlie Wilson's War: The Extraordinary Story of the Largest Covert Operation in History. George Crile. Atlantic Monthly Press, N.Y. (800-788-3123). 550 pages. \$26.00.



The German Army at D-Day: Fighting the Invasion. David C. Isby, ed. Stackpole Books, Mechanicsburg, PA (800-732-3669). 256 pages. \$17.95.

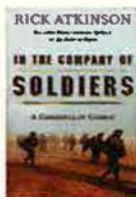


Unlocking the Gateway to Flight: The Keys to the Success of the Wright Brothers. Dale H. Whitford. The Winkler Co., Dayton, OH (937-294-2662). 96 pages. \$22.50.

Dresden: Tuesday, February 13, 1945. Frederick Taylor. HarperCollins Publishers, New York (212-207-7000). 518 pages. \$26.95.



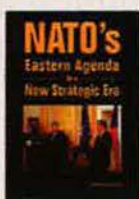
In the Company of Soldiers: A Chronicle of Combat. Rick Atkinson. Henry Holt & Co., New York (888-330-8477). 319 pages. \$25.00.



A War of a Different Kind: Military Force and America's Search for Homeland Security. Stephen M. Duncan. Naval Institute Press, Annapolis, MD (800-233-8764). 366 pages. \$28.95.



The Enola Gay: The B-29 That Dropped the Atomic Bomb on Hiroshima. Norman Polmar. Brassey's, Herndon, VA (800-775-2518). 89 pages. \$16.95.



NATO's Eastern Agenda in a New Strategic Era. F. Stephen Larrabee. RAND, Santa Monica, CA (877-584-8642). 192 pages. \$30.00 (or download at www.rand.org/publications).



We Rode the Thunder: The Autobiography of the United States Air Force Thunderbirds. Robert L. Gore. Order from: M.T. Publishing Co., Evansville, IN (888-263-4702). 200 pages. \$44.95.

IN THE NEW DRAWDOWN, USAF WON'T JUST SHOOT FOR A NUMBER. IT WILL ALSO SEEK A PROPER FORCE BALANCE.

FORCE SHAPING

By Bruce D. Callander

THE Air Force is in the throes of a force reduction, but its exact magnitude is hard to pin down. In January, USAF officials pegged troop losses—through 2005—at 16,000. By April, the figure had risen to 18,000. By the end of May, it was closer to 24,000.

The Air Force has been over its authorized end strength of about 360,000 airmen since the Global War on Terror began. The expansion was acceptable as a temporary measure under the President's declaration of a national emergency, but the service now must divest itself of the additional manpower. (See "The New Drawdown," March, p. 50.) In the process, it must reshape its personnel structure to correct long-standing skill imbalances.

Now, Maj. Gen. Peter U. Sutton, USAF's director of learning and force development, reports that the num-

ber of troops that the service must cut has grown, even in just a few months, because higher than expected numbers of troops are electing to reenlist in the service.

Despite some predictions that the high pace of operations since the Sept. 11, 2001, terrorist attacks would start to drive airmen out of the service and hamper recruiting, the opposite appears to be true. Recruiting and retention have improved recently, particularly since 9/11. "We see very strong recruiting and very strong retention," said Sutton.

He noted that first-term, second-term, and career enlisted airmen retention rates have matched or exceeded Air Force goals. Over the same period, a rise in officer retention, measured by cumulative continuation rates (CCRs), has been equally impressive.

As a result, the service has to scale

back recruitment and retain a smaller portion of eligible members in an effort to get down to its authorized end strength. The reduction comes after a decade-long drawdown that already has cost the service 233,000 members, or almost 40 percent of the strength it had in the late 1980s. In this smaller force, any adjustment has a significant impact.

After struggling for a number of years to recruit and retain members, the Air Force now finds itself having to turn away potential recruits and send some career members home early. At the same time, the service remains seriously short of officers and enlisted members in some chronically undermanned career fields.

To some degree, the Air Force's current problems stem from its own success. Having improved its recruiting and retention rates, it now must refine its approach and concentrate not just on getting and holding people but on getting and holding people who can fill critical shortages.

To do this, the service has embarked on an effort called "force shaping."

"We want to ensure that we draw down smartly," Lt. Gen. Richard E. Brown III, deputy chief of staff for personnel, told lawmakers earlier this year. He said USAF is addressing force shaping in two ways: first, by reducing personnel overages in most skills and, second, by shaping the remaining force to meet mission requirements.

No "Draconian Measures"

The goal in reducing the number of active duty members, said Brown, is to "avoid involuntary draconian measures" such as the reduction in force (RIF) and selective early retirement board (SERB) methods used



USAF photo by Sr. A. Chad Hackney

USAF is making a concerted effort to steer personnel toward understaffed career fields. Pictured is Airman Basic Wendell Rush and other new airmen as they graduate from basic training at Lackland AFB, Tex.

during the drawdown of the early 1990s and earlier during the post-Vietnam reductions. The Air Force resorted to RIFs to throw people "out before their time and their desire" and SERBs to tell people when "they would retire," said Brown.

"We want to avoid SERBs and RIFs," he said, but emphasized that the service has "too many people in some career fields," while it does not "have enough in others."

Reducing its number of new recruits is one of the first steps USAF took in its force shaping effort. In its January announcement on the new cuts, the Air Force said that enlisted recruiting quotas would be cut from 37,000 this year to 35,600 in Fiscal 2005 and 34,500 in Fiscal 2006. By June 1, USAF officials had raised next year's cut by another 11,600, making the new 2005 goal 24,000 recruits. A news release stated that

officials expect "enlisted accessions rates to return to normal levels in Fiscal 2006."

The decision not to make even larger reductions in accessions was a calculated one. "We are not going to draw back our accession numbers dramatically," Sutton explained. "What happens when you do that is what we call the 'bathtub effect,' where all of a sudden we would have a very small entry year that would stay with us all through those people's careers."

There is no way to make up for that loss of personnel, said Sutton. "So, we have to be very careful not to mess too much with the front end," he added.

The Air Force also has restructured its officer accession program. Because of higher numbers of individuals participating in Air Force Reserve Officer Training Corps programs at colleges, the service re-

Enlisted Retention Is High

	Goal	FY95	FY96	FY97	FY98	FY99	FY00	FY01	*FY02	FY03	FY04
1st Term	55%	64%	59%	56%	54%	49%	53%	56%	72%	61%	67%
2nd Term	75%	77%	76%	71%	69%	69%	70%	69%	78%	73%	75%
Career	95%	96%	95%	94%	93%	91%	91%	90%	95%	95%	98%

*FY02 retention rates were uncharacteristically high due to Stop-Loss.

duced the number of officer candidates it commissions through Officer Training School.

The service uses its OTS program as a flexible commissioning program to offset such increases in the number of commissions from AFROTC and the Air Force Academy. OTS had been producing new officers beyond its peak capacity for several years.

Applications for both AFROTC, traditionally the largest source of new officers, and the academy have been up since 2000. Sutton said that AFROTC had about 7,800 applications in 2000, while this year it has received 16,258. At the academy, applications rose from 9,500 in 2000 to 12,300 for 2004.

Sutton called those “pretty significant” increases and said they enable the Air Force to have “better selectivity” in its officer candidates.

Channeling Retention

Another force shaping measure aims to limit retention of airmen in overpopulated career fields.

During the lean years in recruiting and retention, the Air Force had given “a career job reservation to virtually every enlisted person who wanted to re-enlist,” said Sutton. Now the service plans to be more selective, specifically targeting those Air Force Specialty Codes (AFSCs) that have shortages.

If airmen are not in the 30 or so AFSCs that remain under the career job reservation program, said Sutton, they will have to retrain to remain in the service. “This means finding a place where they can qualify and



USAF photo by TSgt. Chris Stone

Second Lt. Anthony Langley (right), an Air Force linguist, explains the combined weapons effectiveness assessment team’s mission to Iraqis. Linguists are among the USAF specialists in high demand.

then retrain, or they won’t be allowed to re-enlist,” he explained.

The service still will offer sizeable bonuses to people who stay longer in critical skills, but Sutton said there will be cutbacks in some programs. “In the latest revision of the bonuses,” he said, “we have actually reduced the number of selective re-enlistment bonuses [SRBs] that are going to various enlisted career fields.”

Sutton emphasized, “We’re still offering a lot of money to people to re-enlist, but the numbers of [eligible] AFSCs are on the downswing.”

Certain career fields have seen their SRB amounts increase. “Some of our greatest needs are for linguists,” said Sutton. “We are look-

ing for air and ground linguists to stay with us, and, certainly, we try to recruit them as well.” Other shortage fields include pararescue, combat control, and air traffic control.

Because of shortages in these and other critical career fields, the service is continuing to accept some prior-service personnel for return to duty. However, the relatively open-door policy of a few years ago is no more. When the service faced recruiting and retention challenges several years ago, it expanded its accession of prior-enlisted members to about 1,000 per year, said Sutton. The Air Force can no longer welcome back as many as previously, he said.

“We don’t have the need to reach out and get as many prior-service people,” explained Sutton, adding that the number for next year probably will be in the “150 to 200 range.”

Among those prior-service personnel the Air Force still wants are those from the special tactics field, whether they had served in USAF or one of the other services. Sutton said that former military personnel with special forces-type experience “who would like to come into the Air Force and be a combat controller or be in a tactical control party” are in demand.

“Overall retention is very solid in an aggregate sense across the force, but we still have specific specialties that we have concerns about,” said Sutton. Just as the service is refocusing its SRBs for specific enlisted

Officer Overall Retention Rate Looks Strong

Cumulative Continuation Rate

	FY98	FY99	FY00	FY01	*FY02	FY03
Pilot	46%	41%	45%	49%	75%	76%
Navigator	62%	62%	69%	72%	80%	61%
Air Battle Mgr	36%	45%	51%	47%	82%	59%
Nonrated Ops	60%	57%	51%	48%	63%	58%
Mission Supt	42%	45%	43%	44%	56%	51%

*FY02 retention rates were uncharacteristically high due to Stop-Loss.

Enlisted Skills Chronically in Short Supply

Loadmaster
Airborne Communications System
Airborne Battle Management System
Airborne Cryptolinguist
Air Traffic Control
Combat Control
Command Post
Aerospace Control and Warning Systems
Intelligence Applications
Signals Intelligence Analysis
Electronic Signals Intelligence
Electronic Systems Security Assessment
Pararescue
Weather
Avionics Systems
Tactical Aircraft Maintenance, F-15
Aircrew Egress System

specialties, it has used targeted bonuses for certain officer categories, primarily its rated force.

The Air Force, for years, has experienced difficulty in retaining pilots and navigators. Even there, things are changing. "We're doing much better in rated retention than we have in the past," said Sutton. "We judge that by the numbers of people who take or elect to take aviation career bonuses. We anticipate that we will continue to do well in the short term."

Sutton predicted that there would be "a little bit of a dip a few years out, and then, over the longer haul, we will do well again." He attributed part of that upswing, though, to the 10-year commitment the service now levies on pilot trainees. Previously, the commitment was eight years.

Even the traditional problem of losing pilots to the airlines seems to have eased.

"My understanding is that airline hiring has slowed down pretty dramatically post 9/11," said Sutton. The airlines had "a lot of pilots who were furloughed, so if they were hiring, they would be taking those furloughed pilots first," he said, adding, "That certainly helps us, I think."

However, Sutton also credited the upsurge in patriotism, pay raises, and other benefits.

A Non-Draconian Measure

In announcing the troop cuts, Air Force leaders emphasized that they

wanted to try to give every airman who wants to stay in the service the opportunity to do so. One way they intend to honor that commitment is to offer airmen the chance to cross-train into shortage career fields.

The goal is to adjust skill mixes to better meet today's operations. To remain on active duty, some members will have to retrain to more needed skills.

Theoretically, the program will be voluntary. "It depends on whether or not we get enough volunteers, but, historically, we have not gotten enough," said Sutton, adding

that there is "a certain reluctance" to leave a known type of work and start over. "That is understandable," he said. "If I came into a career field, and I've been trained in that and I feel comfortable with it, generally I want to stay in it."

The Air Force is prepared to implement an involuntary or mandatory program if necessary. "If we don't get enough volunteers, we would tap people on the shoulder and say, 'We're going to have to ask you to move,'" said Sutton.

Currently, the mandatory retraining program focuses on the three mid-noncommissioned officer ranks: staff, technical, and master sergeant. The Air Force has targeted about 1,300 of these midlevel NCOs. USAF said that many NCOs had elected to volunteer for retraining or to separate from the service. However, on May 7, the service announced it had notified 88 of the "most vulnerable" airmen to select a new career field or it would select one for them.

"What happens is that people might not volunteer under a purely volunteer program," said Sutton, "but, when you have a mandatory program staring you in the face, all of a sudden you become a volunteer, because if you don't volunteer, you might get forced to a place that you don't want to go."

There are certain shortage career fields that take nothing but volunteers.

Included in that category are en-



Pararescue is among the strained career fields. Here, TSgt. Daniel Murray prepares for a jump while deployed to Tallil AB, Iraq. The 332nd Expeditionary Rescue Squadron at Tallil trained to rescue downed aircrews.

USAF photo by SrA. Karolina Gmyrek



Wanted: Air Traffic Controllers. Pictured is SSgt. Eugenia Lopez, as she monitors the equipment at Kirkuk AB, Iraq. Kirkuk's air traffic controllers oversee the flight patterns of all the aircraft traversing northern Iraq.

listed aircrew skills. "We don't put a nonvolunteer into the air," stated Sutton. He added, "It wouldn't serve us very well to force people to go." The same can be said for special tactics skills. "Can you imagine forcing a person to be a pararescueman, where you have to swim and jump out of airplanes and all that?" he asked.

Sutton conceded that getting volunteers to cross-train can be "difficult," but, he said, "all in all, I would say we are meeting the numbers we need pretty much in our retraining program."

As part of its force shaping effort, the Air Force also has opened the door wider for both officer and enlisted airmen to voluntarily transfer into one of its two air reserve components—the Air National Guard or Air Force Reserve Command. "We've opened up the opportunities to really almost anybody to apply," said Sutton.

The Air Force is controlling this migration, though, based on the "health" of individual career fields, explained Sutton. If an airman wants to transfer, but the service turns down the request because of active duty needs, the transfer request will be held. "We'll keep those applications on file," said Sutton, "so if we can't let a person go right now, de-

pending on how well we are doing as ... we look at our end strength situation, we can go back ... and say, 'Well, we couldn't let you out six months ago, but now things have changed slightly and would you still be interested in going?'"

The reserve option also will be offered to some future officers before they come on active duty. Some officer candidates can ask to be commissioned directly into the reserves. Again, said Sutton, this option will be "limited to certain career fields or career types." For instance, he said, because the Air Force needs scientists and engineers, the program probably would not be open to them.

Stress Not a Deterrent

As the Air Force readjusts its end strength, Brown said, the service is "working deliberately to measure stress and make informed reallocation decisions within the existing force."

Many lawmakers have expressed concern that the seeming steady state of high operations would lead to recruiting and retention problems. They question whether the current end strength is enough to meet future needs.

Air Force leaders acknowledge that the force is stressed, but they say it

is stressed unevenly. The force shaping measures they have introduced will "relieve the stress" and "transform that force so that it can more effectively meet the demands of the Global War on Terror," Michael L. Dominguez, USAF's assistant secretary for manpower and reserve affairs, told Senators in March.

"The Air Force is under stress, but it is not in crisis," asserted Dominguez. He added, "We have a plan, and we are executing to our plan."

Air Force officials point to the service's current recruiting and retention record to bolster their position that the ongoing demands of overseas deployments and the tempo of operations has not led to a wholesale flight from active duty.

"The effects of the strain would show up to some degree in retention rates, and we haven't seen a downturn in retention," said Sutton, adding, "In the last couple of years, we have had almost unbelievable retention. So, you have to look at that by peeling back the onion and saying, 'There must be a lot of different factors involved.'"

One of those factors could be activation of Stop-Loss, which the service imposed twice since 9/11. The first one initially was servicewide for almost a year, while the second, during Operation Iraqi Freedom, was more limited and of much shorter duration. Service leaders agree that, during Stop-Loss, they could not accurately measure retention.


Now, Brown told lawmakers, the numbers are "pretty accurate" and "we're feeling pretty solid about retention."

Other largely unmeasurable factors could play a role. Sutton said, "I think a certain number of people re-evaluated what was important to them." They concluded, he said, that "they are serving in a time when the nation really had a need."

Having said that, he did not discount the effect a "jolt" to the economy can have on career intentions. He emphasized, "But, I do believe that some people who were in Stop-Loss who intended to leave changed their minds and decided it was worth staying." ■

Bruce D. Callander is a contributing editor of Air Force Magazine. He served tours of active duty during World War II and the Korean War and was editor of Air Force Times from 1972 to 1986. His most recent article for Air Force Magazine, "Big Fella," appeared in the February issue.

RESERVE YOUR PLACE IN HISTORY



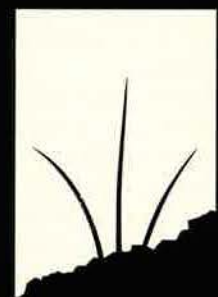
Become a
Charter Sponsor
see below

United States Air Force Memorial Site Dedication/Ground Breaking

September 15, 2004

Become an Air Force Memorial Charter Sponsor and join 140,000 plus people and corporations who are dedicated to building the Air Force Memorial. All Charter Sponsors earn permanent recognition in the Memorial's official registry. For more information, visit www.AirForceMemorial.org or call (703) 247-5308.

The Air Force Memorial Foundation is an authorized 501 (c) (3) foundation.
This contribution is tax-deductible to the full extent of the law. Our tax ID number is 54-1629975.



**AIR FORCE
MEMORIAL
FOUNDATION**



IN AN effort to adapt maritime strategy to changing conditions, the Navy and Marine Corps have embraced a new concept that they hope will help overcome “access denial” threats in world hot spots.

The emerging concept is known as “sea basing.” Put in simplest terms, the US would construct a system of large, mobile, seagoing logistics platforms able to launch and sustain a combat force far inland. The force could be Marine or Army. It could number thousands of troops with supporting equipment.

Backers say this large direct-intervention capability would provide insurance against a loss of US access to local airfields, bases, and port facilities.

Skeptics—and there are many—say sea basing could prove to be an expensive mistake. “Sea basing is a rich man’s approach to solving the [access denial] problem,” said retired Marine Col. Robert O. Work of the Center for Strategic and Budgetary Assessments in Washington, D.C. He favors use of long-range airpower.

US leaders long have worried about losing access in a crisis. The move-



U.S. Navy photo by PH1 Brien Aho

The sea basing idea entails using a system of large, seagoing logistics platforms, serviced by smaller ships. At top is an artist’s conception of a 320-foot transport. Above is the TSV-1X, a US Army transport capable of 40-knot speeds.



Sea Basing

The naval services—and maybe the Army—view this as one answer to the anti-access problem.

By Otto Kreisher

ment of naval, land, and air forces to a theater, they warn, could be blocked by a foe's use of missiles, mines, quiet subs, advanced air defenses, and chemical weapons.

Some years ago, USAF responded with its Global Strike Task Force (GSTF), a concept of operations to defeat anti-access threats. It calls for using theater-based and long-range airpower and modern information systems to create a "massing of fire-power effects" without an actual massing of forces in vulnerable areas.

GSTF would rely on stealthy B-2 bombers and F/A-22 fighters to attack from afar and clear a path for more forces.

"The Only Answer"

Now, the naval services are offering sea basing as their alternative, which they obviously think is superior to others. Marine Col. John Pross, director of sea basing integration in the Navy's expeditionary warfare office, said the Navy and Marine Corps leadership consider the sea base to be the optimal way to exploit America's control of the seas.

Sea basing gained status in 2002 with the release of the Navy's latest

warfighting vision, Sea Power 21. That paper puts sea basing on a par with "sea strike" (offensive capabilities) and "sea shield" (defense of forces at sea and ashore).

Said Navy Capt. Steven C. Rowland, director of concepts and capabilities for the Navy's expeditionary warfare office: "The sea base is, in fact, the foundation for all the offensive and defensive power projection capabilities."

Adm. Vern Clark, Chief of Naval Operations, believes it is not so much a system as a way of thinking. "Now some people may see sea basing in a very restrictive way—it's a particular platform and it's a thing," said Clark. "To me, sea basing is about the ability to exploit the freedom to maneuver. That's what it's about."

Clark went on, "We need to think about sea basing in a very joint construct and what it does for the entire military structure, and we need to figure out how to invest properly, focus our investment stream so we maximize that advantage."

Despite sea basing's inherent naval orientation, the Navy and Marine Corps tout it as a joint capability that will affect operations of the

Army and, to some extent, the Air Force.

Before he stepped down last year, Pentagon acquisition czar Edward C. Aldridge Jr. directed the Defense Science Board to conduct a study of sea basing. "Undoubtedly situations will arise where US interests require having boots on the ground," Aldridge said. "Accomplishing that in today's warfighting context bristles with difficulties." He thought sea basing might be one answer.

The DSB report, issued last fall, endorsed sea basing as a promising idea. Chairman William Schneider Jr. flatly declared it to be "a critical future joint military capability for the United States." He added, "It will help assure access to areas where US military forces are denied access to support facilities."

However, there are some problems. To begin with, sea basing as presently conceived requires a panoply of new ships, aircraft, weapons, and integrated sensor and command networks, most of which do not exist.

What, in fact, is a sea base?

Key features of a sea base are described in the DSB report and in presentations made by the Marine Corps

Combat Development Command. Starting points are today's big-deck aircraft carrier and amphibious task forces. Formations of existing warships would provide offensive and defensive power as part of a sea base.

The DSB report said, "One must think of a sea base as a hybrid system of systems consisting of concepts of operations, ships, forces, offensive and defensive weapons, aircraft, communications and logistics, all of which involve careful planning, coordination, and exercising to operate smoothly."

It added that the sea base "must be robust enough to operate in a range of sea conditions and must be able to receive supplies from the sea without the support of in-theater land bases."

Such a capability does not now exist, although the US does have some precursor amphibious capabilities. The DSB said the United States could have an operational sea base by 2020.

Into Afghanistan

Navy and Marine planners are more optimistic that their current capabilities will prove useful. "We've done sea basing for many years," said Rowland, who cited recent operations in Afghanistan, where Army, Marine, and special operations forces were launched and supported from the sea for extended operations more than 400 miles inland.

Rowland did not mention it, but these Marine forces were heavily

dependent on support from land-based USAF tankers, intelligence-surveillance-reconnaissance aircraft, and transports, as well as space systems.

To make sea basing viable in a major combat operation, the Navy must have effective ship-based theater missile defense systems to protect both the floating platforms and the forces taken ashore. Such a shield is years from reality.

The sea base also must be able to provide fire support for troops far inland, perhaps without heavy artillery. Carrier-based strike aircraft can offer some support, but studies emphasize the need for long-range, precision fires from weapons such as the advanced gun system in the Navy's future land-attack destroyer, the DDX. The first model won't be in the fleet until 2011.

Studies emphasize the need to protect the sea base from submarines, mines, and small attack craft armed with fast-flying missiles. The Navy believes this duty will fall to the proposed littoral combat ships, which won't debut until 2008.

Most critical is the need for a fleet of mammoth new logistics vessels called Maritime Pre-positioning Force, Future—or MPF(F)—ships. They would replace the current fleet of pre-positioning ships used over the past decades.

The Navy's six-year shipbuilding plan calls for buying the first ship of the class in 2007. Each could cost

more than \$1.5 billion, and the Marines want 18 to 24 of them, Work said.

Judging by how it is portrayed in concept drawings, the MPF(F) ship would be a huge affair, combining some elements of an aircraft carrier, troop ship, and high-tech floating warehouse. The flotilla could support as many as 15,000 ground troops.

Rowland said current concepts are "pre-decisional," but it is clear that acquiring the capabilities envisioned in the DSB and Marine studies will be a daunting task.

Some Marine conceptual drawings show vessels that look like super-tankers. Some have large flight decks able to support dozens of rotary wing aircraft, including the tilt-rotor MV-22 Osprey.

These ships—extending 1,000 feet and displacing a whopping 100,000 tons—would be bigger than a Nimitz-class nuclear-powered supercarrier. The ships would be able to hold thousands of troops, along with the vehicles, heavy weapons, and supplies to equip and supply a brigade-size Marine or Army force for 30 days.

At least those functions are within current shipbuilding parameters. The problem is that MPF(F) planners have incorporated some cargo-handling capabilities that do not even exist.

Needed: More Capabilities

To sustain a major combat operation ashore, the sea base ships on the open ocean must be able to receive and distribute a vast amount of munitions, fuel, food, and other supplies while under way. That means the ships must exchange heavy loads of cargo—shipping containers, tracked vehicles, and the like—with merchant ships or other Navy vessels.

Moreover, they have to be able to do this in high winds and rough seas. Such a feat would be impossible without heavy-load cargo cranes that can compensate for the pitching and rolling of both the receiving and the supplying vessels. Naval Sea Systems Command has tested a prototype heavy-lift, computer-guided crane that might fill this need. However, no proven system is ready to go into production at this point.

The proposed ships must have another capability called "selective offload." Today's pre-positioning ships generally have to enter a port and unload everything to get to spe-

US Navy illustration by General Dynamics



The Navy would have to defend the sea base against submarines, mines, and small missile-firing attack craft. Much of this duty probably would fall to the proposed littoral combat ships, seen here in an artist's conception.

cific supplies and gear needed by a combat force. In the future, however, the Navy must be able to offload to other vessels or aircraft only that cargo which is needed. The technology to do that has not yet arrived.

Because the sea base must stay on station for long periods and at great distances from land, the Navy must develop what it calls "high-speed lighterage"—small, fast supply craft to shuttle troops and materiel between sea base and shore.

The Navy and Marine Corps also want to use their Landing Craft Air Cushion vehicles, capable of making 40 mph over water, and the proposed Expeditionary Fighting Vehicle, which could travel over water at a speed of 23 mph.

However, service studies have concluded that even such relatively fast surface craft can't be used to move troops ashore if the threat of antiship missiles forces the sea base to operate 100 miles or more from land, as is likely. To cover that kind of distance, the force would need an aircraft. It would have to be able to carry up to 20 tons of cargo for up to 400 miles.

And it would also have to be able to operate from MPP(F) ships. As a result, the US would need to develop a very large aircraft of the vertical (or exceptionally short) takeoff and landing type. The MV-22 and CH-53E helicopter do not measure up, said Navy studies.

Aircraft manufacturers have suggested a number of solutions. One of them—a C-130-size, four-engine, tilt-rotor aircraft—would take 15 years to develop, if it could be done at all. The story is much the same with the other aircraft concepts.

Essential to the whole concept is the development of a wide-area command and control network to tie together the dispersed ships of the sea base.

Doing all of this will be very expensive, probably beyond the combined means of the Navy and Marine Corps. Perhaps for that reason, DSB said sea basing must be an all-service effort. It recommended creation of a joint sea base office. Following the DSB's recommendation, the Pentagon in December ordered prepara-



A Marine MV-22 Osprey lands on USS Bataan, an amphibious assault ship. Helicopters and big-deck carriers would be critical parts of a future sea base. The concept also requires aircraft much bigger than the Osprey.

tion of plans for a joint sea basing requirements office.

"The Air Force and particularly the Army must participate in the development and use of this joint military operational capability," the DSB report said.

Army leaders have expressed support for the concept. Said Gen. Peter J. Schoomaker, the Army Chief of Staff: "Not only do I subscribe to it now, ... I have for years."

The MOB Concept

Lt. Gen. Duncan J. McNabb, Air Force deputy chief of staff for plans and programs, has appeared to be notably less effusive. Sea basing is "obviously a great concept," he said, and "the Navy and Marines are betting on the Air Force support that is needed." He added, "We will work out how we will support that mission."

The Air Force actually had shown greater interest in an earlier sea basing concept, the so-called "mobile offshore base" championed in the early 1990s by Adm. William A. Owens, then vice chairman of the Joint Chiefs.

Owens's MOB concept entailed building several 1,000-foot long, 500-foot wide, self-propelled offshore platforms that could be linked together to form a floating airfield of various lengths and widths. It

would have internally stored fuel and support equipment. The Air Force had some interest because the MOB could have handled C-130 and C-17 cargo aircraft and perhaps even some fighters.

Navy and DSB studies dismissed the MOB as too expensive, too big a target, and not mobile enough to avoid missile attack.

US Joint Forces Command has been testing sea basing concepts in exercises with the Navy and the Army, and the Joint Staff has been working to develop joint sea basing doctrine.

The Navy concedes that sea-based operations in a major conflict would still require the air superiority and in-flight refueling provided by the Air Force. Navy Lt. Cmdr. John J. Klein and Army Maj. Rich Morales, writing in a recent issue of US Naval Institute's *Proceedings*, summed it up this way: "The full strategic advantages of sea basing can be realized only by maintaining diverse basing options, such as ports, airfields, and land bases." They will be needed to support, defend, and exploit the contributions of the sea base.

Despite the major obstacles in their path, Navy and Marine officials are determined to push the sea basing concept as far as technology and their budgets will take them. But it is clear that anything like a fully capable sea base, as conceived, is decades from reality. ■

Otto Kreisher is a Washington, D.C.-based military affairs reporter for Copley News Service and a regular contributor to Air Force Magazine. His most recent article, "The Airpower Advocate," appeared in the January 2003 issue.

Sen. John McCain, Arizona Republican, believes success requires seven steps.

Finishing the Job in Iraq

Sen. John McCain is a retired naval aviator, former Vietnam War POW, and current member of the Senate Armed Services Committee. He at times has been a critic of Bush Administration foreign policies. However, in an April 22 address to the Council on Foreign Relations in Washington, D.C., the Arizona Republican gave his support to the Administration's military operation in Iraq and explained why he sees it as "the test of a generation." What follows are excerpts of his remarks.

Wake-Up Call

"America faces today our biggest foreign policy test in a generation. The deteriorating security situation in Iraq in the past several weeks vividly emphasizes the difficulties inherent in bringing stability to that country and is a wake-up call to policy-makers in Washington.

"Given events on the ground, and the resulting debate that has taken place in this town, it is worth reviewing why we needed to go to war in the first place, why we must prevail, and how our conduct in Iraq fits with America's broader foreign policy principles. The way in which we handle Iraq today will impact the Iraqi people, America, and the world for a generation or more. The costs of failure in Iraq are unacceptably high. The benefits of success, on the other hand, are extraordinary."

Why Strike Saddam

"By early 2003, the status quo on Iraq was crumbling. ... The international sanctions regimen no longer constrained Saddam's ability to spend money as he wished, and [Saddam's] regime was growing stronger, not weaker, under the existing sanctions. At the same time, critics around the world were demanding that those sanctions that remained be lifted. US and British warplanes patrolled the no-fly zones, taking fire from anti-aircraft guns on a weekly basis. ... The renewed inspections in 2002 and 2003 took place only when Saddam was confronted with coalition troops deployed to his borders—an obviously unsustainable situation—and even then he refused to cooperate fully. ...

"Some have argued that the US exaggerated Saddam's WMD programs, and, therefore, Iraq posed no threat. ... We must also recall the facts as we knew them in March 2003. US intelligence agencies concluded that Saddam possessed chemical and biological weapons and might

be pursuing a nuclear weapons program. European intelligence services concluded that Saddam likely had active WMD programs. Eight years of UNSCOM inspections concluded Iraq was lying. Even Hans Blix and the UN inspectors assumed the regime was concealing weapons of mass destruction. If Saddam had secretly destroyed these weapons, he had numerous opportunities to document this destruction, but he did not do so. ...

"The world was painfully familiar with Saddam's use of WMD in the past, including his barbaric chemical attacks on Iranians and Kurds. We knew that Saddam was by far the most belligerent leader in the region, having invaded and pillaged Kuwait, launched missiles at Saudi Arabia and Israel, killed hundreds of thousands of his own people, and attempted to assassinate a former US President. We also knew of Saddam's past involvement in terrorism and his hatred of America."

Three Choices

"We had three choices—deal with Saddam early, while we could; deal with Saddam later, after sanctions had lost force and he had furthered his weapons ambitions; or simply sit back and hope for the best. The 9/11 Commission has spent months investigating who might be at fault for failing to connect disparate dots and for inaction in the face of grave threat. In Iraq, the dots were connected.

"Even those in Iraq who claim that all WMD were destroyed suggest that Saddam planned to restart his programs once the time was right. ... But let us assume for the sake of argument that Saddam had forever abandoned his WMD ambitions. Is it then wrong to have toppled the dictator?"

"I supported humanitarian intervention in order to stop genocide in Kosovo. I wish that the US had acted—with force if necessary—to stop genocide in Rwanda. In neither of these places was America's vital national security interests at stake, though our national values were. ... Time and time again, the world has witnessed vast brutality, done nothing, and then said, 'Never again.' ... With the final erosion of sanctions, how long would the Kurdish population of Iraq have remained beyond Saddam's reach? How many more mass graves would he have filled, how many more women raped, critics' tongues cut out, children tortured? The US, which on three occasions encouraged Iraqis to revolt, had a responsibility to take up this charge, and we have liberated 25 million Iraqis from a state of near slavery. ...

"Now that we have toppled Saddam and liberated the Iraqi people, we must succeed in our ambition to help bring freedom and democracy to the country. We are not trying to turn Iraqis into Americans. We are promoting values that are universal. Iraqis are no more willing than Americans to endure beatings, terror, and a lack of freedom."

Requirements for Success

"First, we need a constructive domestic debate. ... We must show bipartisan resolve to prevail in Iraq and not allow the insurgents to believe that they are winning minds in Washington. Our troops, the Iraqi people, and the world need to see unified American political leadership.

"Second, the President must make clear to the American people the scale of the commitment required to prevail in Iraq. He needs to be perfectly frank: Bringing

Bringing peace and democracy to Iraq is an enormous endeavor that will be very expensive, difficult, and long."

peace and democracy to Iraq is an enormous endeavor that will be very expensive, difficult, and long. The American people understand that we are fighting for the freedom of others, and I believe they are willing to sacrifice. ... Part of this sacrifice starts here with lawmakers in Washington. We need to make tough decisions about where our wartime priorities lie, and this means that we have to reassess our domestic priorities. As the appropriations season starts up, it is clear that we simply cannot have it all—tax cuts, pork for the special interests, ever-growing entitlement programs, and war in Iraq. Congress cannot demand discipline and sacrifice only of the men and women fighting in the desert. We need it at home as well.

"Third, it is painfully clear that we need more troops. Before the war, the US Army Chief of Staff said that several hundred thousand troops would be necessary to keep the peace. While criticized at the time, Gen. [Eric K.] Shinseki now looks prescient. ... Our military presence is insufficient to bring stability to the country. We should increase the number of forces, including Marines and Special Forces, to conduct offensive operations. There is also a dire need for other types of forces, including linguists, intelligence officers, and civil affairs officers. We must deploy at least another full division and probably more. ...

"Fourth, we must ensure that our understandable efforts to minimize collateral damage in Fallujah are not seen as a victory for the hardest of the hard-core killers. Our goal in places like Fallujah, where unreconstructed Baathists, former intelligence officers, and foreign jihadists converge, should be to capture or destroy them. We face implacable enemies who reject a peaceful role in the new Iraq. We must be careful not to be seen by Iraqis as responding to direct attacks with accommodation.

If we succeed, we send a message to every despot in the region that their day is done—that no people will tolerate forever leaders who deprive them of liberty.”

“Fifth, while the burden in Iraq will be primarily ours, we must do more to reinforce our friends and allies who are sharing the burden, risks, and responsibilities in Iraq. Bulgarians, Britons, Spaniards, Italians, and many other nationalities have been wounded and killed in Iraq. Our enemies seek to divide our coalition. They do it through bombs in Madrid and through kidnappings in Iraq. Every leader who has sent personnel to join the coalition in Iraq has done so out of principle, not out of political expediency. ... Those who sacrifice with us in adversity are our truest friends.

“Sixth, we need to stop any irresponsible third country interference in Iraq. We must make clear to Syria and Iran that any meddling in Iraq will have dangerous consequences for the security of their own fragile regimes. In addition, we must be exceedingly cautious about Iranian government involvement in a political settlement. Iran’s interests in Iraq and American interests in Iraq are not, to put it mildly, the same. ...

“Finally, and perhaps most importantly, we need a political strategy. We do not currently have one. With no one identified to lead Iraq after the transfer of sovereignty, ... there is a political vacuum in Iraq today. We need to reduce the uncertainty. ... We must also ... make clear that these new leaders, however chosen, are transitional and will see the country through to elections. An Iraqi government will only have full legitimacy when it is freely chosen by the people.”

Must Not Leave Prematurely

“We have toppled Saddam, and we have the responsibility to finish the job—to place true sovereignty in the hands of the Iraqi people. But what if we fail? ... We are now helping the Iraqi people construct a new order, but we aren’t there yet. If we leave, violence will fill the

vacuum as groups struggle for political power, and we risk all-out civil war. At the very least, ... the violence we see today will pale in comparison to the bloodletting, and we will repeat, in much starker terms, the mistake we made in 1991.

“If we leave, we will pay a dear price as Americans. For years, al Qaeda used our withdrawal from Somalia as an example of our lack of resolve. The lesson was clear—inflict enough pain on Americans, and you will achieve your aims. If our enemies succeed in Iraq, they will have taught the world the lesson of Mogadishu a hundredfold.

“If we leave, we doom reform in the Arab world. Why should other Arabs embrace democracy and freedom when it cannot take root even after a wholesale regime change in Iraq? If we leave, we risk turning Iraq into a failed state, handing its neighbors—including leading terrorist sponsors Iran and Syria—a prime opportunity to expand their influence in the region and creating a breeding ground for terrorism.”

If We Succeed

“If we succeed in stabilizing the country, in building a new government to which we hand sovereignty, in establishing a political system based on freedom and democracy, ... we will have affirmed the universal values upon which this country was founded and on which our foreign policy must be based: ... that people everywhere in the world, not just in the West, deserve the same rights and freedoms we enjoy. ...

“If we succeed, we send a message to every despot in the region that their day is done—that no people will tolerate forever leaders who deprive them of liberty. If we succeed, we help create in the center of the Middle East a representative and humane government that provides an example to the region. We help bring an end to the political repression and economic stagnation in which extremist roots grow.”

Use of Power

“I know the debate over what to do in Iraq is part of the larger debate over how to use the pre-eminent position of the United States in the world. No one can foretell how long we will stand astride the world with unmatched power. We must use our power now to shape the world for the future, to guarantee that future generations here and abroad will live in freedom, democracy, and prosperity.

“We do not use American power to establish empire. We do not spend our blood and treasure for territorial gain, nor for oil, nor to enrich our corporations. We act in Iraq as we should act in the world—to bring lasting liberal order to the globe. Our power must be directed in ways that bolster freedom, democracy, economic prosperity, [and] international institutions and rules.

“In Iraq, our national security interests and our national values converge. Iraq is truly the test of a generation, for America and for our role in the world. Faced with similar challenges, previous generations of Americans have passed such tests with honor. It is now our turn to demonstrate that our power, ennobled by our principles, is the greatest force for good on Earth today. Iraq’s transformation into a secure democracy and a force for freedom in the greater Middle East is the calling of our age. We can succeed. We must succeed.” ■



NATIONAL OFFICERS



BOARD CHAIRMAN

John J. Politi
Sedalia, Mo.



PRESIDENT

Stephen P. "Pat" Condon
Ogden, Utah



SECRETARY

Thomas J. Kemp
Fort Worth, Tex.



TREASURER

Charles A. Nelson
Sioux Falls, S.D.

NATIONAL DIRECTORS

Craig E. Allen
Hooper, Utah

L. Boyd Anderson
Ogden, Utah

Roy A. Boudreaux
Venice, Fla.

Billy M. Boyd
Carthage, Miss.

Kathleen Clemence
Reno, Nev.

David R. Cummock
Daytona Beach, Fla.

Eugene M. D'Andrea
Warwick, R.I.

Vivian P. Dennis
Centerville, Ga.

Frederick J. Finch
San Antonio

W. Ron Goerges
Fairborn, Ohio

M.N. "Dan" Heth
Hurst, Tex.

Stanley V. Hood
Columbia, S.C.

John Lee
Salem, Ore.

Lester L. Lyles
Columbus, Ohio

Thomas J. McKee
Fairfax Station, Va.

Brian P. McLaughlin
Colorado Springs, Colo.

John C. Moore
Arlington, Tex.

George K. Muellner
Huntington Beach, Calif.

Lloyd W. Newton
Avon, Conn.

Michael J. Peters
Auburn, Calif.

Julie E. Petrina
Laurel, Md.

Joseph Price
Newport News, Va.

Robert C. Rutledge
Johnstown, Pa.

Michael E. Ryan
Arlington, Va.

Richard Schaller
Niceville, Fla.

Victor Seavers
Eagan, Minn.

Thomas G. Shepherd
Capon Bridge, W.Va.

Brad Sutton
Mountain Green, Utah

Richard C. Taubinger
Roseville, Calif.

Mary Anne Thompson
Oakton, Va.

Edward I. Wexler
Stockbridge, Ga.

Robert M. Williams
Omaha, Neb.

DIRECTORS EMERITUS

John R. Alison
Washington, D.C.

Richard D. Anderson
Poquoson, Va.

Joseph E. Assaf
Sandwich, Mass.

David L. Blankenship
Tulsa, Okla.

John G. Brosky
Carnegie, Pa.

Dan Callahan
Centerville, Ga.

Robert L. Carr
Pittsburgh

George H. Chabbott
Dover, Del.

O.R. "Ollie" Crawford
Blanco, Tex.

R.L. Devoucoux
Green Valley, Ariz.

Jon R. Donnelly
Richmond, Va.

Russell E. Dougherty
Arlington, Va.

George M. Douglas
Colorado Springs, Colo.

Charles G. Durazo
Yuma, Ariz.

Joseph R. Falcone
Ellington, Conn.

E.F. "Sandy" Faust
San Antonio

John O. Gray
Arlington, Va.

Jack B. Gross
Harrisburg, Pa.

Martin H. Harris
Montverde, Fla.

Gerald V. Hasler
Encinitas, Calif.

Monroe W. Hatch Jr.
Clifton, Va.

H.B. Henderson
Santa Ana, Calif.

John P. Henebery
Winnetka, Ill.

David C. Jones
Sterling, Va.

Victor R. Kregel
Colorado Springs, Colo.

Jan M. Laitos
Rapid City, S.D.

Doyle E. Larson
Burnsville, Minn.

Nathan H. Mazer
Roy, Utah

EX OFFICIO

William V. McBride
San Antonio

James M. McCoy
Bellevue, Neb.

Bryan L. Murphy Jr.
Fort Worth, Tex.

Ellis T. Nottingham
Arlington, Va.

Jack C. Price
Pleasant View, Utah

William C. Rapp
Niagara Falls, N.Y.

Walter E. Scott
Dixon, Calif.

Mary Ann Seibel-Porto
St. Louis

John A. Shaud
Springfield, Va.

Joe L. Shosid
Fort Worth, Tex.

James E. "Red" Smith
Princeton, N.C.

R.E. "Gene" Smith
West Point, Miss.

William W. Spruance
Las Vegas

Harold C. Stuart
Jensen Beach, Fla.

Walter G. Vartan
Chicago

A.A. West
Hayes, Va.

Sherman W. Wilkins
Issaquah, Wash.

Joseph A. Zaranka
Bloomfield, Conn.

Donald L. Peterson
Executive Director
Air Force Association
Arlington, Va.

Donald J. Harlin
National Chaplain
Albuquerque, N.M.

Stanley J. Miller
National Commander
Arnold Air Society
West Lafayette, Ind.

At Tyuratam, the Soviet moon booster emerged slowly and suffered disaster.

The Secret at Complex J

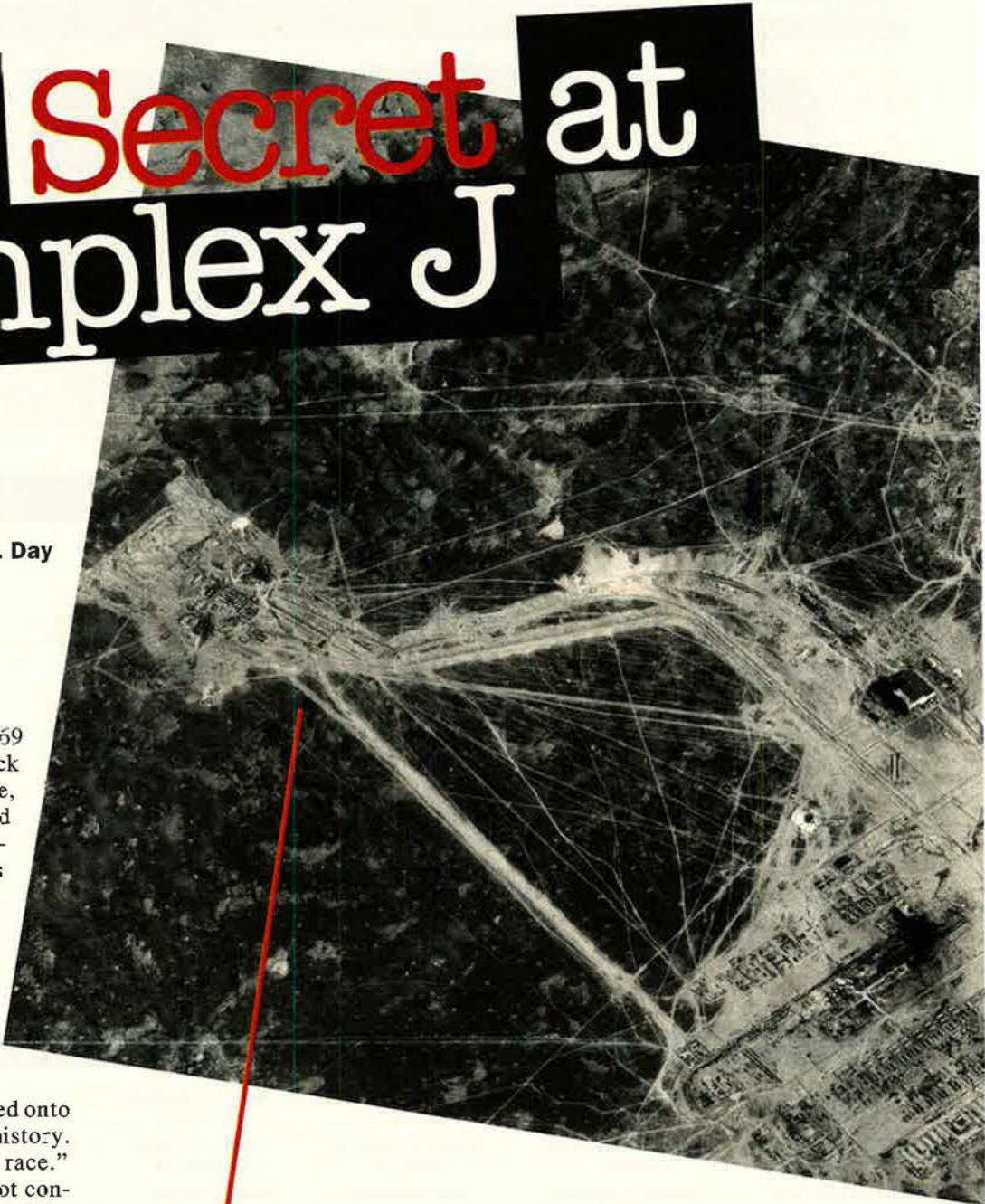
By Dwayne A. Day

IT WAS mid-August of 1969 in Washington, D.C., and Jack Rooney was at work in the huge, windowless building that housed the National Photographic Interpretation Center. Rooney was a photo analyst. His job was to squeeze useful data from satellite images of the Soviet Union, and he was about to learn something big.

Just a few weeks earlier, on July 20, 1969, astronauts Neil A. Armstrong and Edwin E. Aldrin Jr. had stepped onto the lunar surface and into history. America had won the "moon race."

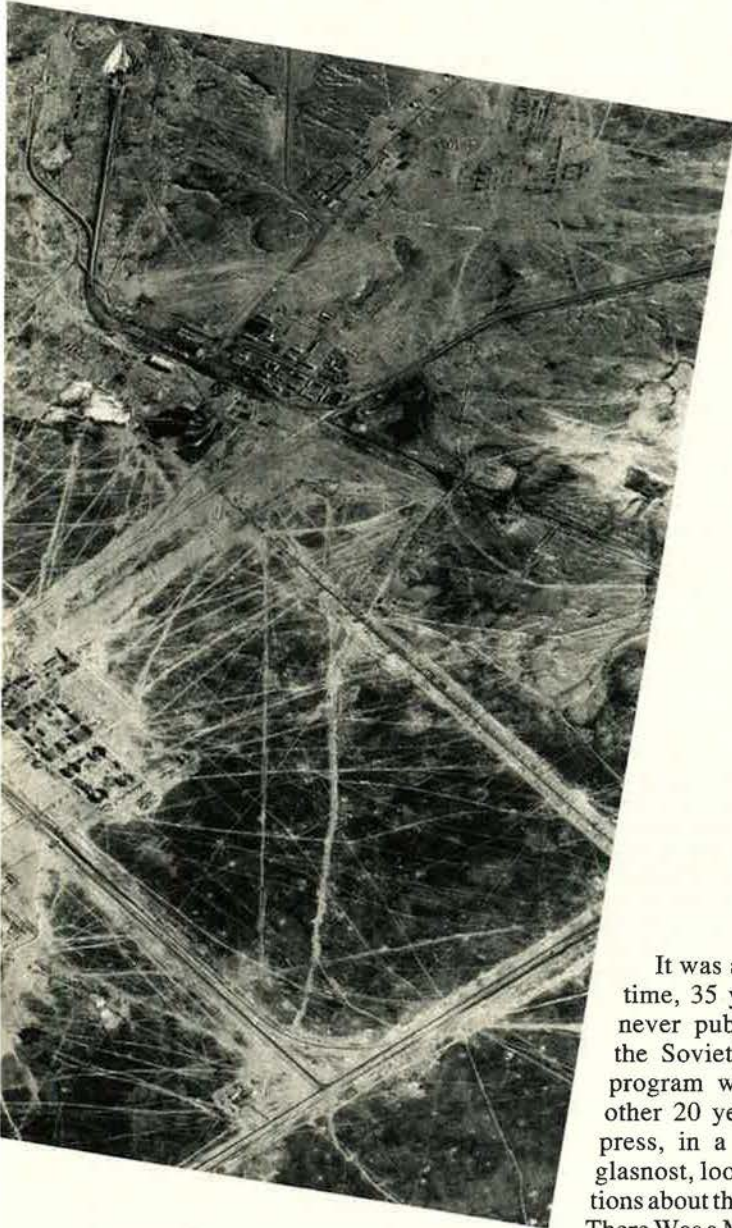
Yet the Soviet Union did not concede the point. Moscow did not claim to be the first to reach the moon; rather, it insisted that it had never even made an attempt. That being the case, sniffed the newspaper *Pravda*, the United States had merely won a "race" with itself. The claim was widely repeated in Western media.

However, what Rooney found suggested a very different conclusion. He not only saw evidence of a Soviet moon effort, he also found indications that Moscow's program had recently met with disaster.



A KH-7 Gambit satellite reconnaissance photo showed something huge under construction at the Soviet Union's Tyuratam space facility in present-day Kazakhstan. The massive complex was to be the support facility for the Soviet Union's enormous and secret N-1 moon rocket. The N-1 would have been somewhat larger than the Apollo program's Saturn V.

Early American reconnaissance satellites rode into orbit on rockets such as this modified Thor, launched from Vandenberg Air Force Base in December 1963.



It was a big discovery at the time, 35 years ago, but it was never publicized. Doubts that the Soviet Union had a moon program would persist for another 20 years, until the Soviet press, in a startling episode of glasnost, loosed a flood of revelations about the program. (See "Yes, There Was a Moon Race," by James E. Oberg, April 1990.)

Those revelations marked the last chapter of a long tale of intelligence operations.

The story started in May 1961, when President Kennedy challenged the nation to put an American on the moon within the decade. The US had little intelligence on the Soviet space program. After Kennedy announced his



lunar goal, US intelligence agencies sought evidence that the Soviets were also racing to the moon. They did not find any, but they kept looking.

Success or Stunt?

Sayre Stevens was an "all source" analyst working in the Space Division of the CIA's Office of Scientific Intelligence (OSI). His job was to follow Soviet space systems by piecing together data provided to him from a variety of sources, such as satellite photos, communications intercepts, agent reports, scientific journals, and statements by cosmonauts.

Stevens recalls that, in the summer of 1962, the Soviet Union had launched two manned spacecraft at once, flying them past each other. This appeared to demonstrate a rendezvous capability that might be critical for any lunar effort.

At the time, Stevens did not believe the Soviet space program actually had achieved a rendezvous. Rather, Stevens recalled, it had pulled off a major publicity stunt, one that made the US "look like a fool for the 48th time in the space race."

Within the Soviet space program, the CIA had no sources to which it

could turn for interpretation. David Doyle, an NPIC photointerpreter in 1962, concluded that the United States had no human intelligence at all on Moscow's program. If it did have secret information from human spies, he recalled, "it wasn't getting down to us."

US intelligence did, however, have spy satellites, which were growing more and more sophisticated.

In spring 1963, a Corona satellite photographed the Tyuratam range, a sprawling launch facility situated in the desert of the then-Soviet republic of Kazakh ASSR. Examination of the photos revealed a major new construction effort at the site. Subsequent spy satellite missions revealed that the construction was following a typical pattern. First to be built were barracks to house construction workers. Next came concrete batch plants and supply yards. Eventually, workers began a huge excavation.

At that early stage, no one could determine what the Soviet Union was planning to build at Tyuratam.

Doyle, who specialized in Soviet space and missile facilities, often was the first person to look at the satellite images of launch ranges and missile sites. From the beginning, the inter-

preters were "thinking space," Doyle recalled.

The site was close to what the CIA called Complex A, the first launchpad at Tyuratam and the place from which Yuri Gagarin and the other cosmonauts were launched into orbit. When Soviet workers, a short time later, built a road from the site to Complex A, US suspicions about a moon program were strengthened.

In July 1963, however, a top Soviet scientist told British astronomer Bernard Lovell that Moscow had no moon program at all. The comment created a stir within NASA and the CIA. Was it true or merely a ruse? To try to answer this question, Stevens reviewed all available intelligence on the Soviet space program. He found no evidence of a Soviet lunar program, but the CIA deemed his report to be inconclusive.

A Clearer Picture

In July, the US also fielded a powerful new reconnaissance satellite—designated KH-7, code name Gambit—which would provide images with clarity much greater than that of Corona. Gambit soon began returning high-resolution photographs of Tyuratam.

In April 1964, the photointerpreters declared that the Soviet Union was, in fact, constructing a new launch complex at Tyuratam. They called it Complex J. They noted the Soviets had begun constructing two massive buildings, unlike anything yet seen at Tyuratam.

Stevens remarked to himself, "OK, let's wait and see what happens with J. Let's just give ourselves a little leeway here."

That year, Stevens returned to work on his lunar report. This time, he said, he included a judgment that, "obviously, they were trying to build a big missile" but that the Soviet Union was not doing so with the speed required to complete the complex and have it ready to launch a manned moon mission by the end of 1969—the American target date.

Stevens recalled that his second report caused some controversy in OSI. Albert Wheelon, the CIA's deputy director for science and technology, said later that he urged his analysts to use great caution in this area. His message was: "Let's be sure, because an estimate here will affect national policy. Let's be damn sure, because it really matters."

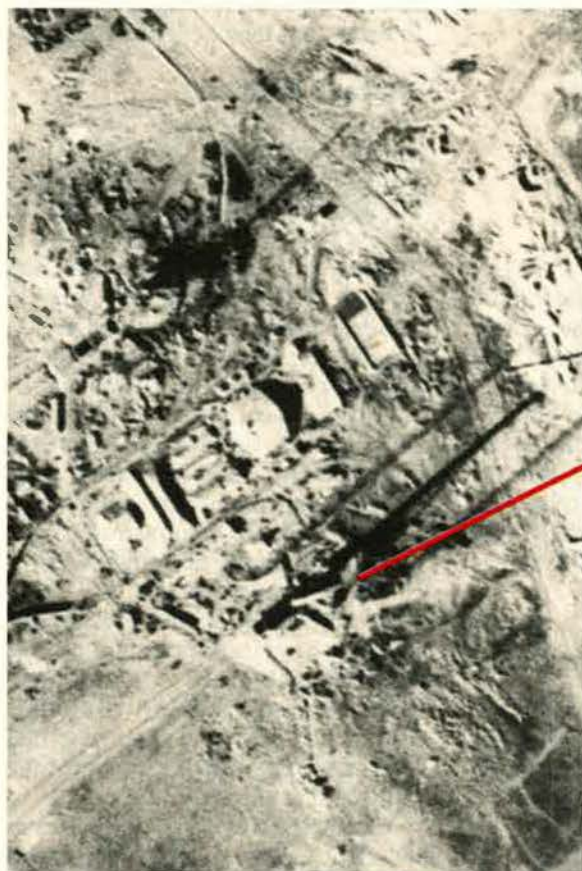
The purpose of the rocket initially was not clear. The Soviet Union started building this large booster as a multi-purpose vehicle and not specifically as a moon rocket. In late 1963, however, Moscow concluded that the US was, in fact, serious about reaching the moon, and Soviet officials in 1964 formally, though secretly, launched a manned lunar effort.

The Soviet military opposed a lunar mission because of its massive cost. Different Soviet design bureaus fought for control of the project. As a result, with limited support and resources, construction at Complex J proceeded in fits and starts.

Meanwhile, though US satellite photos showed the massive construction project was proceeding, Stevens and other analysts were waiting for a giant launch vehicle to emerge from the buildings. They had no hard data on this vehicle, only a conviction that it would be huge.

They had a name for what they were expecting. They called it "Big Mother."

In addition, they had not yet seen a static test facility needed to carry out a test firing of the entire first stage of the rocket. They expected it



Note the long shadows in this early morning view of the two N-1 launchpads taken in December 1968. They show two lightning-rod towers with the massive N-1 between them. The rocket is visible as a white shape on the pad.

to be similar to the one NASA built to test fire the Saturn V first stage at Huntsville, Ala. However, the analysts could not find a similar facility anywhere in the Soviet Union. Some speculated that Soviet space officials might try to test the rocket while it sat locked onto the launchpad, but nobody was satisfied with that theory.

Some intelligence analysts theorized that the Soviets might strap together several smaller rockets, such as the SS-8 ICBM, to make a single big booster. That would not require construction of a new static test facility. However, a NASA rocket expert at Huntsville said such an approach would not work.

The analysts were puzzled by other aspects of the Soviet effort, such as the slow progress of the construction. It did not fit the known pattern. "We'd seen them build launchers ... and launchpads and all that kind of stuff," Stevens said, "but this thing went on and on and on."

It was apparent that the launchpad "was going to have a Big Mother," said Stevens, but the question in everyone's mind was, "When are they going to get it ready to go?"

What the analysts did not know, Stevens went on, was that there was "a big war going on among the chief designers in the Soviet Union, ... and they couldn't get the money. ... That's the kind of stuff you don't see" at the time.

Probable Soviet Program

In 1965, the Intelligence Community stated in a national intelligence estimate that the Soviets probably were pursuing a manned lunar program but one that was not competitive with Apollo.

We now know that the Soviets did have a manned lunar program. It had an internal schedule for launching their rocket, testing their spacecraft, and beating the Americans to the moon. Virtually everyone in the Soviet program knew that these schedules were a fiction, but nobody wanted to state that conclusion out loud.

Over the next few years, the US Intelligence Community continued to monitor the Soviet space program. Gambit satellites produced detailed photographs of launchpad construction at Complex J, showing that the Soviets were building a large multi-story structure inside a deep pit and carving out three huge flame trenches.

Film from KH satellites was retrieved in a dramatic way, as film canisters reentered the atmosphere and were snagged, dangling from their parachutes, by specially equipped C-130s.



The images showed construction of a massive rotating service tower that would support the rocket and early Soviet construction work.

A new national intelligence estimate in summer 1967 repeated the view that the Soviet Union likely had a moon program.

In December 1967, US reconnaissance satellites silently passing over Soviet territory finally hit the jackpot. They photographed a massive rocket on the launchpad at Complex J. The CIA had finally caught a glimpse of Big Mother. Dino Brugioni, a senior official at NPIC, remembered that the photo analysts started calling it the "Jay Bird."

Recently declassified CIA reports on the booster indicated that it was to have a first stage thrust of eight million to 16 million pounds. The Saturn V booster had a launch thrust of 7.5 million pounds, but it also could use powerful upper stage rockets. Moreover, the US had developed very lightweight payload materials.

Throughout 1968, American spy satellites continued to photograph the giant Soviet rocket on the launchpad or transporter, spotting it several more times. (Some of the sightings may have been of booster mock-ups.) The

Soviets seemed to be using the rocket for fit checks with the ground equipment, but there was no indication of an imminent launch.

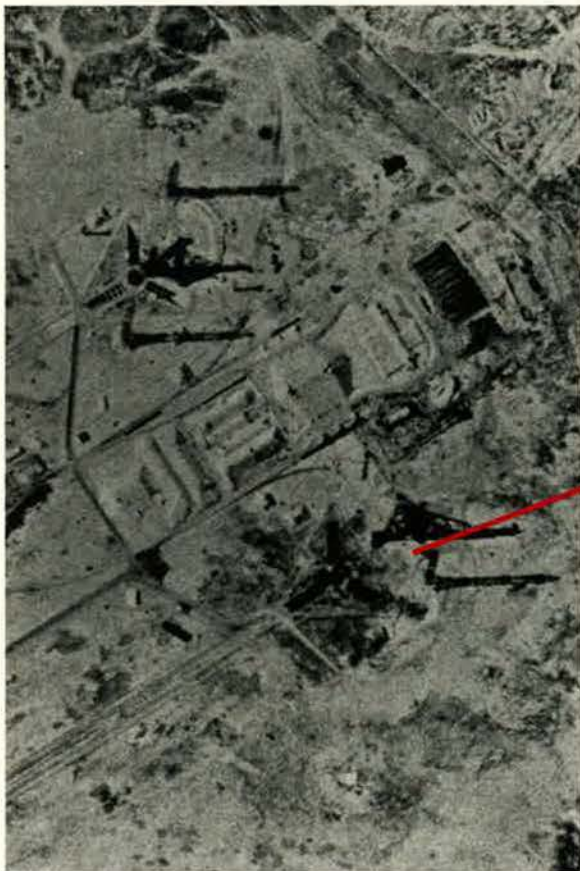
In April 1968, NASA made its second and final Saturn V unmanned test. Agency officials were so confident about the booster that the third launch, on Dec. 21, was manned. The Apollo 8 spacecraft and its three-man crew circled the moon.

Intelligence officials concluded that, unless NASA stumbled badly, the USSR had no chance of winning the moon race.

Playing Catch-Up

In fact, however, the Soviets were rushing to catch up. Just two months after the Apollo 8 success, the Soviet Union in February 1969 conducted an unmanned launch of Big Mother, which had been officially designated as N-1. It flew well for 70 seconds, but then the booster's computer detected a problem and shut down all engines. N-1 continued coasting and falling for approximately two minutes before it crashed far downrange.

The US Intelligence Community entirely missed it. Soviet space authorities had just launched their larg-



Disaster Strikes. Black smudges around the lower of the two N-1 pads tell the tale of a massive explosion. The blast decimated the N-1 infrastructure and spelled the end of Soviet hopes to reach the moon first.

est-ever rocket and crashed it, but America's multibillion-dollar intelligence apparatus was completely unaware of these events.

That brings us to August 1969 and Jack Rooney standing at his light table in Washington.

Rooney moved a thin strip of positive film across the frosted glass surface until he reached the familiar Y-shaped image of the Tyuratam launch range. He had seen the sprawling Soviet facility in the desert hundreds of times in similar photos. He and his colleagues called it "TT" for short.

Rooney slid his dual eyepiece microscope into place and came to Complex J. He knew that it was the Soviet equivalent of NASA's Saturn V Launch Complex 39 at Cape Kennedy, Fla., where the Apollo 11 mission had begun the previous month. He was familiar with its features. Like spokes of a wheel, three flame trenches radiated from each of the two huge launchpads.

When Rooney adjusted the focus, he was shocked at what he saw. A vast dark smudge enveloped one of the two pads. Familiar details, seen many times in previous examinations of satellite photos, were com-

pletely missing. The thick grates that had covered the flame trenches were no longer visible.

Rooney instantly reached his conclusion: Something very big had exploded, wiping out the entire pad area.

He involuntarily shouted an epithet.

In the room, all heads snapped around. Doyle, who by that time was the branch chief, came over and peered into the lens of the microscope. So did other photointerpreters.

Major Disaster

What they saw was evidence of a major Soviet disaster, the outlines of which were pieced together fairly quickly. On July 3, 1969, the Soviet Union had made its second attempt to launch its Big Mother space booster. Something had gone terribly wrong. Shortly after it lifted off the ground, it fell back onto its pad and exploded in a huge fire-

ball. The explosion knocked out windows for dozens of miles around the area. Moreover, it knocked down a lightning tower, caused the collapse of most of the flame trenches and the underground pad facility, and scorched and crumpled the launch tower.

US seismic detectors actually had picked up the explosion, but a US satellite did not overfly the facility until weeks later. Later still, the satellite disgorged its film capsule, which re-entered Earth's atmosphere and was snatched out of the air by an Air Force JC-130, a specially modified transport rigged to retrieve a capsule as it floated back to Earth on a parachute.

Eventually the film arrived in Washington and landed on Rooney's light table.

Rooney's discovery of the devastated launchpad—the pad thought to be at the heart of the Soviet moon program—was a hot intelligence item. Brugioni recalls that he was told to rush information about it to the CIA's deputy director for intelligence, who would brief President Nixon, and to the director of the Defense Intelligence Agency, who would brief Secretary of Defense Melvin R. Laird.

The message was that the Soviet manned lunar program had suffered a catastrophic setback.

Two years later, in 1971, the Soviets launched another N-1 rocket, which also was destroyed. This time, US intelligence assets detected the event. The following year, in November 1972, the Soviets tried again and again they failed.

A few years later, Moscow finally mothballed the project. In the West, the media continued to report the Soviet claim that it had never engaged in an effort to put a man on the moon.

It was not until 1989 that the Soviet government finally revealed what US intelligence officials had known for decades: Moscow had tried hard to get to the moon. Big Mother had been a big part of that effort. It was real, but it proved to be a total failure. ■

Dwayne A. Day is a space policy analyst and historian. He worked at the George Washington University Space Policy Institute and the Congressional Budget Office. He is the author of Lightning Rod, a book about the Office of the Air Force Chief Scientist, and edited Eye in the Sky, a book about early satellite reconnaissance. He recently served as an investigator for the Columbia Accident Investigation Board. This is his first article for Air Force Magazine.

Professional **AFA** Development



AIR & SPACE CONFERENCE

and Technology Exposition

The premier **Air & Space Conference** and **Technology Exposition** is scheduled to land in **Washington, DC, September 13-15, 2004,** at the **Marriott Wardman Park Hotel.**



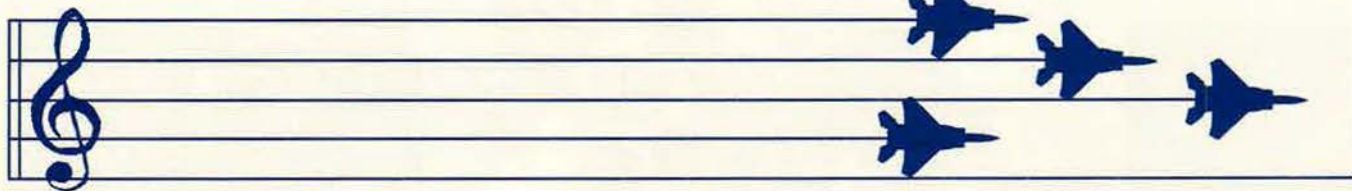
5 GREAT REASONS TO ATTEND

- ★ One-of-a-kind professional development opportunity for military, government, industry and academic professionals
- ★ Four major conference addresses, nine forums, 24 workshops, including a four-star town hall session
- ★ Networking opportunities and Air Force job fair
- ★ Air Force's best and the brightest honored with National Aerospace Awards
- ★ Technology Exposition with more than 100 exhibitors

TICKETS GOING FAST!
Register for the conference now at
www.afa.org

**Songs tell the cultural history of the Air Force—
and other services, too.**

Rhythm and **Blue**



By Bill Getz

MUCH of the history of the Air Force and other services is captured in songs that airmen and other troops have sung or hummed as they carried out their duties around the world. “The songs tell the story of courage and dedication from the skies over Belleau Wood to the skies over Thud Ridge,” wrote Gen. Jimmy Doolittle in 1981.

Music is an old military tradition. Around the campfires at Valley Forge, Gettysburg, and other battlefields at other times, in the ward rooms aboard ships at sea, in airmen’s clubs and tents, fighting men of the armed forces joined in song.

Many of the songs enjoyed by the armed forces were also popular with the general public. George F. Root’s “Battle Cry of Freedom,” written in 1861, was sung by civilians as well as the Union’s boys in blue. “Dixie” stirred the hearts of the Southern soldiers and civilians alike—even though it was written by a Northerner. Ohio-born Daniel D. Emmett wrote the song in 1859 in New York.

In World War I, American troops went off to France singing George M. Cohan’s rousing “Over There.” During World War II, when Kate Smith’s crystal clear voice rang out with Irving Berlin’s “God Bless America,” the hearts of all Americans were stirred.

In World War II, top songwriters tried their hands at composing patriotic and military songs. A handful—like Jimmy McHugh’s “Comin’ In on a Wing and a Prayer”—became popular. Some—like Cole Porter’s “Glide Glider Glide”—did not.

Most military songs provide new lyrics for an existing melody or are parodies of the original.

Early Military Songs

Troops often borrow and adapt songs from other military services and countries. The all-American “Yankee Doodle” is an example. The basic tune was sung by children in southern Europe before 1500. By 1699, the first military parody was sung by English cavaliers. The present version was written in prerevolutionary days by a British Army surgeon, Richard Shuckburgh. British troops sang the song during the American Revolution to ridicule the American colonists, who promptly appropriated the song.

A song that migrated from German forces to Allied troops during World War II was “Lili Marlene,” based upon a World War I poem by German poet Hans Leip. “Lili” was set to music in 1938 by the German composer Norbert Schultze. German soldiers adopted it, defying a Nazi ban instituted because the song was deemed to be overly sentimental. It was the anthem for Rommel’s Africa Corps, from which it soon migrated to British troops. Anglicized to “Lilli Marlene,” it became a big hit among Allied forces.

British troops were the source of many American military songs. One classic is the pre-World War I song, “Stand to Your Glasses.” It was originally a poem titled, “The Revel,” written by British Army Capt. Bartholomew Dowling in India during the mid-1800s. Alfred Domett set the poem to music—an 1834 Beethoven dirge.

US airmen in World War I appropriated the song, changed the lyrics, and called it “We Loop in the Purple Twilight.” Several variations were sung by American troops in the wars of the 20th century. (See “We Loop in the Purple Twilight,” p. 80.)

A large number of military parodies are based on the American folk song "The Dying Hobo," a tune originally composed in the late 19th century. Beginning with World War I's "Beside a Belgian Water Tank" to the Vietnam War's "Beside a Laotian Waterfall," 16 Air Force parodies can be traced to the Hobo song.

Perhaps the all-time favorite song of fighter pilots originated in World War I. It drew its inspiration from an earlier song titled "Throw a Nickel on the Drum." There were many variations of the song. The most noteworthy and popular is "Throw a Nickel on the Grass."

The official songs of each of the armed services are original compositions. The official US Air Force song, though, is unique.

The Air Force Song

Between World War I and World War II, Brig. Gen. Henry H. "Hap" Arnold (who would go on to command US Army Air Forces in World War II) recognized a need for a song to express the identity of airmen as being separate from that of soldiers. Arnold recommended running a song competition with a monetary prize. In 1937, however, the Army Air Corps did not control its own budget. *Liberty* magazine volunteered to offer a \$1,000 prize.

The contest attracted more than 700 entries. The judges had two years, until July 1939, to select four or five finalists. The process moved slowly, and none of the songs inspired the judges. In 1938, after Arnold became head of the US Army Air Corps, he began soliciting entries directly and even contacted Irving Berlin, who produced some songs for the competition.

On July 13, Robert M. Crawford offered to sing a song he had composed but not written down. He sang for judge Mildred Yount, who then made Crawford write down the words and notes on a blank music sheet. She dubbed the rough manuscript "The Army Air Corps Song." It was placed in the pile to be reviewed during the final selection two days later. Crawford was a pilot in addition to being a singer and composer. He often flew to his engagements.

"Beside a Belgian Water Tank"

Airmen created at least 16 parodies of a 19th century American folk song, "The Dying Hobo." These are the lyrics from the World War I version:

One cold and wintry day,
Beneath his busted engine,
A young observer lay.
His pilot hung from a telegraph pole,
But not entirely dead,
And he listened to the last words
This young observer said:

Oh, I'm going to a better land
Where everything is bright,
Where handouts grow on bushes,
And they stay out late at night.
You do not have to work at all,
Nor even change your socks,
And drops of Johnny Walker
Come trickling down the rocks.

The Air Force Song

By Robert Crawford

Off we go into the wild blue yonder,
Climbing high into the sun;
Here they come zooming to meet our thunder,
At 'em boys, Give 'er the gun! (Give 'er the gun now!)
Down we dive, spouting our flame from under,
Off with one helluva roar!
We live in fame or go down in flame. Hey!
Nothing'll stop the US Air Force!

Minds of men fashioned a crate of thunder,
Sent it high into the blue;
Hands of men blasted the world asunder;
How they lived God only knew! (God only knew then!)
Souls of men dreaming of skies to conquer
Gave us wings, ever to soar!
With scouts before and bombers galore. Hey!
Nothing'll stop the US Air Force!

Here's a toast to the host
Of those who love the vastness of the sky,
To a friend we send a message of his brother men
who fly.
We drink to those who gave their all of old,
Then down we roar to score the rainbow's pot of gold.
A toast to the host of men we boast, the US Air Force!

Off we go into the wild sky yonder,
Keep the wings level and true;
If you'd live to be a grey-haired wonder
Keep the nose out of the blue! (Out of the blue, boy!)
Flying men, guarding the nation's border,
We'll be there, followed by more!
In echelon we carry on. Hey!
Nothing'll stop the US Air Force!

His song was the unanimous winner. The Air Corps did not have enough money to underwrite copyrighting and publishing the song. However, it was produced commercially, and Crawford gave the Air Corps performance rights in perpetuity.

From 1939 to 1941, airmen performed the song at every opportunity. New aviation cadets found the lyrics inside their service caps and sang them as they marched to chow or to the classroom. Post exchanges were ordered to put the song on the jukeboxes and told to play it whenever someone had not paid for another song.

When the Army Air Forces, in 1947, became the Air Force, the lyrics and title were changed. (See "The Air Force Song" on this page.)

During World War II, as in the first World War, troops gave voice to traditional yearnings in such songs as "I Wanna Go Home," a tune written at the Battle of Ypres in 1915 by Lt. Gitz Rice of the 1st Canadian Contingent and promptly adopted by American forces when they arrived two years later.

The troops also sang about romance, complained about the chow, berated the brass, cursed their equipment, cursed the enemy, and bragged about their own unit—in verse and melody.

Military men were not alone in their singing endeavors. Military women often had their own songs and

"We Loop in the Purple Twilight"

This is the original first verse and chorus:

**We meet 'neath the sounding rafter,
And the walls around are bare.
As they shout back our peals of laughter,
It seems that the dead are there.**

**Then stand to your glasses steady,
We drink in our comrades' eyes.
One cup to the dead already,
Hurrah for the next man that dies.**

This is the airmen's version created in World War I:

**We loop in the purple twilight,
We spin in the silvery dawn,
With a trail of smoke behind us,
To show where our comrades have gone.**

**So, stand to your glasses steady,
This world is a world full of lies.
Here's a toast to those dead already,
And here's to the next man to die.**

songbooks. There was even an official *Women's Army Corps Song Book*, published by the War Department in August 1944.

There were the patriotic songs, such as "The US Army WAC," and gripe songs, such as "GI Blues." There were funny songs, with lyrics such as "Yes, by cracky—I'm a little WAC-y," and marching songs, such as "Salute to the WAC."

Military songs captured the mood of the times. Songs of World War I varied from sadness to exuberant humor, as exemplified by the tune "Look at the Ears on Him."

World War II brought a treasure trove of songs covering the spectrum of emotions. There were humorous songs, such as "Give Me Operations" ("Don't give me a P-38, the props they counter-rotate"). There were dignified songs, including "God, Guide Those Who Fly." There were songs in between, but the dominant theme was humor.

The Mood Changes

Many songs during the Korean War continued in that vein. An all-time favorite from Korea was "Itazuke Tower" ("I'm turning on the final, I'm running on one lung").

However, the lack of public support for the war and dissatisfaction with the way it was being conducted led to more songs expressing troop frustrations. By the Vietnam War, humor often was replaced with satire and cynicism. Protest songs included "Strafe the Town" and "Chocolate Covered Napalm."

The award for the most prolific writer of original songs of war belongs to a Vietnam-era Air Force F-4 pilot, now retired Lt. Col. Dick Jonas. He has written more than 30 songs about combat, sorrow, love, and patriotism.

Bill Getz is a retired Air Force pilot and industry executive who now focuses on writing and publishing. His last article for Air Force Magazine, "Purloined Yak," appeared in the June issue.

Among his many songs is this 1969 piece "Thud Pilot," an ode to the F-105 Thunderchief and its pilots:

I'm a Thud pilot, I love my plane.
It is my body, I am its brain.
My Thunderchief loves me,
And I love her, too,
But I get the creeps,
With only one seat,
And one engine, too. ...

Jonas also wrote more somber tunes. One such song was "Blue Four" from 1971. It dealt with the crash of an aircraft:

There's a fireball down there on the hillside,
And I think maybe we've lost a friend,
But we'll keep on flying,
And we'll keep on dying,
For duty and honor never end. ...

Military songs often capture sentiments and moods that troops normally would not openly express, and the songs of the Vietnam War were prime examples. Like folk songs, they tell a story. One is a song that vented the frustration of airmen over a Pentagon project called "Rapid Roger."

The project ran from August 1966 through February 1967. The Pentagon had directed the 8th Tactical Fighter Wing, commanded by Col. Robin Olds, to "investigate the desirability of increasing sortie rates per aircraft," wrote Ralph F. Wetterhahn in *Air and Space Magazine*. At the time, Wetterhahn was a captain in the wing.

He said that the same aircraft that flew missions by day were to be turned to fly other missions by night. That entailed heavy work for maintenance crews. The maintainers had to reconfigure the fighters, swapping day fuel tanks and weapons for those used at night. They also had to repair the aircraft. During this period, the operational ready rate dropped from 73.8 percent to 54.3 percent. One reason for the decline was that additional men and spare parts never arrived.

Olds' "Wolf Pack" persisted, but, when the test was over, the wing "marked the occasion with a wake, ... complete with a black casket," wrote Wetterhahn.

Two of the wing's fliers, Col. George Halliwell and Col. Bill Savage, wrote a song to mark the event, "On the Day That Rapid Roger Died." They set it to the melody of the song "Paddy Murphy."

The entire Wolf Pack held a funeral procession, led by Olds and Col. Daniel "Chappie" James Jr., to bury the thousands of IBM punch cards created by the project. Olds drove a silver spike through the coffin as they buried it.

On the day that Rapid Roger died,
The Eighth Wing had a riot.
The Four Nine Seven made the grave,
The Four Three Three the casket.
The Five Five Five the epitaph,
And Colonel Olds approved it,
On the day that Roger died.

This is history not found elsewhere. ■

Put Your AFA Benefits To Work For You!

Fellowship Through
Local AFA Chapters



Air Force
Magazine

High-Yield
Savings Accounts
& Free Checking



Current Information
On The Air Force &
Capitol Hill Issues

Low-Cost
Group
Insurance



Educational
Loans &
Scholarship
Search Services

Help Finding
An Air Force
Buddy



Professional
Resumé &
Job Search
Services

Savings On Dental,
Prescription &
Other Medical Services



Rental Car
Discounts

Low-Rate
Platinum
MasterCard



Vacation
Resort
Discounts

Your Air Force Association membership provides you with valuable benefits. We encourage you to review the benefits above and then go to www.afa.org to learn more about how these benefits can help you save money, protect your family and help you get the most out of your AFA membership. If you have questions, please contact AFA Member Services at 1-800-727-3337 weekdays 8:30 AM to 5:00 PM ET.

If you are not an AFA member, call the number above and join today!

By Frances McKenney, Assistant Managing Editor

AFA's Air & Space Conference

The Air Force Association will host the Air & Space Conference and Technology Exposition 2004 from Sept. 13 to 15 in Washington, D.C.

It will follow AFA's convention and business meetings, which take place Sept. 10-12. The Air & Space Conference is designed to meet professional requirements of USAF's Total Force, as well as retirees, civilians, and members of other military services.

More than 20 workshops and seminars are the focus of this event, along with a four-star town hall session, nine forums, and major conference addresses.

Some of the topics scheduled to be covered are: the war on terror, force development, joint operations, special operations, science and technology in acquisition, veterans affairs, and the new civil service system. Attendees will receive a special certificate documenting their participation in the conference's professional development activities.

The list of invited speakers includes Air Force Secretary James G. Roche, Chief of Staff Gen. John P. Jumper,



USAF photo by SrA. Shaleeta Johnson

AFA Board Chairman John Politi, seated in a C-130H cockpit, gets a briefing from Maj. Neal Guri of the 165th Airlift Wing (ANG), Savannah Arpt., Ga. Politi attended a Savannah Chapter awards banquet and toured the Combat Readiness Training Center during this April visit.

Veterans Affairs Secretary Anthony J. Principi, and former CIA Director R. James Woolsey.

Conference-goers will be familiar with many of the traditional AFA convention activities to take place during the gathering, among them the Congressional Breakfast Program, national aerospace awards ceremonies, the black-tie Air Force Anniversary Dinner, the Outstanding Airmen Dinner, and the Aerospace Education Foundation's silent auction and fundraiser.

The Air & Space Conference 2004 will culminate in a ceremony for the groundbreaking of the Air Force Memorial, located on a knoll overlooking the Pentagon's southwest side.

Salute!

The Langley Chapter (Va.) held its Salute to ACC symposium in May at Langley Air Force Base.

The chapter's premier annual event, the Salute to ACC is built around a full day of discussions on the issues, lessons, and challenges in Air Combat Command. This year's roster of speakers included Maj. Gen. Tommy F. Crawford, commander of the Air Force C2ISR Center, who spoke about improving the air tasking order cycle

USAF photo by Larry McTigue



AFA honored the Team of the Year with a May banquet. Here, AFA National President Pat Cendon and CMSAF Gerald Murray flank the team members, who come from the special investigations career field. Left to right: CMSgt. Michael Franklin, TSgt. Kim Gaestel, MSgt. Michael Willoughby, SSgt. Justin Rock, and TSgt. Jessie Garcia. (See "AFA in Action," p. 83.)

within an air operations center; Brig. Gen. John W. Maluda, director of communications and information systems, who covered information warfare operations; and Maj. Gen. (sel.) Anthony F. Przybyslawski, commander of the Air and Space Expeditionary Force Center, who spoke about AEF cycles.

Luncheon keynote speaker Lt. Gen. Bruce A. Wright, ACC's vice commander, caught his listeners' attention by describing the careers of veterans from World War II, the Korean War, Vietnam, Enduring Freedom, and Iraqi Freedom. Wright then introduced each veteran, who was in the audience. It was a memorable and moving presentation, commented Jeffrey L. Platte, chapter VP.

An evening gala took place at the Virginia Air and Space Center in Hampton. About 600 guests jammed the center's main floor, sharing space with the Apollo 12 command module exhibit and various aircraft hanging overhead. Gen. Hal M. Hornburg, ACC commander, was keynote speaker, paying tribute to Air Combat Command airmen serving worldwide. He described the work of specific USAF members, illustrating his comments with photos, shown on video monitors set up throughout the hall. He wrapped up his remarks with a video on USAF's history since World War II.

Homeland Security in California

Ronald L. Iden, newly appointed chief of California's Office of Homeland Security, was guest speaker for the April luncheon meeting of the **C. Farinha Gold Rush Chapter (Calif.)**.

Iden described the state's role in the war on terrorism, including the cooperation between local, state, and national-level first responder agencies. He also spoke about ongoing programs and other homeland security actions the state has undertaken since 2001.

Iden retired in January as assistant director of the FBI office in Los Angeles and was appointed as the state's homeland security chief. Richard C. Taubinger, the chapter's leadership development VP, noted that Iden's nearly 30 years of experience with the FBI and the homeland security topic attracted a wide-ranging audience: active duty personnel from Travis and Beale Air Force Bases, Guard and Reserve members, ROTC and JROTC cadets, and members of law enforcement agencies such as the California Highway Patrol.

The chapter presented nearly

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.

■ AFA representatives attended a meeting hosted by Rep. **Nancy Pelosi** (D-Calif.), House minority leader, to discuss progress made and future goals toward reforming the Survivor Benefit Plan (SBP). At the meeting, lawmakers said they remained optimistic that measures to enhance SBP would pass in this Congress. A concerted effort by both Democrats and Republicans led the House in mid-May to include a provision in the 2005 defense authorization bill that would phase out, by April 2008, the sharp drop in benefits that occurs at age 62 for SBP beneficiaries. The Senate had yet to act on its version of the bill. (See "Action in Congress: Ending SBP Widows Tax," p. 19.)

Some of the Representatives in attendance were **Chet Edwards** (D-Tex.), **Lane Evans** (D-Ill.), ranking member of the House Veterans' Affairs Committee, **Steny Hoyer** (D-Md.), House minority whip, **Ike Skelton** (D-Mo.), ranking member of the House Armed Services Committee, and **John Spratt** (D-S.C.), ranking member of the House Budget Committee. Edwards led the recent initiative to bring SBP legislation to the House floor under a discharge petition. (See "Action in Congress: SBP Fix Moves Forward," June, p. 25.)

■ AFA's Government Relations department hosted the 2004 Team of the Year on Capitol Hill during the group's week-long stay in Washington. For 2004, the team comprises five airmen from the Air Force Office of Special Investigations: **SMSgt. Michael J. Franklin**, **TSgts. Kim R. Gaestel** and **Jessie N. Garcia**, **SSgt. Justin N. Rock**, and **MSgt. Michael W. Willoughby**.

Each year, the association, in cooperation with the Air Force, selects an enlisted career field for special recognition. The members of the team are not necessarily a formal team.

Each member of this year's group met with his or her Congressman's professional staff. The airmen were asked to explain their Air Force work, but they also got to discuss current quality of life issues. Several Congressmen from Texas welcomed team members to their offices: Franklin met **Julie Hart**, military legislative assistant to **Rep. Charles A. Gonzalez** (D). Willoughby met **Todd Metcalf**, the MLA to **Rep. Max A. Sandlin** (D), while Garcia had an opportunity to talk to **Marc Lubin**, chief of staff to **Rep. Henry Bonilla** (R). Gaestel met staff members in the office of **Rep. Don Young** (R-Alaska). Rock was introduced to Kentucky Republican **Rep. Anne Northup's** legislative director, **Clinton Blair**.

■ AFA and USAF's Senate Liaison Office recently sponsored a Congressional Education Program for Senators and their professional staff to bring them up to date on a number of Air Force initiatives and programs.

The theme for the program was Air Force Modernization and Recapitalization: Bringing Technology to the Warfighter and Leveraging the Experience of our Airmen.

AFA supplied a series of storyboards that described Air Force recapitalization efforts for such programs as the C-17, the Evolved Expendable Launch Vehicle, the Space Based Infrared System, Global Positioning System III, and the National Polar-orbiting Operational Environmental Satellite System. Other storyboards covered topics such as: A-10 upgrade program, agile combat support, the F/A-22 and air superiority, joint warfighting space, long-range strike, networked operations, special operations, and unmanned aerial vehicles.

AFA Chairman of the Board **John J. Politi** and Executive Director **Donald L. Peterson** represented the association. Air Force Undersecretary **Peter B. Teets**, who is also DOD's executive agent for space, led the USAF delegation, which included **Maj. Gen. Scott S. Custer**, director of Air Force Legislative Liaison, and **Maj. Gen. Paul J. Fletcher**, assistant deputy chief of staff for plans and programs.

Among Senators at the program were **Kent Conrad** (D-N.D.), who is ranking member of the Senate Budget Committee, and **John Cornyn** (R-Tex.) and **James M. Inhofe** (R-Okla.), both of whom are on the Senate Armed Services Committee. Representing **Sen. Ted Stevens** (R-Alaska), chairman of the Senate Appropriations Committee, was professional staffer **Alycia Farrell**. **Sen. Elizabeth Dole** (R-N.C.), a member of the Armed Services Committee, sent **Christine Hill**, her military legislative assistant.

\$20,000 in scholarships as part of the event, held at the Sacramento Hilton. Lee V. Greer, chapter president, awarded the top scholarship of \$5,000—sponsored by the SAFE Credit Union—to Mellisa D'Ooge. Eight other Sacramento area high school and college students received scholarships sponsored by community businesses and the chapter.

A Future in Space

With grants from AEF and the **Hurlburt Chapter (Fla.)**, a group of students from Navarre, Fla., traveled to Huntsville, Ala., for US Space Camp.

The camp is an outreach program of the US Space and Rocket Center, a space science museum established in 1965 by the state of Alabama.

Glenn S. Rutland, the Hurlburt Chapter's VP for aerospace educa-

tion, took 27 eighth-graders from her gifted and advanced class at Holley-Navarre Middle School to the three-day space camp in April. The students learned about pilot disorientation while strapped into a multiaxis chair. They experienced G forces and a few seconds of weightlessness through a catapult device. They also used an antigravity chair to get a feel for what it's like to carry out activities in space.

Rutland said her students kept logbooks on their camp activities, noting everything from briefings on the Gemini, Mercury, and Apollo programs to a scavenger hunt in the museum. She said she had no doubt some of these students will work in the space program one day.

Military Appreciation

Utah State President Ted Helsten and Don Wardle, president of the **Salt Lake City Chapter**, represented AFA at a ceremony designating June 12 to 19 as Military Appreciation Week in Utah.

Gov. Olene S. Walker conducted the ceremony in the Capitol Rotunda in Salt Lake City on May 12. She noted that more than half-a-dozen major military events would be taking place that week, including Utah AFA's annual Focus on Defense Symposium at Hill Air Force Base and the AFA/AEF 25th annual charity golf tournament.

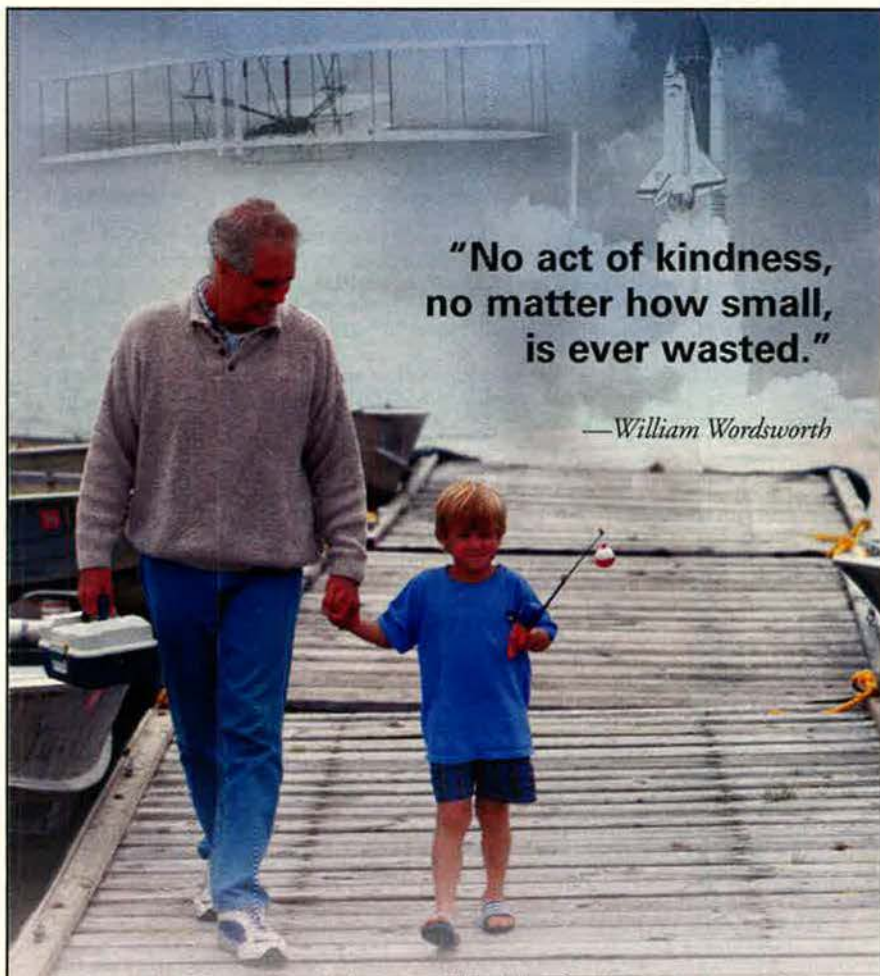
The legislation introducing Military Appreciation Week stated that, per capita, Utah leads the 50 states in enlistments and has the most Guard and Reserve troops deployed to South-west Asia.

Major Turnout at Minot

In Minot, N.D., more than 200 guests attended an April dinner, hosted by the **Gen. David C. Jones Chapter** and showcasing Commander's Choice awards.

Chapter President James W. Simons said more than two dozen community organizations donated funds to support the event, now in its 25th year. The evening's honorees came from Minot Air Force Base's host unit, the 5th Bomb Wing, and its major tenant, the 91st Space Wing, and were all selected at the squadron or group level, Simons pointed out. Other award recipients represented the local recruiting station, AFJROTC unit at Minot High School, and Civil Air Patrol.

AFA Executive Director Donald L. Peterson was guest speaker for the banquet and, in his remarks,



**"No act of kindness,
no matter how small,
is ever wasted."**

—William Wordsworth


Don't wonder whether you need a will.....everyone does. It's your plan for your family and an estate that took a lifetime to build.

Where will your property go? Who will be your heirs?

Which causes or charities that you supported during life will you want to remember in your will?

Don't give up your right to decide. Request AEF's guide sheet to assist you and your advisors in making your will.

www.aef.gift-planning.org • 1-800-291-8480
1501 Lee Highway • Arlington, Virginia 22209
AFA's Aerospace Education Affiliate





James Hannam (behind wreath) represented AFA at a Memorial Day wreath-laying ceremony at the Tomb of the Unknowns, Arlington National Cemetery. Hannam is Central East Region president.

described the association's history and its relevance to today's Air Force. Peterson had earlier paid an office call on the 5th BW commander, Col. Gregory A. Biscone, and the 91st SPW commander, Col. Mark Owen, both of whom are chapter members.

Simons took Peterson on a windshield tour of the base, including a visit to its youth center. The \$6.2 million David C. Jones Youth Center is one of the largest in USAF, with more than 38,000 square feet. It was named in 2002 for the former Chairman of the Joint Chiefs of Staff (1978-82). Jones, who is a chapter member, graduated from high school in Minot and attended the University of North Dakota and Minot State College until World War II began.

More AFA/AEF News

■ The **Greater Seattle Chapter**, headed by Lt. Fred Rosenfelder, sponsored a day-long visit to the Boeing Integrated Space Division Developmental Center by AFJROTC cadets from the University of Washington. The 35 cadets listened to presentations and toured manufacturing and assembly areas. This was Det. 910's second annual visit to the Boeing site. The company's customer relations representative, Kimberly Pon-

tius, said the cadet visit was a good example of educational and community-relations opportunities AFA can create.

■ The Great Lakes Region meeting, hosted by **Fort Wayne Chapter (Ind.)** in April, featured Indiana ANG Lt. Col. Dean Tremps from the 163rd Fighter Squadron, 122nd Fighter Wing, at Fort Wayne Arpt., Ind. Tremps,

who is the squadron's director of operations, spoke about the Air National Guard's role and the capabilities of the wing's F-16s. J. Ray Lesniok, region president and member of the **North Coast Chapter (Ohio)**, was among the AFA leaders at the meeting.

■ Representatives of the **Alamo Chapter (Tex.)** recently presented AFA Junior ROTC medals and \$150 each to top cadets from more than a dozen AFJROTC units in the South Texas area. These units included the largest one in the US, according to Kaye H. Biggar, chapter secretary and awards VP: San Antonio's John Jay High School AFJROTC unit, with more than 600 cadets.

■ The **Carl Vinson Memorial Chapter (Ga.)** held its 2003 awards luncheon at Robins AFB, Ga., in April. The 17 recipients who were honored came from the active duty and Air Force civilian sectors.

■ **Memphis Belle** pilot Robert K. Morgan, who led his B-17 crew through 25 World War II combat missions, spoke to the AFJROTC cadets at Enka High School in Candler, N.C. His visit, which took place several months before his death May 15 (see "Aerospace World: Obituary," this issue, p. 18), was arranged by **Blue Ridge Chapter (N.C.)** member Herbert M. Dove, the senior

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.

AFA on the Green...

Umbrella
Extra large 62" white and blue fabric with the AFA logo printed in white. Fiberglass shaft. \$25

Pro-Style Cap
100% cotton. AFA embroidered on front; full color AFA logo on back. Adjustable. Dark blue. \$20

Lightweight Jacket
60/40 cotton/poly blend. Available in white or tan, both with dark blue collar. Sizes: M, L, XL. \$45

Golf Club Covers
Dark blue furry headcovers. Interior lining protects and provides secure club fit. Order with "Wee wings" or full AFA logo. \$20

Zippo Money Clip
Brushed steel money clip includes ball markers and greenskeeper. \$13

Golf Balls
Titanium Top Flight balls by Wilson. Full color AFA logo. Sleeve of 3. \$8.50

To order call Toll Free 1-800-727-3337 or visit www.afa.org

aerospace science instructor at the school. Morgan, a native of Asheville, N.C., and Dove's fellow Blue Ridge Chapter member, told the cadets about his wartime experiences in Europe and in the Pacific. Morgan also led the first B-29 raid on Tokyo from Saipan in the Marianas and completed 25 more missions.

■ **The Panhandle AFA Chapter (Tex.)** awards VP, George F. Moore, presented a \$1,000 chapter scholarship to AFJROTC cadet Krista R. Warnke at an awards program at Palo Duro High School in Amarillo, Tex., in May. At the same ceremony, cadet Andrew Hannay received an AFA JROTC medal. Moore noted that Hannay is scheduled to enlist in the Air Force in August to train in aircraft armament systems. ■

AFA Conventions

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	Air and Space Conference , Washington, D.C.

Unit Reunions

reunions@afa.org

11th BG Assn. Sept. 17-21 in New Orleans. **Contact:** Phil Gudenschwager, 4116 N. 66th Pl., Scottsdale, AR 85251 (480-945-9119).

33rd Photo Recon Sq. 363rd Tactical Recon Gp, Ninth AF. Oct. 15-18 in Washington, DC. **Contact:** Leonard Gold, 3265 Perry Ave., Oceanside, NY 11572 (captgold88@aol.com).

40th BG Assn. Sept. 8-12 at the Wyndham Hotel in Colorado Springs, CO. **Contact:** Jean Suitt, 10336 Brangus Dr., Crowley, TX 76036 (800-959-2583).

43rd BG Assn (WWII). Sept. 13-19 at the Wyndham Harbor Island Hotel in Tampa, FL. **Contact:** Charles Rauch, 2329 Palm Tree Dr., Punta Gorda, FL 33950 (941-639-6421) (crauch5@comcast.net).

64th Troop Carrier Gp. September in Chickasha, OK. **Contact:** Vern Montgomery, 6744 Carlsen, Indianapolis, IN 46214 (317-241-5264).

307th BG (HV). Aug. 17-21. **Contact:** Jim Walsh, 660 Bell Rd., #1801, Antioch, TN 37013 (615-717-0421) (gatorjw@aol.com).

315th BW Assn (VH). Northwest Field, Guam. Sept. 8-12 in Wichita, KS. **Contact:** Bev Green (217-893-3197).

315th Troop Carrier Gp (WWII), all squadrons and support units. Sept. 22-26 at the Holiday Inn Downtown in Louisville, KY. **Contact:** Robert Cloer, 1417 Valley View Dr., Yuba City, CA 95993-1718 (530-674-3681) (ricloer@syix.com).

339th FG, Eighth AF (WWII). Sept. 16-20 at the Marriott Fairview Park Hotel in Falls Church, VA. **Contact:** Stephen Ananian, 4 N. Orchard Farms Ave., Simpsonville, SC 29681 (864-288-2599) (stephenanian@mindspring.com).

384th BG, Eighth AF (WWII). Sept. 8-10 at the Sixth Avenue Inn in Seattle and Sept. 11-18 on an Alaskan cruise. **Contacts:** Lloyd Whitlow, 38 Isleworth Dr., Henderson, NV 89052-6465 (702-433-5810) or Ted Royschild, 650 Snug Harbor Dr., Apt. G-402, Boynton Beach, FL 33435-6137 (561-734-5052) (flynh747@msn.com).

391st FBS. October in New Orleans. **Contact:** Leon Vial III (985-783-6618) (lcviil@aol.com).

417th BG. Sept. 16-19 at the Doubletree Crystal City in Arlington, VA. **Contact:** Robert Kunselman, 3048 Ellesmere Dr., Colorado Springs, CO 80922-1275 (719-574-4818).

435th TCG, including Hq, 75th, 76th, 77th, and 78th TCSs (WWII). Sept. 8-11 at the Four Points Sheraton in San Diego. **Contact:** Al Forbes, 1614-B Berwick Ct., Palm Harbor, FL 34684 (727-785-6075) (for76tcs@aol.com).

449th BG Assn (WWII). Oct. 10-13 at the Holiday Inn Chattanooga-Choo-Choo Hotel in Chattanooga, TN. **Contact:** Lee Kenney, 445 Maple Bluff Cir., Melbourne, FL 32940 (321-242-8654).

484th BG, Fifteenth AF (WWII). Sept. 30-Oct. 3 at the Renaissance Denver Hotel in Denver. **Contact:** Dick Olson, 10051 Julian Ct., Westminster, CO 80031 (303-460-8316) (dolson@geographix.com).

507th TFG/ARW. Sept. 17-18 at Tinker AFB, OK. **Contacts:** Bill Allen (405-771-3282 or 405-590-6428) (bda72032.70@worldnet.att.net) or Bob Kellington (405-733-2828 or 405-417-7493) (robert.kellington@tinker.af.net).

801st/492nd BG Assn, Harrington, UK. Oct. 5-10 at the Westin Crown Center in Kansas City, MO. **Contact:** William Becker, 15887 Sunnyfield Pl., San Diego, CA 92127-2056 (phone: 858-451-0490 or fax: 858-461-9453) (beeb71@aol.com).

6147th Tactical Control Gp, Korea (1950-55). Oct. 6-10 at the Doubletree-Club Hotel in San Diego. **Contact:** Steve Rooney (916-489-0476) (srooney@lanset.com).

7330th FTW (MAP), Furstenfeldbruck, Kaufburen, and Landsberg ABs, Germany (1953-60). Oct. 7-10 in Vancouver, BC. **Contact:** Diane Newcomer, 725 E. Fillmore St., Tempe, AZ 85281 (480-946-9200) (diane.newcomer@americawest.com).

AC-119 gunship, including aircrew and maintenance. Oct. 1-3 at the Hope Hotel in Dayton, OH. **Contacts:** Roger Stevens (304-584-4506) (rogac119@aol.com) or Wayne Laessig (707-594-4492) (qadvocate@msn.com).

Air Rescue Assn. Sept. 22-25 in Seattle. **Contacts:** Sandy Gonzalez, PO Box 300945, Fern Park, FL 32730-0945 (407-834-0105) (sgonzalez@cfl.rr.com) or John Holm (316-722-9484) (jholm4@cox.net).

B-47 Stratojet Assn. Sept. 23-25 at the USAF Museum in Dayton, OH. **Contact:** Dick Purdum (402-291-5247) (dickpurdum@cox.net).

China-Burma-India Hump Pilots Assn. Sept. 8-12 at the Denver Marriott City Center Hotel in Denver. **Contact:** (806-331-1160).

Pilot Class 45-A, La Junta, CO. Oct. 11-14 in Branson, MO. **Contact:** Ray Bell (404-634-4531) (rfbell@copper.net).

Pilot Training Class 54-N. Sept. 9-12 in Nashville, TN. **Contacts:** Jerry Fowler (214-352-2563) (jfowler51@msn.com) or Dick Siegman (813-681-9601) (plltrng54n@juno.com).

Pilot Training Class 84-04, Reese AFB, TX. July 30-Aug. 1 at the Hilton DFW Lakes Executive Conference Center in Grapevine, TX. **Contacts:** Robert Pagoni (badger-hogdriver@att.net) or Keith Rosenkranz (817-416-4930 or 817-368-8511) (roseyf16@attglobal.net).

SHAEF/ETOUSA Veterans Assn. Oct. 8-10 at the Westin St. Francis Hotel in San Francisco. **Contacts:** Charles Long, 1626 Hicks Dr., Vienna, VA 22181-2058 (phone or fax: 703-938-2527) (chasveralong@att.net) or Alan Reeves, 2301 Broadway, San Francisco, CA 94115-1286 (phone or fax: 415-921-8322) (aireeves@webtv.net) or William Lanham, 2230 S. Overlook Rd., Cleveland Heights, OH 44106 (phone: 216-721-0291 or fax: 216-229-0921) (wclshaeaf@att.net). ■

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 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 Pagenta, 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 Maluualua 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, 8117 75th St., S.W. Lakewood, WA 98498-4819 (253) 460-2949.

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. Herculsion, 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

Bull Goose



In the 1950s, bombers anchored the US nuclear deterrent, and Strategic Air Command was intent on confusing Soviet air defense radars. USAF developed the XSM-73 Bull Goose, an intercontinental-range decoy designed to simulate radar signatures of bombers. (This one is displayed at the Air Force Space and Missile Museum, Cape Canaveral AFS, Fla.) Plans

called for basing 10 squadrons near SAC bases and launching them with real bombers should the US actually launch an attack. The first flight of the XSM-73 occurred in June 1957. USAF planned to buy 2,000 of the Fairchild-built decoys. However, they could not simulate a B-52 radar signature, and Bull Goose was scrapped in December 1958.



Storms move fast.
So should we.

The fury of a fast-moving sandstorm is bad news. That's why we need the National Polar-orbiting Operational Environmental Satellite System (NPOESS). A remarkable technological leap, NPOESS images and data will improve warning times, giving warfighters an operational edge and an upper hand against a tough adversary — nature. The continued aggressive pursuit of NPOESS is critical because the technology is so widely beneficial. And the NPOESS team is moving quickly to make it happen.

Raytheon

NORTHROP GRUMMAN DEFINING THE FUTURE™

www.northropgrumman.com

©2003 Northrop Grumman Corporation

photo courtesy of MODIS Rapid Response Team at NASA, GSFC

The Battlespace has been Transformed.



Persistence. Reliability. Lethality. The Predator unmanned aircraft series empowers the USAF with precision capabilities to detect, identify, and strike time-sensitive targets instantly. Flying higher and faster, dwelling longer and carrying up to 3,000 lb of external ordnance, the cost-effective MQ-9 Hunter-Killer Predator B provides the USAF with continuous sensor-to-shooter capabilities for total battlespace domination.

