

February 2007/\$4

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

Strategic Force



The F-22 on Duty
High Plains Lifters
Desert Safeside



C-5M Super Galaxy.

New strategic airlift capability for
America's warfighter.

Combat proven, the C-5 delivers troops and equipment together when and where they're needed. The new C-5M Super Galaxy provides a new strategic airlift capability for America's military, delivering improved performance – 22 percent more thrust, 30 percent shorter takeoff roll and 58 percent faster climb rate – with less tanker support. A solid investment, the C-5M pays for itself, saving the U.S. Air Force billions of dollars.

www.lockheedmartin.com

LOCKHEED MARTIN
We never forget who we're working for[®]



AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION MAGAZINE

February 2007, Vol. 90, No. 2

www.afa.org

- 4 Letters
- 10 The Chart Page
- 16 Aerospace World
- 22 Index to Advertisers
- 22 Senior Staff Changes
- 28 Action in Congress
- 30 Verbatim
- 57 Books
- 66 Flashback
- 68 The Keeper File
- 76 Field Contacts
- 91 This Is AFA
- 92 AFA National Report
- 95 Unit Reunions
- 96 Airpower Classics



About the cover: B-2s on the flight line at Nellis AFB, Nev. See "Strategic Force," p. 38. Photo by Richard VanderMeulen.

2 Editorial: Ghost Dance at the Apocalypse
By Robert S. Dudney
You cannot wish away the realities of the nuclear age.

12 Washington Watch
By John A. Tirpak
Strikes in the City; High Problems of Low Numbers; 654 Airplanes on the Block

32 The Raptor in the Real World
By John A. Tirpak
The F-22 Raptor isn't a novelty anymore. It's in squadron service, pulling duty around the world.

38 Strategic Force
By Adam J. Hebert
With or without nukes, USAF's B-2s and B-52s can signal a warning or deliver a punch between the eyes.

44 Safeside in the Desert
By Rebecca Grant
Two years ago, security forces airmen mounted a campaign that still reverberates in defense circles.

50 The Pentagon Papers
By John T. Correll
A secret study of the Vietnam War set off an incredible sequence of events.



32



38

58 Bombers Over Korea
Photos from the collection of Warren E. Thompson
The Superfortresses and Invaders seemed over the hill, until they were needed in Korea.

70 UAVs—The Next Generation
By Catherine MacRae Hockmuth
The future lineup will include UAVs that can refuel, "see" obstacles, and fly in formation.

78 The 90-Year Tanker Saga
By Phillip S. Meilinger
Start with a World War I Russian pilot and go from there to US power projection.

83 High Plains Lifters
By Breanne Wagner
The Wyoming Guard and Air Mobility Command have launched the "active associate" concept.

86 Lavelle, Nixon, and the White House Tapes
By Aloysius Casey and Patrick Casey
Tape recordings from the Nixon White House shed new light on an old controversy.

AIR FORCE Magazine (ISSN 0730-6784) February 2007 (Vol. 90, No. 2) 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 2007 by Air Force Association.

By Robert S. Dudley, Editor in Chief

Ghost Dance at the Apocalypse

IN 1946, Bernard Brodie wrote, "Thus far, the chief purpose of our military establishment has been to win wars. From now on, its chief purpose must be to avert them." The famous strategist was describing deterrence—using nuclear arms solely for the purpose of preventing war. In time, the US embraced Brodie's idea.

Deterrence was then, and is now, a bleak, unloved concept. The urge simply to get rid of nuclear weaponry never faded away. Even in the deepest Cold War, activists pushed to dump deterrence and work toward global nuclear abolition.

In the wake of the Cold War, anti-nuclear sentiment has intensified, extending to pillars of the establishment. In 1998, President Jimmy Carter and retired Gen. George Lee Butler, former head of Strategic Air Command, joined the no-nukes movement.

De-nuclearization has a superficial appeal that is not hard to comprehend. The very existence of these doomsday weapons presents tremendous risks. Moreover, deterrence theory is mysterious. How does one know it is working? What happens if deterrence fails?

For all that, one is hard-pressed to deny that deterrence has proven effective. Washington and Moscow, although locked in a 45-year-long superpower rivalry, always acted with extreme caution when dealing with each other. Their behavior reflected the ever-present threat of nuclear escalation.

However, deterrence today is still taking its lumps, and from truly surprising critics.

The latest to get in the queue are none other than Henry A. Kissinger and George P. Shultz (former Secretaries of State), former Secretary of Defense William J. Perry, and retired Sen. Sam Nunn (D-Ga.), former chairman of the Senate Armed Services Committee.

These four prominent defense experts, in a stunning Jan. 4 *Wall Street Journal* essay, urged the US to undertake a big effort with other nations to create "a world free of nuclear weapons."

This, they wrote, would require a cut in US warheads, elimination of short-range nuclear weapons, ratification of the Comprehensive Test Ban Treaty, and

a halt in production of fissile material, and so forth. US "leadership" was said to be vital.

The initiative looks like a dud. It was widely dismissed as naive, even strange, for men of such experience. The next day's *Journal* carried a sharply critical letter. Its title: "Four Pollyannas of the Apocalypse."

To us, the four more closely resemble some of the 19th century Plains Indians,

You cannot wish away the realities of the nuclear age.

who performed the Ghost Dance out of conviction that doing so would restore the lost world of their ancestors. You can go through many rituals, but you cannot wish away the realities of the nuclear age.

That, precisely, is the view that comes through in a December report by another group of national security veterans—a Defense Science Board task force co-chaired by John S. Foster Jr., former head of Pentagon research, and retired Gen. Larry D. Welch, a former Air Force Chief of Staff.

The unclassified 41-page study, "Nuclear Capabilities," concludes that the US has lost its "national consensus" about its deterrent but needs to formulate a new way to state "the need for and role of nuclear weapons."

According to the prestigious panel, US efforts to maintain its nuclear weapons are being impeded by opposition from "an influential segment" of Americans—read: anti-nuclearists and arms controllers—with "entrenched views" about deterrence and nuclear proliferation.

In a particularly important passage in the study, the DSB presents not only the "entrenched views" but also alternative views which, in DSB's estimation, "need to be much more widely understood."

■ **Entrenched view 1:** "Lower numbers of US nuclear weapons are preferable, regardless of the starting point, with zero as the ultimate goal."

Alternative view: "The desirability of a nuclear-free world is irrelevant" because it's not possible to erase technology

that has been widely understood for decades. The worst outcome would be for the US to end up with a deterrent that is inadequate in the face of weapons of mass destruction (WMD).

■ **Entrenched view 2:** "US nuclear development and sustainment activity causes other states to seek ... nuclear weapons."

Alternative view: Countries acquire WMD out of calculations of national interest, "not because they mimic the United States." If anything, the credibility of US capabilities has led some nations—friend and foe—to forgo their own nukes.

■ **Entrenched view 3:** "Non-proliferation is a more important value than nuclear deterrence [of Russia and China] in a post-Cold War era."

Alternative view: No one can predict the long-term behavior of Russia and China. We have serious differences with both. In light of this, "it is naive to believe that nuclear deterrence is no longer essential to the long-term security of the US."

■ **Entrenched view 4:** "Nuclear weapons should deter only nuclear threats."

Alternative view: Reserving nuclear deterrence for nuclear threats would mark "a dramatic change from established practice" and is unwise, given the growth of severe chemical and biological threats that must be deterred.

■ **Entrenched view 5:** "Deterrence will work reliably without any new nuclear capabilities."

Alternative view: Most of today's weapons are well beyond defined service lives. It will not be possible to sustain the current weapons without replacing some old warheads with new warheads.

The report comes at a good time. The Bush Administration wants Congress to fund "Complex 2030," a collection of facilities needed to resume nuclear weapons production for the first time in 15 years. Moreover, it wants to begin building several RRW-1 Reliable Replacement Warheads as part of a full weapons program.

Congress should support these initiatives as an urgent measure. Deterrence is still worth keeping, even in a dramatically changed world. ■

THE ARMORED SECURITY VEHICLE THAT MORE THAN LIVES UP TO ITS NAME.

When tactical mission requires you to be well outside the wire, make sure your airmen are riding with the toughest/smartest protection on four wheels.

The M1117 ASV from Textron Marine & Land.

This is not some beefed-up truck. It's a true armored vehicle with three levels of designed protection and a v-shaped hull.

The M1117 ASV. For security and protection, it's very hard to beat.

Protects against
360-degree
small arms fire,
anti-tank mines
under any wheel,
and overhead artillery
burst fragments

65+ mph top speed;
tires have run-flat inserts

Exterior: modular
ceramic appliqué

www.textronmarineandland.com

WINNING TECHNOLOGY

Textron Marine & Land //
TEXTRON Systems

About the 40,000 Drawdown

Having been a member of the Air Force Association soon after I enlisted in 1993, I can't tell you how many times I have read your defense of almost every single Air Force weapon system while simultaneously complaining about a lack of budget for our nation's Air Force (almost always described as a narrowing "percentage of GDP"—as if this percentage alone should dictate how much money Uncle Sam should spend on defense). [See "Editorial: A Force for the Long Run," December 2006, p. 2.]

It is therefore astonishing to me how little time you have spent discussing the fact that our Air Force is cutting 40,000 positions from our rolls—all while fighting two wars and (additionally) using 20 percent of our airmen to fill Army taskings.

Please consider giving our active duty airman just a small percentage of the attention you give the F-22 when describing reductions due to demanding GWOT priorities. No, we can't afford the full-page ads that so beautifully decorate the pages of *Air Force Magazine*, but then I would hope we wouldn't have to.

Capt. Kenneth P. Main
Scott AFB, Ill.

The Billy Mitchell Syndrome

One condescending phrase in an otherwise interesting article may explain some of the flak directed toward Air Force officers [December, "The Billy Mitchell Syndrome," p. 52].

"Ground-pounders" is a phrase that I heard more than 50 years ago when an Air Force veteran was insulting an Army veteran. Its use in an article in your magazine is unworthy. How does this term sound to the families of deceased and wounded military personnel who served in ground forces in Afghanistan and Iraq?

Perhaps one day more Air Force people will acknowledge that airpower is only one of three essential elements in military success—air, sea, and land.

The Air Force has no monopoly in this superiority complex. Within my own ser-

vice, some in the aviation and submarine communities act and talk as if theirs is the only specialty that matters.

Pride in one's specialty and good natured ribbing between communities is natural and harmless. When it evolves into arrogance, it is dangerous, destructive, and harmful to the nation's security.

Go, team, go.

Cmdr. Walter Dunn Tucker,
USNR (Ret.)
Richmond, Va.

Flying Tigers

I'd like to commend Mr. John T. Correll for his outstanding article about the Flying Tigers in the December 2006 issue of *Air Force Magazine* [p. 36]. As you know I was a member of both the original American Volunteer Group (AVG) Flying Tigers and its successor combat unit, the 23rd Fighter Group. In fact, I activated the 75th Fighter Squadron on July 4, 1942 when the AVG was officially disbanded, and I served as its very first commander. The 23rd Fighter Group was activated the same day the AVG was disbanded. The group continued to call themselves "The Flying Tigers." It consisted of the 74th, 75th, and 76th Fighter Squadrons, and the 74th and 75th Fighter Squadrons are still in existence to this day, flying A-10s. The photograph shown on pp. 36 and 37 of John Correll's article is a 75th Fighter Squadron P-40E Warhawk. When this photograph was taken, my good friend, Johnny Alison, had just

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

Publisher

Donald L. Peterson

Editor in Chief

Robert S. Dudley

Editorial

afmag@afa.org

Editor

Suzann Chapman

Executive Editor

John A. Tirpak

Senior Editor

Adam J. Hebert

Associate Editors

Tamar A. Mehuron

Marc V. Schanz

Breanne Wagner

Lauren Bigge

Contributors

John T. Correll

Walter J. Boyne

Bruce D. Callander

Rebecca Grant

Peter Grier

Tom Philpott

Production

afmag@afa.org

Managing Editor

Juliette Kelsey Chagnon

Assistant Managing Editor

Frances McKenney

Editorial Associate

Dina Elshinnawi

Senior Designer

Heather Lewis

Designer

Darcy N. Harris

Photo Editor

Zaur Eylanbekov

Production Manager

Butch Ramsey

Media Research Editor

Chequita Wood

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

Patricia Teevan • 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..... fldsvcs@afa.org

Government Relations..... grl@afa.org

Industry Relations..... irl@afa.org

Information..... information@afa.org

Member Services..... service@afa.org

Policy & Communications (news media).....
polcom@afa.org

Magazine

Advertising..... adv@afa.org

AFA National Report..... natrep@afa.org

Editorial Offices..... afmag@afa.org

Letters to Editor Column..... letters@afa.org

Eaker Institute..... eaker@afa.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 educate the public about the critical role of aerospace power in the defense of our nation.

To advocate aerospace power and a strong national defense.

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

Letters

succeeded me as commander of the 75th FS.

While the article is a well-written piece, the one thing that troubled me was Mr. Correll's reference to Mr. Daniel Ford's book, *Flying Tigers*, which is much disputed by those of us who are surviving members of the AVG Flying Tigers. In his book, he admits that the Japanese did not have any records, and we simply do not accept his reliance on interviews with surviving pilots concerning the number of kills by AVG pilots. With the Japanese propensity for saving face, it's hard to imagine that these pilots were going to admit to losing larger numbers of aircraft downed by the AVG or any other combatant. Mr. Ford seems bent on discrediting the AVG, in my opinion, and especially maligning Claire Chennault in the process. There are certainly other more creditable sources that should be used when writing about the AVG. The one that is endorsed by the Flying Tigers Association is Claire Chennault's autobiography, *Way of a Fighter*.

David Lee "Tex" Hill
San Antonio

Thanks to John Correll for his excellent article on the Flying Tigers. Regardless of the version of history one chooses

to accept, it's clear the original Flying Tigers were skilled, courageous airmen. I'd like to add an addendum to Mr. Correll's article by noting that the heraldry of the Flying Tigers lives on in the current-day 14th Air Force. As the AF's space operations numbered Air Force, we like to think we embody the spirit and innovation that characterized those original Flying Tigers. We're proud to inherit their heritage, and that we've moved from P-40s to a different kind of flying machine more appropriate to our mission. I believe Gen. Chennault would embrace the modern-day Flying Tigers—and maybe even smile.

Maj. Gen. William L. Shelton,
Commander, 14th Air Force
Vandenberg AFB, Calif.

The picture of the P-40 with seven pilots was not the AVG. This was the 75th Fighter Squadron, 23rd Group, and sometime after the AVG disbanded on 4 July 1942. All pilots shown were 75th, as was also the '40 itself (a later model than the AVG flew). In another picture (p. 41), showing Robert Scott with Chennault, please note he was not in the AVG either, although he flew some missions as an observer with its pilots.

THE PROOF IS IN THE PADDING™



Average impact performance at 3m/sec (-10 ft/sec)*

Tested at two independent laboratories



Legend: ■ USMC (w/Oregon Aero® pads) ■ MICH/ACH (w/Oregon Aero® pads)

GSA Schedule #GS-07F-5489R. *Helmet impact tests conducted by independent laboratories to modified 49 CFR 571.218 per U.S. military instructions. Resulting helmet performance data presented relative to the Association for the Advancement of Automotive Medicine's "Abbreviated Injury Scale-1985 Revision."

With all the noise out there about helmet pads, here's what you should know about Oregon Aero® ballistic helmet liner pads. They're: **Pain-free** (troops report sleeping with their helmets on!). **Safer** (our pads exceed the original, more stringent impact specifications of the U.S. Special Operations MICH helmet). **Stable** (even with night vision goggles or in a prone position). **Moisture and waterproof** (impact levels remain consistent). **Positively buoyant** (safer in water-fording and amphibious conditions). **Guaranteed.**

While specs for the MLW and ACH are less stringent than those for the MICH, allowing more helmet pads to be available, the patented Oregon Aero® pads exceed the tougher specs of the Special Ops MICH and can be used in the PASGT, MLW, ACH, MICH and other helmets. Everything we hear from troops in the field—many in combat zones—tells us Oregon Aero® pads are the pads of choice. See our website for more independent test data and real-life, unsolicited testimonials.

What's most important?

Helping troops stay safe.

Where's the proof?

The Proof Is In the Padding.™



Painless • Safer • Quieter™

Oregon Aero, Inc. 800-888-6910
Order directly at www.OregonAero.com

While units sequent to the AVG's disbanding, those in the CATF and following that, the 14th AF, sometimes proclaimed themselves as "Flying Tigers," they were not in the AVG. I write as a pilot of the 75th in a period some time after the picture was taken. While the 75th established its own outstanding record, it did not compare with the AVG.

You cited a kill ratio of "at least 10 Japanese airplanes shot down for every one they lost." That is an inaccurate picture. The AVG lost 12 pilots, but only four in air-to-air, which is the real measure of the kill ratio. Considering that the AVG had 297 confirmed kills, the ratio should have been cited as 74-to-one. Couple this to the fact that some of the fighting took place over open water or jungle, where a downed plane quickly disappeared without anyone being able to get a confirmation, the actual figure of downed planes undoubtedly exceeds the recorded number.

I am aware some historians offer different figures, particularly one who said he verified his figures by checking with Japanese sources. However, I question the reliability of one who defends his loss by claiming it did not happen.

Churchill compared the AVG with the record of the RAF in the Battle of Britain—a poor comparison as it was

only about three-to-one. Some have also claimed the Israel Air Force did better than the AVG in its brief war with Syria. Again, that is a poor comparison. The Syrian Air Force was a farce, untrained, undisciplined, and flying planes inferior to the Israelis'. The situation with the AVG was exactly opposite. The ancient P-40s were inferior to the Japanese planes, flown by pilots who had been trained to near perfection, while the AVG pilots had not much more than an "introductory course" in their P-40 training in the few months before the war.

The AVG produced a record in air combat that exceeded anything already on the books, one not equaled during World War II, and one that will stand without serious challenge.

One last comment: It was not until 2001 when the United States government, to its everlasting shame, finally granted AVG members veteran status—after most were already dead. Whether this is the result of chagrin at being shown up by those not considered "military," institutional inertia, or simply grudge, I don't know. I'm willing to let historians settle that. However, it was grossly unfair to wait until that year to do it.

I suspect you may receive other letters on this article, from those with

more personal knowledge of the AVG than I have.

Lt. Col. Wallace H. Little,
USAF (Ret.)
Marshall, Tex.

This is in regard to the article in the December 2006 issue of your magazine titled "The Flying Tigers," by John T. Correll. I have nothing but praise for the article itself except for the labeling of the P-40 as "obsolete" when first purchased for the AVG. How a 300+ mph fighter plane with a 1,000+ hp engine, six guns, armor plate, self-sealing fuel tanks, and a good rate-of-roll could be called obsolete in 1941 is beyond my comprehension.

However, the sidebar on p. 42 does need some clarification, if I may be so bold.

First, the statement that "more than 14,000 were produced" is in error. Actual production of the P-40 series totaled 13,738.

Second, the P-40 was used by 13 nations, not 28. These were: the USA, Great Britain, France, Canada, Australia, New Zealand, South Africa, the USSR, Brazil, Turkey, China, the Netherlands East Indies, and Egypt. An RAF Belgian squadron used some in West Africa so that could be one more. In addition, several were captured and used by the Japanese and one, captured from the Russians, was used by Finland.

As to the identity of the AVG P-40s: Those 100 Tomahawks released to China by the RAF all bore serial numbers of Tomahawk IIBs. The H-81A-3 designation has only appeared once officially, to my knowledge, in a reference titled the "C-W Designation Book" in the hands of Mr. Joe Christy during the early 1970s. My own research has, so far, given all the Tomahawk IIBs the Curtiss designation of H-81A-2. The H-81A-3s were listed as 100 aircraft diverted from a British order. The assumption has been made that this designation was a special one just for the Chinese/AVG aircraft. As China purchased only the airframes from Curtiss, all the equipment such as engines, guns, radios, etc., had to be bought separately. The engines themselves were put together from spare parts by Allison. So it is possible that those AVG P-40s could have had P-40B-style fuel tanks.

My thanks for your time and I hope this clears up some points for the author.

Eric H. Hart
Milwaukee

The Gunship's Creator

The article in your December issue, like many others about AC-130s, fails to give credit to the individual who fathered this "hare-brained idea" [December, "The Night Shift," p. 44]. I was

ARMY
AIR FORCE
NAVY
MARINES
COAST GUARD

CHALLENGE COINS

SymbolArts® has proudly served all branches of the military for more than twenty years, making sure that each coin produced is a perfect fit for each unit. These coins bring a sense of identity and can be used to build unity and cooperation in any group. A unit's beliefs and standards are captured in these detailed symbols and are remembered for a lifetime.



COINS, PATCHES, KEY CHAINS,
PINS & AWARDS

- ★ CUSTOM DESIGNED
- ★ VIBRANT COLORS
- ★ VARIETY OF FINISHES
- ★ FINE DETAIL & RELIEF
- ★ VARIETY OF EDGES

FOR FREE artwork &
QUOTE, CALL

888-379-6265

www.symbolarts.com

MENTION THIS AD AND RECEIVE
15% OFF YOUR FIRST ORDER*

SOME RESTRICTIONS MAY APPLY

a test engineer at Eglin in the mid-60s when my boss called me in and told me that some strange captain named Ron Terry had flown in from Wright-Pat with a C-131 and was trying to find a gun he could mount sideways and fire out the bailout door. My project at the time was the SUU-11A gun pod which mounted the first minigun installation, so it seemed like that might work. To make a long story short, we managed to work our way through an aircraft mod package and a range safety review in about two weeks. Since I was flying with Test Ops at the time and was familiar with the range control and safety procedures, and also with the gun system, I was nominated to go along as the first lateral firing gun mechanic. We used up about 1,500 rounds of 7.62 mm ammunition shooting up a barge in the Gulf using various tactics like low-level flybys and pylon turns. Ron captured pictures of this with a modified gun camera looking through the gunsight and used them as part of his report back at Wright-Pat.

These convinced the powers that be that this weird idea might work, and maybe six months later he showed up at Eglin again with a C-47 modified to mount multiple M-60 machine guns firing out through the windows. They turned out to not work too well, so he stole my preproduction test articles and the lieutenant who worked for me, Ralph Kimberlin, and took everything to Vietnam. That was where a new legend of "Puff the Magic Dragon" was born. Of course bigger is better, and longer range is safer, so the lateral firing standard changed from AC-47 to AC-119 to AC 130 over the years, with larger weapons and newer equipment, but the fact remains that without "that crazy captain from Wright-Pat" the gunships would probably never have come to be. Ron Terry deserves the credit for having had a vision and seeing it through.

Lt. Col. John F. Harvell,
USAF (Ret.)
Merrimack, N.H.

"The Night Shift" story in the December issue of *Air Force Magazine* contains a misleading statement.

The caption on the bottom of p. 46 states that the C-131 was one of the "successful gunships" of the past. In fact, the C-131 "gunship" was not a success, it did not go beyond initial testing at Eglin AFB, and it was never used in combat.

MSgt. Jim Walker,
USAF (Ret.)
Dayton, Ohio

An Accident-Free Force?

In Otto Kreisher's article "Toward Zero Mishaps" [December, p. 58], he uses a Hill AFB F-16 pilot as an example of how "failure to follow the right procedures can lead to mishaps."

The author gives the following report of the March 2006 crash: "The pilot apparently was so preoccupied with the engine emergency that he forgot the cardinal rule: Fly the airplane first. The Falcon slowed down and stalled, forcing the pilot to eject."

Immediately following the accident, Air Combat Command dispatched a Safety and Accident Investigation Board to the scene to determine the cause and prevent future accidents of a similar nature. After several months, ACC released the conclusive AIB report and corresponding news release.

The AIB determined that the engine's No. 4 bearing assembly failure reduced engine thrust to a point where the aircraft would not maintain level flight. Because distance to the nearest recovery field was beyond the aircraft's glide capabilities, it was determined that the aircraft was unrecoverable.

Because Mr. Kreisher's article implies the accident was due to pilot error, I ask your publication to run a correction as soon as possible. The failure of the No. 4 bearing was undetectable, and the pilot followed proper procedures before determining the aircraft to be unrecoverable and ejecting.

I appreciate your help in ensuring correct information about the accident is passed on to the public. We appreciate your support.

2nd Lt. Beth Woodward,
Chief of Public Affairs
388th Fighter Wing
Hill AFB, Utah

More on Lavelle

I read with interest the article by John Correll on the ouster of Gen. John D. Lavelle (November, p. 58). As a brigadier general in 1968, I was elected by Lavelle as his deputy for operations in the Defense Communications Planning Group (DCPG), which was a cover for the development of seismic and acoustic sensors to detect primarily truck traffic on the roads that made up the Ho Chi Minh Trail in Laos. It was also known as the Igloo White Project. In 1969-70, he sent me to command Task Force Alpha located at Nakhon Phanom, Thailand. TFA was the infiltration-surveillance center where sensor data relayed through EC-121 aircraft was processed by large computers—the speed, direction, number, and location of the truck traffic, as well as transshipment and storage areas

were sent to FACs to direct immediate strikes and to 7th AF for subsequent Arc Light bomber targeting.

This idea was the brainchild of the Scientific Advisory Board and embraced by McNamara who made it a priority development under the direct control of SECAF Harold Brown and using primarily Air Force funds to budget it. Gen. Ryan thought it a flawed concept and a waste of time and Air Force money.

Harold Brown, on one of his visits to 16th AF at Ramstein, had several briefings by then-Maj. Gen. Lavelle and was astounded by his detailed knowledge of specifications and functioning of every element of weapons systems and operations in 16th AF in response to his, even trivial, questions. Not once did he need the support of any of his staff. He was the consummate micromanager (as was Brown). Therefore, when the position of director of DCPG came open, he personally appointed Lavelle to the job and promoted him to lieutenant general outside of the AF system. This did not sit well with Gen. Ryan, who did not have the same appreciation of Lavelle's qualifications as the SECAF.

With his close relationship with Brown and knowing that McNamara wanted to accelerate the Igloo White operational date, Lavelle pushed hard and was able to divert valuable AF assets to his program. This also did not please Gen. Ryan. I attended several meetings between the two, and there was no love lost. It was quite apparent to Gen. Ryan that he had little control over Lavelle with his direct access to DOD and Brown, even to his selection and assignment of AF personnel. Also, Lavelle was able to bypass 7th AF/13th AF at Clark AFB and 7th AF in Saigon and personally direct many operations at TFA in Thailand.

In 1971, when the job of commander 7th AF came open, Brown, over Ryan's objections, appointed Lavelle (who had no operational experience) and promoted him to four stars. So, the battle lines were drawn. All that was left was for Lavelle to "screw up" and Ryan would crucify him. And it happened—there could have been other outcomes less injurious to the Air Force had Ryan not been focused on extracting his pound of flesh. He had every right to be upset by Brown usurping his prerogatives and Lavelle's freewheeling antics and promotion to full general. But the effective disciplining of the man could have been achieved without all the ruckus, had Ryan used the more subtle pressures at this disposal and a little more political astuteness. In the final analysis, the stalemate was

broken when Lavelle, not wanting to fight any longer, compromised—and this is important—he would accept his demotion to major general and retirement if he would get 100 percent military disability (not VA disability), which meant a substantial increase in his total retirement compensation.

In my three years of a very close relationship with Gen. Lavelle, while frustrated by his micromanagement style, I admired his devotion to his job—his job was his life. Seven-day work weeks were the norm, and his workaholic civilian bosses rewarded him accordingly. Supremely confident, he did not fear “stove piping” Gen. Ryan. After all, he got his third and fourth stars!!! On a personal note, being Lavelle’s prime military deputy for those years did not especially ingratiate me with Gen. Ryan or enhance my prospects for further advancement—but it was an intriguing “wild ride” while it lasted.

Brig. Gen. Chet Butcher,
USAF (Ret.)
Fort Myers, Fla.

Regarding the John Correll piece on Gen. John Lavelle and resultant letters, I’m reminded of my first day as AC-47 combat tactics officer at HQ 7th Air Force in late 1968. The directorate’s office was empty save for a clerk and an officer who was composing a trip report that would go directly to the director of operations. In response to my question of “What’s my job?” Major Jerry Watson replied, “Anything you’re man enough to do.”

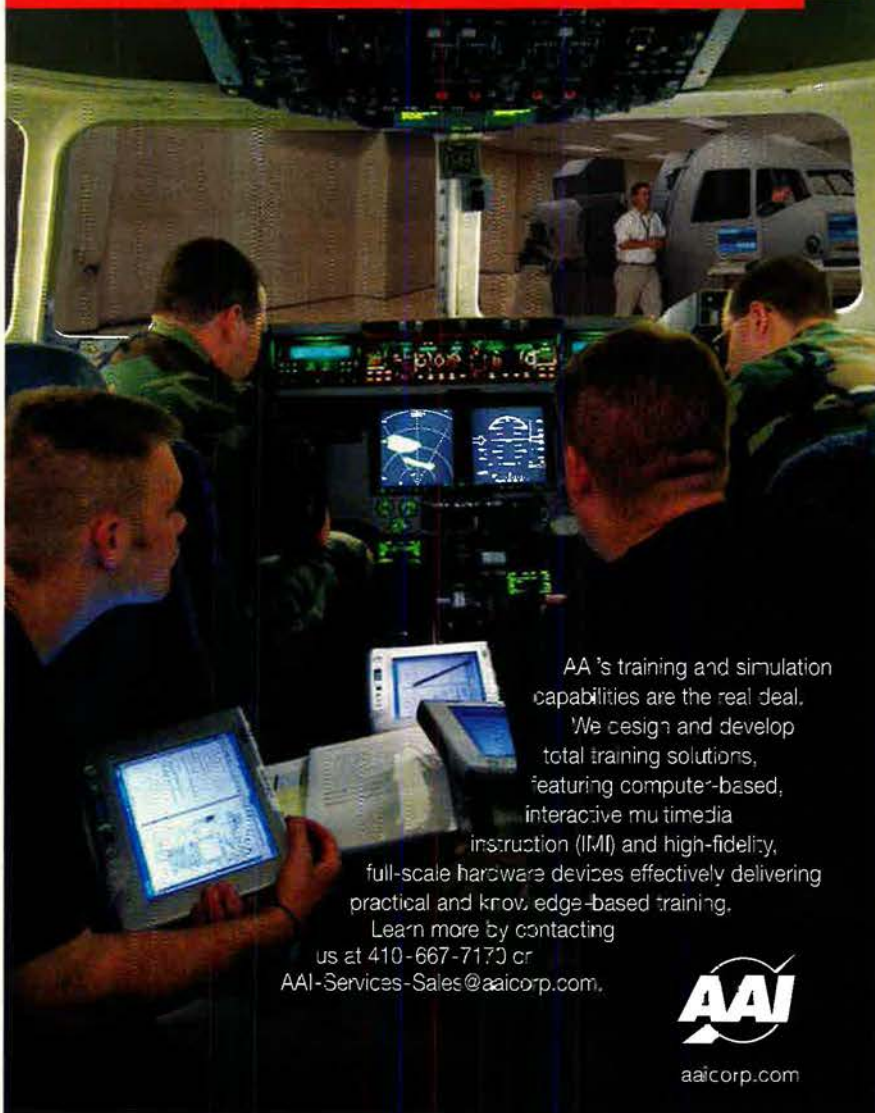
Anyone having experienced Vietnam (or having read its extensive literature) should realize that Gen. Lavelle and many others were thrust into circumstances that tested their manhood. Gen. Lavelle’s misfortune was that he was not serving under Napoleon, who on Nov. 2, 1809 wrote to Marshal Jean-Baptiste Bessieres: “Be of firm character and will. ... Overcome all obstacles. I will disapprove your actions only if they are fainthearted and irresolute. Everything that is vigorous, firm, and discreet will meet with my approval.” I suppose the general wasn’t “discreet” enough and therefore had to take the fall.

Col. Kenneth L. Weber,
USAF (Ret.)
Borden, Ind.

Airpower Classics

Thank you for the “Airpower Classics,” p. 88, December 2006. Aircraft capsules like this bring our heritage to mind and inspire us to “dig a little deeper” into our aviation knowledge memory bank. My deceased father, Lt. Col. John F. Thornell Jr., USAF (Ret.), achieved 13 aerial victories in the P-51B *Patty Ann II* and was as-

AT AAI, TRAINING AND SIMULATION SOLUTIONS ARE REALITY.



AAI's training and simulation capabilities are the real deal. We design and develop total training solutions, featuring computer-based, interactive multimedia instruction (IMI) and high-fidelity, full-scale hardware devices effectively delivering practical and knowledge-based training. Learn more by contacting us at 410-667-7173 or AAI-Services-Sales@aaicorp.com.

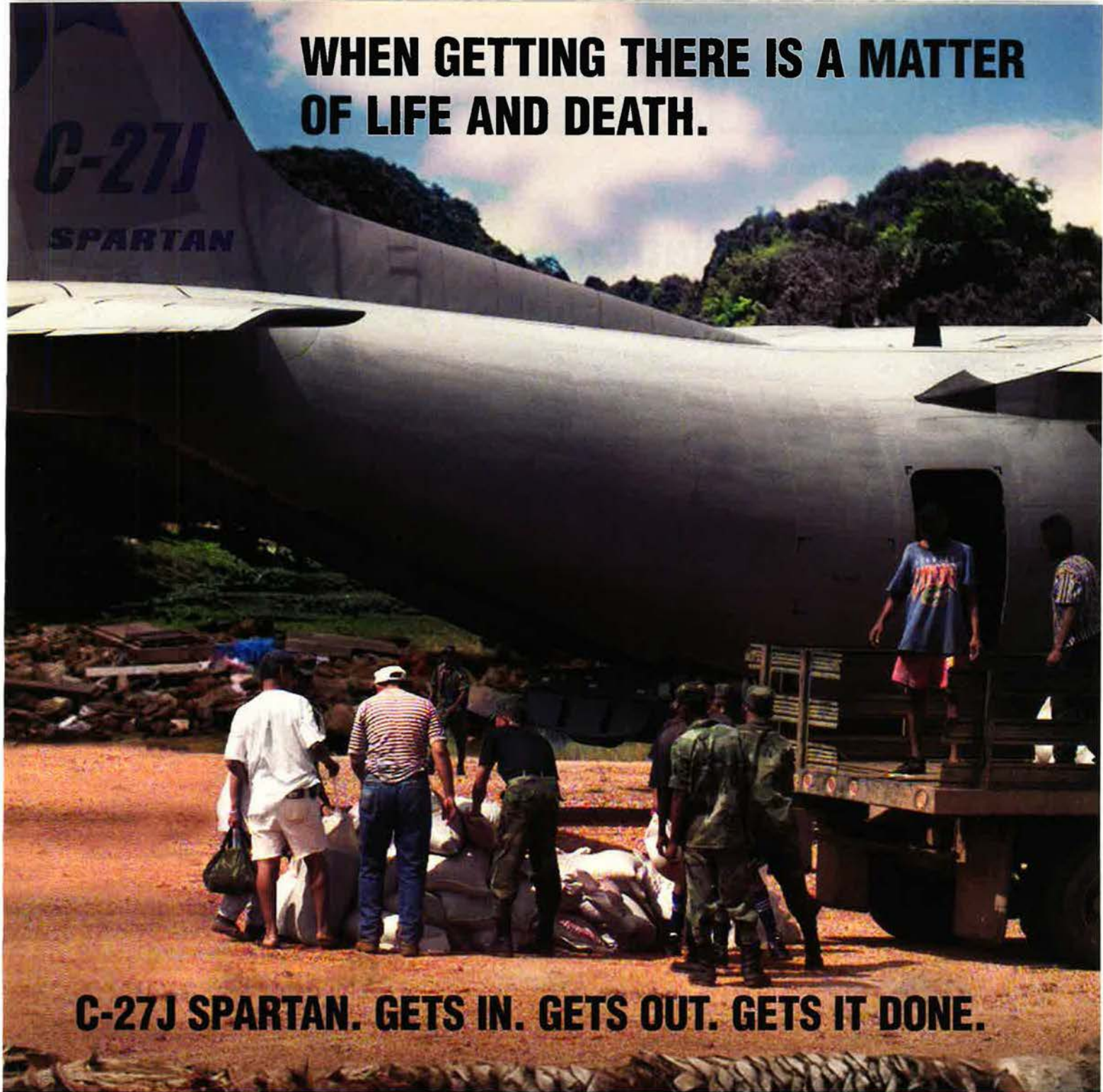
AAI
aaicorp.com

signed to the 352nd FG as a proud “blue-noser.” Our heritage is a critical piece of our present and future Air Force and displaying it with technical details and personal facts allows us to fondly recall the quality P-51B aircraft, the proud airmen who flew her, and the outstanding Air Force we have become, in no small part from their service. It is also an excellent diversion from the painful realities of the budget tightness, the drawdown of our force,

and the necessary recapitalization effort. In every timeframe of our Air Force history tough calls have been made, sacrifices have occurred, and excellent results have been attained. Keep the “Airpower Classics” coming as they help us use our proud heritage to bolster and understand the need for our present decisions and actions.

CMSgt. Joseph E. Thornell Sr.,
Superintendent, CCAF
Maxwell AFB, Ala.

**WHEN GETTING THERE IS A MATTER
OF LIFE AND DEATH.**



C-27J SPARTAN. GETS IN. GETS OUT. GETS IT DONE.

Hurricanes. Tsunamis. Earthquakes. Floods. One of the National Guard's most challenging missions is disaster response. The C-27J Spartan Joint Cargo Aircraft's (JCA) best-in-class speed, payload, range and performance in austere environments make it perfect for transporting time-sensitive aid and personnel to where they are needed most, even if there isn't a runway.

WWW.C-27J.COM **C-27J TEAM**



ABE: ALIGNING TOMORROW'S GENERATION OF USAF FIGHTERS. AND TODAY'S.

CAUTION
DOORS FORWARD OF INLET
DUCKS MUST BE CLOSED
DURING ENTIRE OPERATION

The maiden test flight of the U.S. Air Force next-generation F-35 Lightning II Joint Strike Fighter in mid-December was achieved with sensors and systems aligned by AAI's Advanced Boresight Equipment (ABE) Model 310A.

The Air Force has ordered 28 ABE systems for use on its C-130 gunships, C-17 Globemaster III transports, and C-130 AMP aircraft.

Other U.S. military platforms using ABE Model 310A systems are the Navy/Marine Corps AH-1W, MH-60R, and AH-1Z, and the U.S. Army's AH-64D and new Armed Reconnaissance Helicopter. In fact, AAI's ABE team has developed more than 60 aircraft-unique boresight adapters.

ABE Model 310A is the perfect candidate for today's F-16 Fighting Falcon and F-15 Strike Eagle boresight requirements, and it can transition to future Lightning II boresight needs.

Contact us at ABE@aaicorp.com or 800-655-2616.



An ABE system from AAI aligned sensors aboard the F-35 Lightning II on its inaugural test flight.



INNOVATION THAT WORKS.™

boresight.com

Washington Watch

By John A. Tirpak, Executive Editor

Strikes in the City; High Problems of Low Numbers; 654 Airplanes on the Block

Demands of the Urban Air War

The Air Force needs to improve its urban warfare capabilities and would greatly benefit from both new concepts of operations for cities and dedicated R&D aimed at producing new weapons tailored to combat in built-up areas.

So said the Air Force Scientific Advisory Board in a report made publicly available in the fall.

"Air Force Operations in Urban Environments" was a 2005 SAB summer study. It was circulated to a variety of defense agencies before being publicly released.

Setting the scene, the SAB noted that, in urban terrain, "many of the advantages of airpower are diminished." Buildings both short and tall get in the way of weapon flight paths. They also interfere with communications and targeting systems.

Moreover, urban targets "are typically small and fleeting," leaving little time for action. Many of the weapons USAF now has simply make too much of a blast to use with civilians close by.

In short, while "warfare in open terrain is essentially two dimensional, ... warfare in urban terrain is emphatically three dimensional" and requires different thinking.

After considering how the Air Force now prosecutes urban warfare—an increasingly common application in Iraq—the SAB made several observations.

First, the Air Force, being a "three dimensional" service, "brings a critically important vertical dimension to urban ops." The AC-130 gunship and the Predator drone, armed with Hellfire missiles, are considered "star performers" in the urban setting and are much in demand by theater commanders.

However, the service is hampered by the terrain not only on the ground, but in the ability to stack up many aircraft over a tight ground area. The SAB wants the Air Force to work on better airspace management tools in such confined spaces.

The Air Force doesn't have a concept of operations for urban operations, the SAB said, advising that it is "extremely important" that one be developed and made part of the "overall structure of the Air Force." Once in place, it should be incorporated into the training curriculum, "and we will then be able to send both Air Force and joint command personnel to the field fully trained in urban ops."

Additionally, air support in urban operations should not be considered a doctrinal "lesser included case" of conventional close air support, as it is now. In an urban setting, CAS should be available "in single-digit minutes (ideally, one to two minutes)," the SAB said.

The SAB said the urban environment is the "most stressing case" for several capabilities, and improving USAF's ability to prosecute such targets will also "enhance other missions."

Such capabilities would be, first, in developing automated intelligence-surveillance-reconnaissance capabilities, such that when targets are spotted, if they are moving, they would be tagged and followed automatically, with locations constantly updated in a geo-locator database.

There should be continued work on developing 3-D mapping capability using lasers, as well as "staring ISR" systems. All Air Force sensors should be upgraded with "autonomous geo-registration capability."

USAF photo



The AC-130 gunship does good work on the street.

The SAB said nonlethal weapons, such as directed energy, are ideal for the urban environment and urged the Air Force to pursue them, since they are highly specific and have a tailorable amount of power. Development of such weapons should be put "on an equal footing" in priority "with more conventional weapons."

Even so, "there is still a clear need for kinetic weapons with yields considerably lower than currently available." The SAB said the Air Force should develop munitions that could be used safely within 164 yards of either friendly forces or noncombatants. The new Small Diameter Bomb is expected to address some, but not all, of this requirement.

It would also be useful if the pilot in an attacking airplane could select in the cockpit the amount of blast the weapon produces, the SAB said. Small munitions able to maneuver in the tight "canyons" of a big city are another weapon that will be needed to enhance urban operations. These weapons should be able to descend "at low speed," both to make targeting more precise and to limit the kinetic effects of a fall from high altitude.

The Air Force should have a dedicated and rationalized science and technology plan for developing all such capabilities, and they should be pursued in coordination with the other services, the SAB asserted. The service doesn't have such a master plan or roadmap now.

Finally, the SAB recommended that the Air Force invest heavily in developing modeling and simulation tools to help it figure out how to operate better in urban situations, particularly for dress rehearsal of combat missions.

House Panel: US Gets Less With Less

The Pentagon—and the Air Force—has long held that

Bell Boeing

QUAD TILTROTOR

SAY "ANYTIME, ANYPLACE" AND MEAN IT.

The Bell Boeing Quad Tiltrotor (QTR) is the next transformational leap in future theater lift. With both vertical and short takeoff/landing capabilities, it can self-deploy more than 2,100 nautical miles with 16 tons of payload. In theater, QTR can deliver nine 463L pallets or other payloads weighing up to 32 tons when they are needed most. Simply put, it gets the mission done where others can't.

© 2007 Bell® Helicopter Textron Inc., all rights reserved.





USAF photo by TSgt. Ben Bickler

The F-22 is good, but not that good.

modern weapon systems are so powerful and capable that they can replace older platforms at a less than one-for-one ratio. Case in point: OSD insists that 183 F-22s can do the job of 722 F-15s.

A detailed study by the outgoing Republican-led House Armed Services Committee directly challenges that assumption.

While acknowledging that new systems—such as fifth generation fighters—are significantly more capable than older fighters, the true costs of a numerically smaller force haven't been taken into account, the House panel said. Fewer systems leads to reduced flexibility. It also undermines the US defense industrial base.

The findings were among many in the so-called Committee Defense Review, written in response to DOD's own Quadrennial Defense Review.

"A shrinking number of platforms reduces strategic depth and flexibility," the HASC maintained. Reducing the number of platforms per mission area increases their individual operating tempo, thereby accelerating the rate at which they wear out, the CDR found.

The less-than-one-for-one replacement scheme "makes it more difficult to influence the strategic environment through military presence," the report noted.

Moreover, the study went on, a dwindling number of systems "weakens the defense industrial base and limits the ability to support a long conflict. The committee believes that these costs exceed the benefits" of the less-is-more force structure.

The committee expressed particular concern about the ability to build tactical aircraft.

"Today, DOD has only two fixed-wing combat aircraft programs under way," it noted: the F-22 and the F-35.

"Cuts to either program could significantly undermine the US industrial base at a time when foreign modernization trends in both ground-based air defense and aircraft are calling US predominance into question."

A weaker industrial base, the HASC said, "may not be capable of quickly adapting or responding to sudden changes in threats." It concluded that "some programmatic decisions may have to be made on the basis of preserving US production capabilities, not solely in response to current threats."

The HASC made similar comments about the shipbuilding industrial base, which it said has gone from "the largest in the world to near extinction in less than a generation."

The CDR also took a shot at the practice of "gapping," in which an older system, growing more costly to maintain, is retired before its replacement is in hand. The committee wrote specifically about Air Force bombers and tactical transports, but the practice applies to Navy ships and other systems as well. The HASC argued that gapping is a dangerous gamble.

"The US government should not retire ... current operational systems before proving and deploying new capabilities," the CDR said. "The committee appreciates the fiscal constraints that drive DOD to retire older systems, but notes with alarm that 'gapping' capabilities in such a way unnecessarily increases risks to US national security."

In an environment in which commanders and experts alike "consistently emphasized that the armed forces need more ISR assets at every level of command," the HASC was puzzled that the services don't make existing systems more robust and invest adequately in next generation systems. The Air Force, for example, after long touting the E-10 Multisensor Command and Control Aircraft as an urgent requirement to replace or augment both E-3 AWACS and E-8 Joint STARS—as well as a lynchpin of defense against cruise missiles—demoted the E-10 to a mere technology demonstrator and vacated most of its funding.

"ISR units do not achieve planned levels of operational availability," the HASC said. "In fact, their availability rates are generally lower than those of combat units. As a result, the committee believes that ISR capabilities and capacity need to increase over and above their current ratio."

Besides the fact that the ongoing wars in Iraq and Afghanistan are causing a chronic ISR shortfall, the CDR also said that the Air Force's space-based ISR capabilities "do not meet anticipated requirements through 2018."

The Hit List: 654 Airplanes

In December, the Air Force blitzed Capitol Hill with a new briefing and brochure aimed at explaining the urgency of retiring many of its older airplanes. The service has gotten Congressional relief in being allowed to retire some "old iron," but still has a long way to go.

For the first time, the Air Force revealed that it wants to retire



Photo by Richard Vandenberg

F-117 (foreground) may be put out to pasture.



USAF photo

USAF wants U-2s in mothballs.

to retire 654 airplanes through Fiscal 2013. That figure includes 12 different types, ranging from 157 F-16s and 95 F-15s to four E-4B flying command posts. The service wants to completely retire the F-117 attack aircraft, T-37 trainer, and U-2 spyplane.

The briefing revealed the stark fact that “increased age of the current aircraft inventory has [a] serious effect on readiness. In fact, only two in three aircraft are ready for flight today.” Even if all the aircraft the Air Force expects to buy in the next six years are actually bought, the average age of the fleet will rise from 24 years to 26.

The costs to maintain the aging fleet are soaring, USAF said, “particularly the maintenance of deteriorating aircraft structures, wiring upgrades, and increased flight restrictions, due to safety concerns and mechanical problems.”

The service is spending 20 percent of its procurement budget on modifications, “the highest percentage in the history of the Air Force.”

Still, USAF is struggling with Congressional restrictions on what can be retired. It wants to get rid 78 KC-135 tankers in Fiscal 2007, but Congress will only permit 49 to be removed from service. Congress completely blocked retirements of the U-2, partly because a successor capability is not yet in hand (See “House Panel: US Gets Less With Less,” p. 12). Some retirements have been blocked as a way to prop up constituent workforces.

The Air Force noted, though, that of the 354 aircraft it asked to get rid of in Fiscal 2007, Congress agreed to 302, but 108 of those face further strings as to when they can be totally withdrawn from service. Congress prohibited 52 airplanes from being taken out of duty.

“Congress must allow the Air Force to manage its future” by permitting divestiture of the older airplanes and agreeing to buy new replacements, the service argued.

Flattening Cost of Ownership

Fans of the public radio show “Car Talk” know that one should not expect the steeply rising costs of maintaining a car that is older than six years to keep shooting up forever. The annual maintenance costs will eventually flatten out and the costs of keeping an older car get more predictable.

According to a RAND report released in December, the same pattern seems to apply to old commercial airliners and may—may—suggest that the cost of managing the Air Force’s inventory of aged big airplanes could flatten out, as well.

In “The Maintenance Costs of Aging Aircraft: Insights From Commercial Aviation,” USAF Capt. Matthew C. Dixon reviewed the actual maintenance experience of commercial

airline operators. According to his data, Dixon found that maintenance costs of big airplanes tend to rise steeply for the first 12 years of operations, but then the increase begins to taper off, rising only very gradually afterward. Between six and 12 years of age, maintenance costs per flying hour tended to increase 3.5 percent per year of aircraft age.

The Air Force operates aircraft of a similar size and, in some cases, similar vintage as the airlines and freight carriers. However, they generally don’t keep aircraft in service much beyond 20 years, while the Air Force is now managing a fleet averaging four years older than that (see above.)

“RAND’s airline data are sparse for aircraft past 25 years of age,” Dixon wrote, allowing that “a more pessimistic maintenance-cost growth pattern may hold for very old aircraft.”

Engine maintenance costs shot up for the first five years before leveling off, while costs per flight hour took a steadier climb until plateauing after 12 years.

“The analogy between commercial aviation and military aviation is closest for the Air Force’s executive transport aircraft, which are, for the most part, COTS,” or commercial, off the shelf, Dixon said. Air Force “tankers and cargo aircraft are similar” to those operated by airlines and freight services, he said.

However, there are important differences.

“Commercial airliners fly many more hours per year than any military aircraft, even during combat periods. One might wonder how maintenance needs would evolve for a commercial aircraft that flew only 500 hours per year (as opposed to the thousands of hours per year that commercial aircraft commonly fly), but no profitable airline would operate an aircraft on such a limited basis,” Dixon said.

However, “the flatness of maintenance costs late in the life of commercial aircraft says little about what might happen to, for instance, maintenance costs for military aircraft such as the B-52 or KC-135, given that those aircraft passed 25 years of service many years ago.” At the same time, these old aircraft—reckoned in years—may have flown relatively few hours by commercial standards.

DOD photo



The older the KC-135 gets, the more it costs.

Dixon concluded that the “pessimism about the future trajectory of total maintenance costs for military aircraft systems is not necessarily warranted. The assumption that total maintenance costs always grow rapidly as aircraft age may not be correct.” When the Air Force models maintenance costs for a new system, “it may be appropriate ... to consider the possibility of a midlife ... period of relative stasis in maintenance costs, at least through the roughly 25-year point in the life of the system.”

Aerospace World

By Marc V. Schanz, Associate Editor

Three Airmen Die in Iraq

Three airmen assigned to the 447th Expeditionary Civil Engineer Squadron's explosive ordnance division were killed on Jan. 7 by the explosion of a vehicle-borne improvised explosive device.

TSgt. Timothy R. Weiner of Tamarac, Fla., SrA. Elizabeth A. Loncki of New Castle, Del., and SrA. Daniel B. Miller Jr. of Galesburg, Ill., were attempting to defuse the car bomb when the device went off, killing all the three airmen and wounding another.

DOD Identifies Air Force Casualty

The Department of Defense announced the death of an airman in Iraq.

Capt. Kermit O. Evans, 31, of Hollandale, Miss., died when the Marine Corps CH-46 helicopter he was a passenger in made an emergency water landing in the western portion of Iraq's Al Anbar Province on Dec. 3.

Evans was assigned to the 27th Civil Engineer Squadron at Cannon AFB, N.M., and was deployed with the 332nd Air Expeditionary Wing at Balad AB, Iraq. The crash is under investigation.

Airman Dies in Training

Maj. Douglas K. Rothenhofer, an Air Force F-16 pilot, died Dec. 1 while participating in a physical fitness training exercise at Moody AFB, Ga.

Rothenhofer was an instructor pilot with the 39th Flying Training Squadron. He died of injuries from a fall while he was performing a drill on an obstacle course, the Fort Wayne (Ind.) *News-Sentinel* reported.

Bush Seeks to Expand Army, Marine Corps

President Bush has decided that an increase in the number of US military personnel is needed—at least in the Army and Marine Corps.

In a December interview with the *Washington Post*, Bush said that the US should expand the size of its armed forces, citing the strain from operations in Iraq and Afghanistan and the need to prosecute the wider war on terror.

"I'm inclined to believe it's important and necessary to do," Bush said. He said his decision reflected the fact that the nation is in an "ideological war" that could last many years and will need a military sized to sustain a long-term effort.

He added that an increase in end strength would likely focus on the Army and the Marine Corps rather than the Navy or Air Force.

A force structure increase represents a reversal for Bush, who argued in his 2004 re-election campaign that more troops are not needed.

Bush said that suggestions from advisors outside the government have helped persuade him that "increasing our forces structure makes sense, and I will work with Secretary [of Defense Robert] Gates to do so."



USAF photo by Lt. Col. James McGinn

A C-17 in December drops supplies to researchers at the South Pole. The airdrop was a "proof of concept" mission to show that C-17s could airlift emergency supplies to the Antarctic base. While the drop was made in the Antarctic summer, the technique may be needed during a winter emergency, when landing is impossible due to darkness, fierce crosswinds, and temperatures of minus 100 degrees Fahrenheit. See "C-17 Makes First South Pole Drop," p. 27.

Rothenhofer was rushed to a local hospital, where he died soon after he arrived.

Officials with the 23rd Wing at Moody said that a safety board is now investigating the incident.

F-35A Makes First Flight

Lockheed Martin's F-35 Lightning II made its first flight on Dec. 15, launching a flight-test program expected to

last six years and entail flights by 15 airplanes.

Company test pilot Jon S. Beesley took the F-35 up on a 40-minute flight around Lockheed Martin's Fort Worth, Tex., plant. He reported that the aircraft performed with greater power than was predicted in the flight simulator. The climb-out was faster and steeper than anticipated, he said. The Pratt & Whitney F135 engine performed "as well, or better" than predicted.

Of all the new aircraft he has test-flown, said Beesley, "this airplane was the most 'ready to fly.'"

He told a news conference afterward that the fighter flew "like a smaller, quicker version" of the twin-engine F-22 Raptor, although the F-35 is a single-engine aircraft.

Beesley took the F-35 up to 15,000 feet for handling checks. He did not raise the landing gear due to a warning light.

This first-to-fly F-35 was a conventional takeoff and landing version, or F-35A, which will be built for the Air Force. An F-35B, capable of short takeoff and vertical landing, is expected to fly before the end of this year. That

model will equip the Marine Corps. A Navy version for use on aircraft carriers, the F-35C, is due to fly next year. (See "Struggling for Altitude," September 2006, p. 38.)

Bradley Talks Reserve Cuts ...

The Air Force's plan to impose a 40,000-troop cut over the next five years will have a huge effect on the Reserve, said Lt. Gen. John A. Bradley, head of Air Force Reserve Command.

Speaking on Capitol Hill in December, he said that USAF wants to cut 40,000 full-time equivalent positions—which means the actual number of affected persons will be greater, since most Reserve personnel are part-time.

He said the real figure will be "about 57,000," taking into account the Reserve positions.

Bradley added that his command plans to cut 7,744 people, generating an annual savings of about \$172 million. While not specifying where the cuts will be taken, he said the command will have to close down a flying wing and some geographically separated units.

... and Airlift, Mobilization Needs

Bradley also raised concerns about the state of strategic airlift across the force, suggesting that the current number of C-5s and C-17s may not be enough to support future needs, in light of the usage rates in Southwest Asia.

"I worry a lot about our strategic airlift capability in the United States," he said.

He noted the planned number of C-17s—191 at present—is smaller than that of the recently retired C-141 Starlifter fleet at its height. The C-17 has replaced the C-141; the C-5 Galaxy will be retained in service through upgrades.

Military Undergoes Huge Test of Homeland Defense

A joint exercise in December demonstrated that the US can deal with multiple military crises at home and get agencies to work together to deal with a wide variety of contingencies and a wide geographic area.

Vigilant Shield 07 was a joint effort of North American Aerospace Defense Command and US Northern Command. It offered a chance to see how the organizations would fare in the face of threatened nuclear attack and an accidental nuclear explosion, among many other what-if challenges.

Adm. Timothy J. Keating, head of NORAD and NORTHCOM, said the exercise demonstrated that members of the US military, cooperating with civilian agencies, have improved their ability to respond jointly to catastrophic events.

The simulation emphasized NORTHCOM's ability to command and control forces from headquarters during a variety of scenarios, including a limited ballistic missile attack from a fictional country in Northeast Asia, a maritime threat, civilian protests, terrorist incursions, and the simulated crash of a C-17 carrying four nuclear devices.

Army Col. Hugh Bell, chief of ballistic missile defense, said NORTHCOM tracked two incoming ballistic missiles and engaged them with the Ground Based Midcourse Defense system. One ICBM failed in flight, but the other was intercepted by units at Ft. Greely, Alaska and Vandenberg AFB, Calif.

A one-kiloton nuclear explosion was also simulated at the Pentagon, where DOD personnel worked with local response task forces and the Department of Homeland Security to evacuate the area and provide for continuity of command.

More than 6,000 personnel from the military, federal, and state governments as well as local responders were involved in the exercise.

While calling the C-17 "a very capable airplane," the fleet of 281 Starlifters provided a "lot of tails" to fly missions, he said, adding, "I worry about not having as many tails when we go to war."

The Air Force is consuming flight hours on the C-17 at an accelerated rate, causing the fleet to age prematurely. Having more would be useful, Bradley asserted.

Bradley said he doesn't plan to mobilize any personnel for lift missions because volunteerism has so far met the need. Neither he nor Air National Guard Director Lt. Gen. Craig R. McKinley have had to resort to mobilization, which kicks in after 15

days of call-up, Bradley said. Reservists and Guardsmen have stepped up for numerous 40-day tours and a few 120-day stints.

Tanker Program Delayed Again ...

The Air Force once again postponed the release of its final request for proposals on its new KC-X tanker transport aircraft program, saying it was giving everyone involved more time to review the final draft version. The KC-X is the Air Force's top procurement priority.

A revamped draft request for proposals was issued Dec. 15, and the final version was slated to be released in late January, about a month later than originally scheduled. It calls for USAF to buy 179 tanker aircraft from a single source.

Sue C. Payton, the Air Force's senior acquisition executive, said the updated draft is an attempt to continue an "open and transparent" acquisition process and to allow Congress, the Department of Defense, and industry to continue looking at what the Air Force wants.

Payton added that the goal remains to complete the source selection process by the end of the current fiscal year.

... Due to Tariff Squabbles

The tanker RFP delay entailed more than just keeping everybody informed, however. A brewing trade war played a big role.

The US and Europe told the World Trade Organization that each other's airline industries have received unfair governmental subsidies.

Should the feud erupt into a trade war, the US might slap penalty tariffs on



SSgt. Mark Paraoan monitors the lighting control panel of the new instrument landing system at Ramstein AB, Germany. Three days after going operational on Dec. 22, it allowed a C-17 loaded with patients from Iraq to land safely in poor visibility conditions.

USAF photo by Capt. Erin Dorrance

Airbus products. In its draft tanker RFP, the Air Force said it has added a clause "that makes certain costs associated with the WTO litigation unallowable expenses under the contract." That, in turn, would hurt an Airbus offering.

However, the RFP also said that a WTO ruling against Airbus wouldn't preclude EADS, and its US partner, Northrop Grumman, from offering an Airbus airplane in the tanker contest.

Sen. John McCain (R-Ariz.) asked Defense Secretary Robert M. Gates to delay the RFP because the WTO provisions could interfere with free and open competition. He said he wasn't sure that the Pentagon's own rules were being applied in the contest.

The Joint Requirements Oversight Council ruled in November that the tanker should also be able to carry cargo, but the draft request for proposal did not ask competitors to say how much cargo they could carry, only whether they could carry any. The Airbus A330 is considered capable of carrying a larger payload of cargo than the Boeing KC-767.

USAF Seeks More F-22s

The Air Force plans to ask the Defense Department to let it buy more than the 183 F-22s authorized in last year's Quadrennial Defense Review, according to a service official.

Kenneth E. Miller, a special assistant to Secretary of the Air Force Michael W. Wynne, told a Washington, D.C., aerospace symposium in December that the Air Force is thinking about how it would seek an additional 20 F-22s in Fiscal 2010, after the conclusion of the current Raptor program.

A senior service official told *Air Force Magazine* that the comment was



USAF photo by SSgt. Samuel Rogers

The 40th and last F-22 Raptor to be delivered to the 1st Fighter Wing taxis down the runway at Langley AFB, Va., on Jan. 19. The wing now has its full complement of F-22s.

"something of a trial balloon," to see what reaction there might be. There were no nasty comments from Congress or pledges to oppose the move within the Defense Department.

An Air Force spokesman said the comment was about planning and did not reflect an actual request, as of mid-December.

A Lockheed Martin spokesman said the company had not been informed of any plans to buy more than the 183 F-22s now on order. However, the F-22 line will begin to shut down in 2008 if no further orders are booked.

The service has long maintained that it requires 381 F-22s to fill out its 10 Air and Space Expeditionary Forces with one squadron of F-22s each. With just 183 aircraft, it can only equip seven AEFs with a reduced squadron size of 18 aircraft each.

New Personnel System in Store

The Army and Air Force will unveil a new system in 2008 that will integrate pay and personnel functions into one Web-based system, DOD officials announced in December.

Known as the Defense Integrated Military Human Resources System, the new solution will be a one-stop shop for service members with pay and personnel issues, said Army Maj. Gen. Carlos D. Pair, of the DOD's business transformation outfit. The system will be accessible through a common card; service members will be able to view their entire record and make certain changes themselves.

Army and Air Force commanders will have access to the system to resolve issues brought about in an increasingly joint environment, where the services often fight alongside each other in deployed locations far from any personnel or finance support hubs.

Army officials said they plan to launch DIMHRS in March 2008, with the Air Force set to launch later on that summer.

ANG Opens Predator Operations

The Air National Guard formally stood up the first of its planned MQ-1 Predator units at March AFB, Calif., on Nov. 28. Air Guard chief Lt. Gen. Craig R. McKinley hailed the base as the "centerpiece" for the Guard's transition from some legacy missions to flying unmanned aerial vehicles.

At the ceremony, the California ANG's 163rd Air Refueling Wing became the 163rd Reconnaissance Wing. The unit's last KC-135 tanker left this past April, and it has been training Predator opera-

Airmen Awarded for Heroism

Two explosive ordnance disposal technicians with the 92nd Civil Engineer Squadron at Fairchild AFB, Wash., were awarded decorations for heroism in a Dec. 7 ceremony at the base.

TSgt. Jesus Hernandez was awarded a Bronze Star and SrA. Amos Smith was awarded an Army Commendation Medal with a "V" device—which indicates the valorous act was performed while in direct contact with the enemy.

The two airmen were deployed to Sather AB, Iraq, from January to June 2006. Hernandez was deployed to one of the busiest areas of operation in the country, covering an estimated 500 square miles and including Baghdad's airport. Hernandez and his team safely resolved 437 EOD emergency response missions, with Hernandez personally leading 93 missions, often while coming under direct attack.

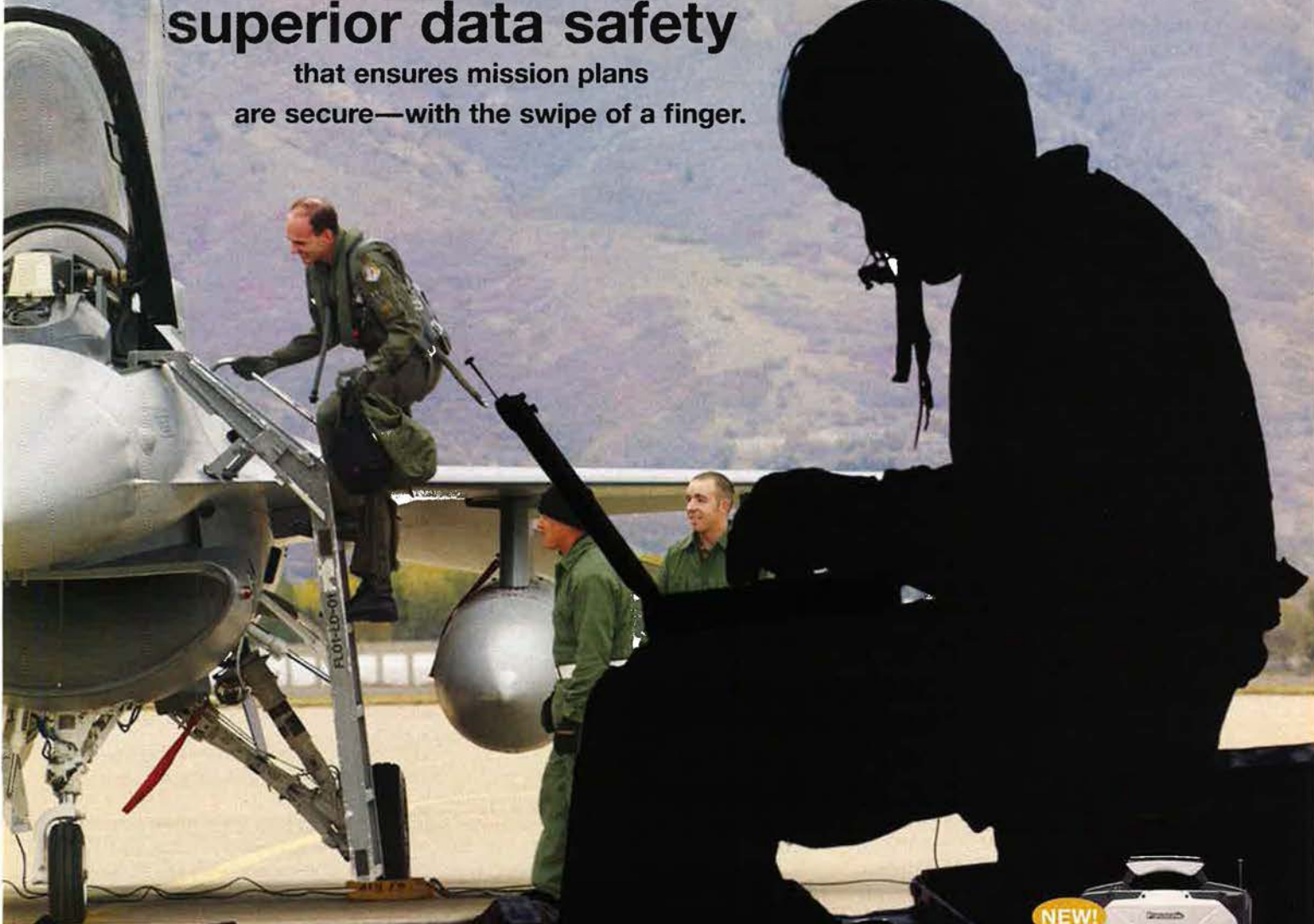
Smith, on his second deployment as an EOD technician, spent most of his time in Baghdad in support of the Army's 101st Airborne Division doing off-base missions to detonate improvised explosive devices and weapons caches.

On one mission, his team was investigating a weapons cache buried on a farm, when one of their Humvees flipped over into a canal. Smith left his vehicle and, with other troops, jumped into the water and pulled the Humvee's occupants to safety.


Panasonic recommends Windows Vista™ Business.



It's not just a laptop. It's
superior data safety
that ensures mission plans
are secure—with the swipe of a finger.



Your job is to create the flight plan and keep it secure. You need the enhanced security of the new Toughbook® 30, Panasonic's latest rugged and reliable laptop for the US Air Force. It features an optional biometric fingerprint reader so only you can access your confidential data. Plus the world's first 1000 nit daylight-readable LCD for a crisp, clear readout, even in bright sunlight, and a long battery life to keep pace with your critical mission. It's also wrapped in a magnesium alloy case to stand up to the drops, bangs and spills of a day on the ground or in the air. The new Toughbook 30. **Work anywhere. Risk nothing.**

 1.800.662.3537, option 3
panasonic.com/toughbook/federal

Call about Panasonic's
Flight Line Maintenance Solutions!



Toughbook 19 & 30
MIL-STD-810F-compliant

Panasonic **ideas for life**

TOUGHBOOK®



Red River



GovConnection
Take it all the way.

Intel, Intel logo, Intel Centrino, Intel Centrino logo, Intel Inside, Intel Inside logo and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Toughbook notebook PCs are covered by a 3-year limited warranty, parts and labor. To view the full text of the warranty, log on to www.panasonic.com/business/toughbook/premium_services.asp. Please consult your Panasonic representative prior to purchase. ©2007 Panasonic Corporation of North America. All rights reserved. SuperiorData FG AF FY06-2

tors since August by using active duty units' Predators supporting operations in Southwest Asia. The 163rd will eventually receive 12 Predators, but does not expect delivery until FY 2009. Guardsmen will continue to train at the base, as well as at Nellis AFB, Nev.

The ANG plans to have March become a training facility for Air Guard units from Texas, Arizona, North Dakota, and New York—all of which are scheduled to get Predators of their own in the next five years, McKinley said at the ceremony.

Romania Hosts New USAF Base

A Romanian air base located near the Black Sea will host a permanent US presence, according to US State Department officials. The move comes a year after Romania and the US signed a deal creating guidelines on American bases in that country. (See "Aerospace World: Basing Deal Signed With Romania," February 2006, p. 26.)

The US will spend \$34 million to upgrade the Mihail Kogalniceanu Air Base to include upgraded barracks, recreation areas, offices, and a clinic, Col. John Ingham, head of the US Embassy's Office of Defense Cooperation, told the Associated Press. Ingham and members of the Alabama National Guard visited health facilities in the nearby port city of Constanta, where they made a donation to the local orphanage.

Officials said that mainly Army and Air Force personnel stationed in Germany will be deployed to the base for training at Romanian ranges in the area, and that up to 18 aircraft will be stationed at the base.

F-15 Demo Team Stands Down

After 27 years of wowing air show visitors, the F-15 Eagle East Coast Demonstration Team, based at Langley AFB, Va., stood down on Dec. 1. It will be replaced by an F-22 team.

The demo team, one of seven single-ship demonstration teams assigned to Air Combat Command, has averaged more than 30 air shows a year, performing for more than four million people.

The stand-down is prompted by the fact that Langley is now mostly an F-22 base, and the Raptor represents the future of the service. Because there is only one F-15 squadron left at Langley, it would be difficult to give up two F-15s each weekend to continue flying demonstrations, said Maj. Jason Costello, the last Eagle demo pilot at Langley.

The F-22 has been on static display at some air shows but will do short pass programs at some exhibitions in 2007. A full-up demo routine is now being readied for the 2008 season.

In a ceremonial farewell pass, Costel-

The War on Terrorism

Operation Iraqi Freedom—Iraq

Casualties

By Jan. 22, a total of 3,029 Americans had died in Operation Iraqi Freedom. The total includes 3,022 troops and seven Department of Defense civilians. Of these deaths, 2,444 were killed in action with the enemy while 585 died in noncombat incidents.

There have been 22,951 troops wounded in action during OIF. This number includes 12,733 who returned to duty within 72 hours and 10,218 who were unable to return to duty quickly.

Terrorists Killed in Air Strike

Coalition air forces killed 20 terrorists while targeting al Qaeda elements in the Thar Thar area of Iraq, according to a December news release from the Multinational Force-Iraq.

Ground forces were searching buildings at the targeted location when they began receiving heavy machine gun fire from a building. They returned fire, killing two armed terrorists, but continued to come under heavy attack and requested close air support.

A coalition aircraft performed a strike, resulting in 18 armed terrorists being killed.

During a search of the area, ground forces uncovered multiple weapons caches with AK-47s, machine guns, rocket-propelled grenades, anti-personnel mines, explosives, blasting caps, and suicide vests. The cache was destroyed on site.

Operation Enduring Freedom—Afghanistan

Casualties

By Jan. 22, a total of 353 Americans had died in Operation Enduring Freedom. The total includes 352 troops and one Department of Defense civilian. Of these deaths, 195 were killed in action with the enemy while 158 died in noncombat incidents.

There have been 1,096 troops wounded in action during OEF. This number includes 445 who returned to duty within 72 hours and 651 who were unable to return to duty quickly.

Bagram's New \$68 Million Runway Opens

A small ceremony with Air Force and Army service members, civilian contractors, and Afghan officials on Dec. 20 marked the opening of a new \$68 million runway at Bagram AB, Afghanistan.

The project, overseen by the Army Corps of Engineers and the Air Force with an Afghan workforce, began in 2004 when the older Soviet occupation-era runway was not able to support the high operations tempo in and out of the base, with a takeoff and landing occurring once every four minutes on average. The runway could have served for several more years, but daily runway repairs were adding up, said Brig. Gen. Christopher D. Miller, commander of the 455th Air Expeditionary Wing.

With a workforce of more than 400 Afghans working every day, the new runway was built to handle most aircraft in the US inventory and is 2,000 feet longer and 11 inches thicker than the older runway. With a longer airstrip and thicker pavement, the runway can now handle large aircraft if needed—such as a C-5 or a Boeing 747.

The runway is designed mainly to accept medium load aircraft, said Lt. Col. Eric Mulkey, a US Central Command Air Forces construction officer. While the facility can now accommodate larger aircraft, the runway will wear out faster if heavy aircraft are used on a regular basis.

lo's F-15 ceded flight lead of the demo team to an F-22 flown by Maj. Paul Moga, the new F-22 demo team pilot.

There will continue to be F-15 demo pilots in Europe and the Pacific until those teams are replaced by established Raptor squadrons. The F-15 demo team was established in 1979.

First Boss Hogs Reach Arizona

The new and improved A-10C Warthog was rolled out at Davis-Monthan AFB, Ariz., on Nov. 29. The aircraft has new capabilities under the Precision Engagement program.

At the rollout ceremony, Col. Kent Laughbaum, commander of the 355th



A-10C. ALL-WEATHER. ALL-POWERFUL. IN PRODUCTION.

In August, the U.S. Air Force rolled out its first production A-10C aircraft — the eagerly awaited upgrade to the service's revered close air support fighter. With integrated smart and laser-guided weapons, state-of-the-art cockpit displays, and integrated targeting systems, the A-10C's new capabilities make it a force to be reckoned with through 2028. The A-10 Prime Team congratulates the Air Combat Command, the Air National Guard, the Air Force Reserves, and Air Force Materiel Command on your success in procuring and building this tremendous new warfighting aircraft!

LOCKHEED MARTIN



BAE SYSTEMS

NORTHROP GRUMMAN

**SOUTHWEST
RESEARCH
INSTITUTE**

Wing, recalled the history of the aircraft, originally designed to defeat Soviet armor on the plains of Europe. "We're going to see at least another generation of the A-10" at Davis-Monthan, he said. The 355th trains A-10 pilots and provides close air support and forward air control to US forces around the world.

The A-10 fleet is slated to receive a host of enhancements, including the full integration of sensors and data links that will allow it to identify and strike targets from higher altitudes and greater distances. An unrelated rewinging program is also being developed. The fighter is projected to remain operational into the late 2020s.

F-35 Partners Sign Up

In December, Great Britain, Canada, and Australia all formally signed on to participate in the next phase of the Joint Strike Fighter program, agreeing to share in the production, sustainment, and follow-on development of the fighter.

Denmark, Italy, Norway, and Turkey were all scheduled to add their signatures to the deal as well. It expands cooperation among the nine JSF partner nations beyond the ongoing system development and demonstration, or SDD, phase.

The UK was the first JSF partner and has committed more than \$2 billion to the development of the program, although the partnership was strained over disagreements involving technology sharing and development of the F136 alternative engine program.

ANG Gets Rapid Air Base Group

The Kentucky Air National Guard announced the creation of a contingency response group in Louisville Nov. 28. It marked the first such rapid air base construction unit to be formed within the ANG. Active duty CRGs have been one of the Air Force's in-demand units, performing a range of operations from disaster relief to evacuation assistance. (See "Eagle Flag," January, p. 68.)

The 123rd CRG will provide the capability to open a runway, load and unload aircraft, provide security, and create conditions where follow-on forces can operate a successful airfield.

Col. Mark Kraus, 123rd Airlift Wing commander, said the transition for the unit should be smooth, since the unit has the only ANG special tactics squadron containing combat control and para-rescue airmen. Other Air Guardsmen are also experienced in expeditionary command and control as well as medical operations, critical skills for CRGs.

More than 130 airmen will be trans-

ferred into the new 123rd CRG and will use current facilities and equipment at the Kentucky Guard base. The unit's associate partner will be the 615th Contingency Response Wing at Travis AFB, Calif.

DOD Joins NATO C-17 Deal

The Department of Defense agreed

to fund \$589 million in spare parts and support for the North Atlantic Treaty Organization's planned fleet of C-17 transport aircraft.

The deal, announced in December, includes parts for up to four of the airlifters, depending on the number of aircraft the alliance decides to purchase. NATO is acquiring its own strategic

Senior Staff Changes

RETIREMENT: Brig. Gen. Andrew S. Dichter.

CHANGES: Brig. Gen. Salvatore A. Angelella, from Cmdr., 35th FW, PACAF, Misawa AB, Japan, to Dep. Dir., Strat. Planning & Policy, PACOM, Camp H.M. Smith, Hawaii ... Brig. Gen. Herbert J. Carlisle, from Cmdr., 3rd Wg., PACAF, Elmendorf AFB, Alaska, to Dir., AF Strat. Planning, DCS, Strat. P&P, USAF, Pentagon ... Brig. Gen. William A. Chambers, from Dep. Cmdr., Combined Forces Command-Afghanistan, CENTCOM, Kabul, Afghanistan, to Dir. of Comm., OSAF, Pentagon ... Maj. Gen. David E. Clary, from Dir., Ops. & Tng., DCS, Air, Space, & Info. Ops., P&R, USAF, Pentagon, to Vice Cmdr., ACC, Langley AFB, Va. ... Brig. Gen. Gary S. Connor, from DCS, Comm. & Info. Systems, MNF-Iraq, CENTCOM, Baghdad, Iraq, to Prgm. Dir., Ground-Based Midcourse Defense Prgm., MDA, Huntsville, Ala. ... Brig. Gen. Marke F. Gibson, from Vice Cmdr., 7th AF, PACAF, Osan AB, South Korea, to Dir., Ops. & Tng., DCS, Air, Space, & Info. Ops., P&R, USAF, Pentagon ... Maj. Gen. Stephen M. Goldfein, from Vice Cmdr., ACC, Langley AFB, Va., to Vice Dir., Jt. Staff, Pentagon ... Brig. Gen. (sel.) James W. Hyatt, from Cmdr., 20th FW, ACC, Shaw AFB, S.C., to Cmdr., 455th AEW, ACC, Bagram AB, Afghanistan ... Brig. Gen. Frank J. Kisner, from Dep. Dir., Strat. Planning & Policy, PACOM, Camp H.M. Smith, Hawaii, to Dir., Force Structure, Rqmts., Resource, & Strat. Assessment, SOCOM, MacDill AFB, Fla. ... Maj. Gen. (sel.) Erwin F. Lessel III, from Dir., Comm., OSAF, Pentagon, to Dir., Plans, Rqmts., & Prgms., AETC, Randolph AFB, Tex. ... Brig. Gen. Christopher D. Miller, from Cmdr., 455th AEW, ACC, Bagram AB, Afghanistan, to Dir., Plans, Policy, & Strategy, NORAD & NORTHCOM, Peterson AFB, Colo. ... Brig. Gen. Harold W. Moulton II, from Cmdr., 18th Wg., PACAF, Kadena AB, Japan, to Vice Cmdr., 7th AF, PACAF, Osan AB, South Korea ... Maj. Gen. Richard E. Perraut Jr., from Dir., Plans, Rqmts. & Prgms., AETC, Randolph AFB, Tex., to Vice Cmdr., 13th AF, PACAF, Hickam AFB, Hawaii ... Brig. Gen. John I. Pray Jr., from Cmdr., 89th AW, AMC, Andrews AFB, Md., to Dep. Dir., Air, Space, & Info. Ops., AMC, Scott AFB, Ill. ... Maj. Gen. (sel.) Frederick F. Roggero, from Dep. Dir., Air, Space, & Info. Ops., AMC, Scott AFB, Ill., to Dir., Air, Space, & Info. Ops., AMC, Scott AFB, Ill. ... Maj. Gen. (sel.) Paul J. Selva, from Dir., AF Strat. Planning, DCS, Strat. P&P, USAF, Pentagon, to Dir., AF QDR, Office of the AF Vice C/S, USAF, Pentagon ... Brig. Gen. (sel.) Brett T. Williams, from IG, ACC, Langley AFB, Va., to Cmdr., 18th Wg., PACAF, Kadena AB, Japan.

SENIOR EXECUTIVE STAFF RETIREMENT: John C. McKeown.

SES CHANGE: John H. Bonapart Jr., to Dep. Dir., Instl. & Mission Spt., AMC, Scott AFB, Ill. ■

Index to Advertisers

AAI Corporation.....	8, 11
Bell Helicopter	13, 49
Boeing	Cover IV
C-27 J Team	9
General Atomics.....	75
General Dynamics.....	25
Lockheed Martin.....	21, Cover II
Northrop Grumman	Cover III
Oregon Aero.....	5
Panasonic.....	19
Raytheon	23, 69
Rolls Royce	31
Smith Industries.....	67
Symbolarts	6
Textron.....	3
AFA Membership.....	77
AFA Original Items.....	93
AFA Planned Giving	95
AFA Resume	94

Joint Cargo Aircraft

Team JCA — C-295

Others promise.
We perform.



Our warfighters need Joint Cargo Aircraft *now* — and the C-295 military airlifter is the *only* interdependent solution for the U.S. Army and U.S. Air Force Joint Cargo Aircraft requirement that is *ready now, combat-proven now, and FAA-certified now*. Proven in Iraq and Afghanistan, the C-295 aircraft is part of a family of military airlifters that has successfully completed more than one million JCA-type flights. And it is backed by the proven reliability and unmatched worldwide maintenance and support from the Team JCA partnership of Raytheon and EADS CASA North America.

www.raytheon.com



Raytheon

Customer Success Is Our Mission

airlift capability, rather than depending on US cargo aircraft to transport forces to contingencies, according to the Defense Security Cooperation Agency announcement.

Boeing leads the list of contractors in the support deal, which includes Pratt & Whitney and Northrop Grumman's systems group. Included in the deal are up to two F117-PW-100 spare engines, up to four large aircraft infrared countermeasures systems, up to 15 AN/AVS-9 night vision goggles, software, life support equipment, flares, as well as training and support gear.

New Bill Authorizes Three C-130Js

Lockheed Martin will provide three C-130J tactical airlifters for the Air Force and one KC-130J aerial tanker for the Marine Corps with funds provided in the most recent war supplemental spending bill approved by Congress.

As part of the Fiscal 2006 Global War on Terror supplemental authorization, Lockheed Martin received an initial \$128 million on Dec. 11, toward a \$256 million overall deal for the airplanes, which are to be delivered in 2010.

The deal brings the total number of C-130Js ordered to date to 186. C-130s have been heavily used in supporting units across Southwest Asia, and the services are buying new ones to replace aircraft whose service lives are being used up by the pace of operations. Hercules transports are helping take truck convoys off roads by flying cargo to forward locations.

Work Begins on Pakistan F-16s

Also in December, Lockheed Martin got an Air Force contract for \$78 million to start working on F-16s headed for service with Pakistan's air force.

The award was part of a \$144 million contract for long-lead work related to the production of 18 new Block 52 F-16s destined for Pakistan. The deal, which was stuck in diplomatic limbo for some time, was given the green light earlier this year. (See "Aerospace World: US and Pakistan Hammer Out New F-16 Deal," December 2006, p. 12.)

Under the agreement covering the sale, Pakistan has an option for 18 more of the fighters.

USAF Squeezes More From C-5

The Air Force will squeeze an extra 2.5 days of availability out of each C-5 Galaxy every year by consolidating the number of places where it does nose-to-tail inspections of the giant aircraft.

Air Mobility Command announced on Dec. 8 that Dover AFB, Del., will be the first of three sites nationwide that will perform what are called "isochronal inspections" of the big airlifters.



USAF photo by SSGT Ryan Hansen

This "fast cook-off" test—the largest ever at Eglin AFB, Fla.—was conducted in December. A rocket motor was engulfed in 28,000 gallons of burning jet fuel as part of a hazard assessment.

The other two sites will be Westover ARB, Mass., and Eastern West Virginia Airport in Martinsburg, W.Va.

The Air Force has been doing the inspections at eight bases. Consolidating to three will allow central management of the system, better standardization of the process, and streamlining. The efficiencies will put the C-5s back in action faster and generate about 300 extra sorties per year. That equates to about 10,000 pallets.

Test Wing Stays at Eglin

A planned move of 3,400 jobs from Eglin AFB, Fla., to Edwards AFB, Calif., is off the table—for now.

Gen. T. Michael Moseley, USAF Chief of Staff, announced in late November that a decision to transfer the 46th Test Wing to Edwards was tabled after an energetic campaign by Florida officials to keep the billets at Eglin.

The decision is also coupled with the restoration of approximately \$343 million to the Air Force's weapons testing and evaluation budget. A study of the wing's capabilities and options for its future is being undertaken by RAND and is expected by the end of March.

Oil Filter Nails Predator

An MQ-1 Predator that crashed at Creech AFB, Nev., in June 2006 was felled by an oil leak, the Air Force said in November. The finding could affect the Predator fleet.

Air Combat Command's accident report said the crash, which caused no injuries, was caused by a rapid oil leak due to a loose oil filter, which the investigation determined was most likely improperly installed. After five minutes of flight, the Predator lost its engine oil and the engine failed.

The accident board found substantial evidence that a poorly designed oil filter was a contributing factor in the mishap. The filter is not designed to lock in place and has no markings to ensure correct installation. Fixing the design could help prevent future Predator incidents.

3rd AF Reactivates at Ramstein

Third Air Force was reactivated Dec. 1 at Ramstein AB, Germany. Lt. Gen. Robert D. Bishop Jr. assumed command of the organization, which numbers more than 1,400 people.

Bishop, who had been vice commander of US Air Forces in Europe, will now lead the planning of combat and humanitarian operations in USAFE's area of responsibility. Third Air Force will conduct day-to-day operations for US European Command to organize, train, and equip airmen for missions.

The reactivated organization is comprised of the 603rd Air and Space Operations Center, the 603rd Support Group, the 4th Air Support Operations Group, and elements of 16th Air Force, which inactivated the same day.

While 16th AF stood down, it was redesignated the 16th Air Expeditionary Task Force at Izmir AB, Turkey.

Third Air Force headquarters first inactivated in November 2005 as the US was shifting forces in the theater. Numbered air forces began transforming across the world, Bishop said, with the change helping to enhance the expeditionary air force concept.

USAF Lawyer Gets Heave-Ho

An Air Force lawyer who had served as the general counsel for the White House Military Office was discovered in November to have been practicing law for 23 years without a license.



When it's go time

This airman isn't thinking about net-centric environments and seamless interoperability. In the heat of the battle, he's focused on one thing only – making life or death decisions.

At General Dynamics, we know conceptual buzzwords don't mean a thing at times like these. What matters is this airman has the concrete capabilities he needs to make superior decisions with speed, precision and confidence. That's why we are working to arm the tactical warfighter with robust, intuitive and informative solutions that always work, anywhere, anytime.

...I just know it works.

With our proven leadership in systems integration and information assurance, we are engineering the transformational solutions that will ensure this warfighter always has the technological upper hand, whenever and wherever it matters most.

www.gdc4s.com

GENERAL DYNAMICS
C4 Systems

Trusted. Core to Edge.



A B-52, like those here, was flown in December with a mix of synthetic fuel and aviation gas powering all engines. The Stratofortress arrived at Minot AFB, N.D., on Jan. 17 for cold-weather testing. USAF is exploring the extent to which the service can use alternative fuels. See "B-52 Flies on Synthetic Blend," p. 27.

Col. Michael D. Murphy was commander of the Air Force Legal Services Agency at Bolling AFB, D.C., when his past came to light. Murphy was relieved of his command at Bolling on Nov. 30 after the Air Force discovered that he had been disbarred for professional misconduct in Texas in 1984 but failed

to inform his superiors. His status was reportedly discovered in the process of an unrelated review.

Murphy was the general counsel for the WHMO from December 2001 to January 2003 and again from August 2003 to January 2005, the *Washington Post* reported. Murphy also served as

a legal advisor for reconstruction efforts in Iraq.

USAF Blames Kyrgyz Controller

Air Mobility Command has decided that a September accident in Kyrgyzstan that damaged a KC-135R and a civilian airliner was mainly the fault of the civilian Kyrgyz air traffic controller.

The AMC report, released in December, said the accident at Manas Airport in Bishkek occurred because the Kyrgyz air traffic controller cleared the civilian Tu-154 for takeoff without confirming that the USAF tanker had left the runway. The accident created a minor diplomatic incident, when Kyrgyz officials blamed the tanker crew after a preliminary investigation. (See "Aerospace World: USAF Hit With Kyrgyz Claim," January, p. 16.)

Although the accident investigation board found the air traffic controller primarily at fault, the tanker crew and tower liaison shared responsibility. The board said that the tower liaison—employed by the Air Force to facilitate communications between the Kyrgyz air controllers and USAF crews—did not clarify a discrepancy on runway use, and that the crew misunderstood instructions to vacate the runway.

News Notes

- Six locations across the US will host an "Air Force Week" in 2007. The events focus on telling the Air Force story through displays, flight demonstrations, and community visits by USAF officials. The locations are Phoenix, March 19-25; Sacramento, Calif., June 4-10; St. Louis, July 2-8; a New England location, Aug. 18-26; Hawaii, Sept. 10-16; and Atlanta, from Oct. 8-14.

- Air and Space Expeditionary Forces 7 and 8 will be the first to deploy with the new Airman Battle Uniform, which replaces the old battle dress uniform adapted from the Army. The new ABU features a tiger-stripe pattern reminiscent of camouflage worn in the Vietnam War. The new uniform offers 236 different size options and has a permanent press finish; airmen will be able to pull it out of the dryer and wear it without further treatment. In October, the Air Force will begin issuing the ABU to airmen in basic military training and by June 2008, the uniform will be available for purchase by the rest of the Air Force in base exchanges. It will cost about \$81.

- A new feature on Humvees, designed to offer a roof gunner more protection, has been named after

A1C LeeBernard E. Chavis, who died in a Humvee on Oct. 14, 2006. (See "Aerospace World: Airman Killed in Iraq Patrol," December 2006, p. 12.) Chavis' death inspired vehicle maintenance airmen at Sather AB, Iraq, to design and build a new, better-protected gunner station. The custom-made "Chavis turret" is serving as a new standard in field modifications to the Humvee.

- After prolonged rain in the Dadaab region of Kenya, airmen with the Combined Joint Task Force-Horn of Africa began airlifting supplies to aid villagers as part of Operation Unity Knight. Much of the housing in two of three refugee camps that house Somalis who fled their country years ago was damaged and food was scarce. A team of 20 airmen with specialties including aerial port operations, aircraft maintenance, and security, and a Navy medic began working Dec. 8 and made their first two airdrops on Dec. 9—delivering more than 35,000 pounds of supplies in a matter of seconds. Over the course of five days, the team dropped about 240,000 pounds of relief supplies to the region.

- Airmen from Lackland AFB, Tex., participated in a pandemic flu exercise Dec. 11-13 in Boerne, Tex. Teams linked

a variety of crises in South Texas to the appropriate response agencies and Air Force medical personnel. The Regional Pandemic Flu Conference involved the 59th Medical Wing with airmen from Wilford Hall Medical Center and emergency responders helping to plan for potential outbreaks.

- A new version of the High-speed Anti-Radiation Missile has been successfully tested. It adds inertial navigation system and Global Positioning System satellite guidance to the HARM's radar-homing capabilities. Raytheon demonstrated the variant in November at China Lake, Calif. The upgraded version, called HDAM, for HARM Destruction of enemy air defense Attack Module, can attack the last known position of an emitter even if the target radar has turned off. Tests last June also showed that the new weapon correctly selected the right target from two radar sources. Raytheon has produced more than 22,800 HARMs since 1985.

- The first on-orbit checkout of the Space Based Infrared System was a success, Air Force Space Command reported in November. SBIRS is one of the Air Force's leading space programs, designed to provide a new genera-

No serious injuries resulted from the incident.

Raytheon Sheds Aircraft Unit

Raytheon, which makes the Air Force T-6A Texan II Joint Primary Aircraft Training System, has completed a deal to sell off its aircraft manufacturing unit to a Canadian firm and the Goldman Sachs Group for approximately \$3.3 billion.

The deal allows Raytheon to focus on its core defense businesses—such as missiles—while letting Goldman Sachs and Canadian buyout firm Onex Corp. attempt to make the aviation unit more competitive with other small aircraft makers.

In addition to the JPATS, which is the Air Force's main pilot trainer, Raytheon Aircraft, based in Wichita, Kan., produces Hawker corporate aircraft and Beechcraft general aviation airplanes. The company announced plans to sell the unit last July.

C-17 Makes First South Pole Drop

The first drop of supplies to US facilities in Antarctica by a C-17 took place Dec. 20. A crew from McChord AFB, Wash., delivered about 70,000 pounds of food and supplies for Na-

tional Science Foundation researchers at McMurdo Station, Antarctica.

Airmen with the 62nd and 446th Airlift Wings manned the C-17 on its first Operation Deep Freeze flight, testing to see how the aircraft's avionics, cargo ramp, and parachute system would work in Antarctica's climate. The crew of active duty and Reserve airmen braved temperatures of minus 29 degrees Fahrenheit when they opened the cargo doors to drop their payload. The drop took place with an altimeter reading of more than 10,000 feet; parachutes needed 1,000 feet in which to inflate above the South Pole's 9,300-foot elevation.

B-52 Flies on Synthetic Fuel Blend

A B-52 took off from Edwards AFB, Calif., on Dec. 15 using a blend of synthetic fuel and JP-8 in all eight engines—the first time a bomber has flown using a synthetic fuel blend as the only fuel on board.

The test at Edwards is a continuation of tests begun in September, where a B-52 used synthetic fuel in two engines. (See "Aerospace World: B-52 To Burn Synthetic Gas," September 2006, p. 24.) The test was to be followed by cold-weather testing to see how well the

synthetic fuel blend performs in extreme weather (see photo, p. 26).

James Tyler, 1919-2006

Retired Lt. Col. James O. Tyler, a decorated World War II fighter ace and a charter member of the Air Force Association, died Dec. 9 at the age of 87.

Tyler entered the Army Air Forces in January 1942 and was commissioned that July, according to his obituary in the Petersburg, Va., *Progress-Index*. In October of the same year, he was deployed to the Mediterranean, where he flew 234 missions in both British Spitfires and later in the P-51 Mustang.

During World War II service, Tyler scored eight confirmed aerial victories. Among other decorations, he was awarded the Silver Star, two Distinguished Flying Crosses, a Purple Heart, and an Air Medal with 16 oak leaf clusters.

After his combat tour, he returned to the US in October 1944 and served at Bartow Field, Fla. Subsequent assignments included command of the 2nd Fighter Interceptor Squadron at McGuire AFB, N.J., three years on the faculty of Air University, and a tour of Okinawa. His last assignment was as the commander of Air Force Station, Ft. Lee, Va. He retired in 1969. ■

tion of space-based missile warning, technical intelligence, and battlespace awareness. The system will be operated by the 460th Space Wing at Buckley AFB, Colo. The checkout focused on calibration of the infrared sensors and line of sight testing. The payload will be fully operational next year.

■ In an October exercise with the Minnesota National Guard, a Lockheed Martin SkySpirit unmanned aerial vehicle demonstrated near-real-time transmission of high-resolution, miniaturized synthetic aperture radar imagery from a UAV. The vehicle flew at 3,000 feet and delivered four-inch-resolution SAR imagery to ground troops via laptops.

■ Boeing will provide UAV systems communications and network expertise to the Air Force under a five-year, \$14 million deal announced Dec. 7. The contract includes worldwide platform basing, development of crew training, coordinating communications architecture, and establishing national and international airspace access policies. Boeing will also work with the Air Force to develop current and future UAV operations plans for allied missions. The company supports day-to-day operations for the Global Hawk at Air

Combat Command headquarters at Langley AFB, Va.

■ A new E-3 Airborne Warning and Control System maintenance, overhaul, and repair center was dedicated in Oklahoma City in November. The Boeing facility now comprises three hangars for the installation of new AWACS capabilities, but is expected to grow to 17 hangars and more than a million square feet of related industrial space and training facilities. The first upgrades to be performed at the site, which is near Tinker Air Force Base, include navigation and communications systems. A future upgrade includes new mission computing hardware and software as well as new operational console displays and upgraded radar equipment. Boeing and Tinker personnel will install the upgrades in 2009.

■ Dutch F-16 pilots will start training at the Springfield, Ohio, Air National Guard base this year, Guard officials announced in December. Royal Netherlands Air Force Guard pilots will train at the site through September 2010. Springfield inherited the mission after Base Realignment and Closure decisions transferred its previous training mission elsewhere. The base can train up to 16 pilots in three different courses a year,

and the mission is expected to create 100 new positions at the facility, the *Dayton Business Journal* reports.

■ Northrop Grumman has received a pair of contracts from the Air Force for \$254 million in work on the E-8C Joint STARS fleet and system support program. One contract is worth \$140 million in support work, while the second is worth \$114 million and covers an extended test support program for Joint STARS.

■ *The Gremlins: a Royal Air Force Story*, the children's book by famed author Roald Dahl and beloved by children of the World War II era, is back in print. The book, in which Dahl attributes aircraft mechanical problems to little creatures called Gremlins, has been brought back to the shelves due to the efforts of Air Force historian Andrew Stephens of the 11th Wing, Bolling AFB, D.C. The Army and Air Force Exchange Service is selling a limited run of the book as part of its celebration of the 60th anniversary of the Air Force. The book's original illustrations were by Walt Disney Studios, which planned to make a film from the story. Disney's "Fifinella" character, one of the female Gremlins, became the mascot/logo of the Women Airforce Service Pilots, or WASP. ■

Action in Congress

By Tom Philpott, Contributing Editor

More Care for Veterans; Doctor Wait Times Drop; Medals Under a Microscope

Veterans Gains

In its final days, the 109th Congress passed the Veterans Benefits, Health Care, and Information Technology Act to improve a range of veterans' medical services. It included funds for more clinicians and specialists to treat post-traumatic stress disorder and to rehabilitate blinded veterans.

The \$3.2 billion act, signed by the President, increases support for service members returning from war, improves VA outreach, and provides an additional \$65 million to increase the number of clinicians treating PTSD.

The new law increases the number of community-based outpatient clinics qualified to treat mental illnesses and increases the bereavement counseling available to families who have lost loved ones in wartime.

It also directs Veterans Affairs to notify individuals promptly if personal information collected by the VA is compromised through security breaches or fraud.

Veterans' health care construction budgets include an additional \$600 million for repair or replacement of flood-damaged facilities in New Or-



AP photo by Haraz Ghanbari

Brady defends medal criteria.

leans and elsewhere on the Gulf Coast. Altogether, 22 major VA construction projects are authorized nationwide.

The law also expands dependent education assistance for the spouse or child of a service member hospitalized or receiving outpatient care before

discharge for a total and permanent service-connected disability.

VA Stats Improve

Weeks before he stepped down as Senate Veterans' Affairs Committee chairman, Sen. Larry E. Craig (R-Idaho) touted new VA statistics showing a sharp drop in waiting time for health appointments.

Early in 2006, nearly 18,000 veterans had waited 30 days or longer for an initial visit with a VA doctor. By October, that number had dropped to less than 4,000, according to VA data.

Craig called the drop "remarkable."

More than seven million veterans are enrolled in the VA health system. Ninety-six percent of them can see a primary care physician within 30 days.

Valor Medals

The services have defended the speed and review processes they use in their awarding of the Medal of Honor and other valor awards.

In testimony before the House Armed Services military personnel subcommittee in December, service leaders suggested the changed nature of warfare—not command indifference or bureaucratic inertia—is the likely reason that only two Medals of Honor had been awarded to date in Iraq and Afghanistan.

Rep. John McHugh (R-N.Y.) said DOD is conducting its own comprehensive review of military awards, with a report due to Congress next June.

But McHugh wanted the services to respond to allegations of disparities in the awarding of medals, delays in reviewing awards, and a perceived tightening of standards over the years regarding eligibility for the Medal of Honor.

Lt. Gen. Roger A. Brady, Air Force deputy chief of staff for manpower and personnel, defended current criteria and processing for awards and decorations.

Since the invasion of Afghanistan in October 2001, Brady said, the Air Force has awarded two Air Force crosses, 34 Silver Stars, 698 Distinguished Flying Crosses including 164 with valor, and



AP photo by Yuri Gripas

Craig (c) sees "remarkable" health care improvement.

3,849 Bronze Stars including 285 for valor.

The Army awarded more than 52,000 Bronze Stars.

The Marine Corps, by contrast, had awarded 1,466.

Officials explained the difference by pointing out that the Army and Air Force award the Bronze Star for meritorious service in combat zones as well as for valor. The Marine Corps typically recognizes valor only with a Bronze Star.

Iraq and Afghanistan lag in the number of valor medals awarded in previous conflicts. Brig. Gen. Richard P. Mills, director of the personnel management division at Marine Corps headquarters, said these wars are different.

Remotely detonated bombs are the enemy's weapon of choice, he explained, which limits opportunities for service members to show heroism. Also impacting the number of valor awards, Mills suggested, is reliance by US forces on their own standoff weapons, such as smart bombs and missiles, to destroy the enemy.

"That improves the force protection and safety of our troops during the attacking process," Mills said. "But it limits the opportunities to close with and engage the enemy face to face ... and perhaps limits the opportunity for individual recognition and awards."

All said their services are striving to speed up the awards process. But Mills said accuracy would not be sacrificed for speed, especially with the Medal of Honor.

Legislative Goals

The Military Coalition, an umbrella group that represents more than three dozen service associations and veterans organizations, including the Air Force Association, has unveiled a list of legislative goals for 2007. Most of scores of specific initiatives that TMC says it backs are intended to improve quality of life for service members, reserve component personnel, military retirees, and survivors.

Issues that the 110th Congress will be urged to support include:

- Increasing active forces to relieve the operational strain on the services.
- Resumption of annual pay raises for the military set to one-half percentage point above annual wage growth in the private sector.
- Pay raises for midcareer and senior enlisted personnel, warrant officers, and some officer grades to ensure their pay is equal to the 70th percentile of private workers of comparable age, experience, and education level.



AP photo/Terry Ashe

Rep. Bob Filner (D-Calif.)

- Adopting new initiatives to ease deployment strain on families, including expansion of career and educational opportunities for military spouses.

- Revising DOD housing standards on which Basic Allowance for Housing rates are based, to make them more "realistic."

- Raising household weight allowances for senior enlisted members moving between assignments.

- Setting new benchmark benefits under the Montgomery GI Bill so that MGIB reimbursements cover the average cost of attending a four-year public college.

- Raise Selected Reserve MGIB benefits from 29 percent of the rate of active duty MGIB benefits to 47 percent, the level set when Reserve MGIB benefits began.

- Urging states to provide service members assigned there with in-state tuition for military students.

- Repealing the SBP-DIC offset, so that survivors of retirees who die of service-connected causes and who paid into the military Survivor Benefit Plan receive both benefits in full, eliminating the current dollar-for-dollar offset.

- Accelerating the effective date of SBP premium paid-up rule, from October 2008 to October 2007, for SBP participants who have attained age 70 and have paid premiums for at least 30 years.

- Raising DIC benefits from \$1,067 a month, or 41 percent of disabled retirees' disability compensation, up to \$1,316 a month, or 55 percent of retirees' compensation.

- Expanding both Combat Related

Special Compensation and Concurrent Retirement and Disability Payments to more disabled retirees.

- Authorizing changes to the Uniformed Services Former Spouses Protection Act to base former-spouse awards on retirees' pay grade and years of service at time of divorce rather than at time of retirement.

- Lowering retirement age of Guard and Reserve members.

Filner's Goals

Rep. Bob Filner (D-Calif.), new chairman of the House Veterans' Affairs Committee, promised that a Democratic-led committee will do more to improve veterans' benefits, particularly with regard to education, health care, and postwar adjustment.

"In a time of war, the best thing for morale of troops is knowing that they're going to be treated well when they come home," Filner said.

He called the current Montgomery GI Bill "completely out of date" with monthly benefits set so low they cover only about "20 percent of the cost of college. We want it to cover the full cost like it used to."

GI Bill benefits for reserve component members should be made portable into civilian life when member leave drill status. Also, VA-backed home loans for veterans carry "unrealistic caps" on loan amounts, he said.

Mental Health Concerns

Too many veterans returning from Iraq and Afghanistan, Filner said, aren't properly screened and treated for the mental wounds of war, which have led to substance abuse, suicide, family dissolutions, and homelessness.

Though Filner had no firm numbers on suicides among Iraq and Afghanistan war veterans, he said, "it looks to me like there have been several hundred. And it looks to me like 98 percent of them could have been prevented if people had recognized the situation."

Filner said he supports expansion of VA budgets sufficiently to allow all veterans access to VA health care whether or not they have injuries or illnesses tied to service and regardless of their earned income.

Medicare Doctor Rates

Medicare-eligible military retirees, as well as other Medicare patients, were spared possible tightening of access to physicians when Congress, in December, rescinded a provision of law that would have frozen doctor reimbursements at 2006 rates.

Medicare physician rates instead rose by 5.1 percent for 2007. ■

By John T. Correll, Contributing Editor

You Could Look It Up

"You have not yet had a situation ... where you have two clearly defined and opposing groups vying not only for power but for territory. What you do have is sectarian violence that seems to be less aimed at gaining full control over an area than expressing differences, and also trying to destabilize a democracy—which is different than a civil war, where two sides are clashing for territory and supremacy."—**Press secretary Tony Snow, rejecting assessments of a "civil war" in Iraq, White House news briefing, Nov. 27.**

Then and Now

"In World War II, we had the goodwill of nearly all the American people. In Iraq, support is waning. In WWII, we knew who the enemy was. In Iraq, one is never certain."—**Bob Dole, former Senate majority leader and 1996 Republican candidate for President, Washington Post, Nov. 26.**

Bean Counters and Pork

"We've come to the conclusion that perhaps there was a little too much bean counting and a little less standing back and applying common sense to look at the total picture."—**Homeland Security Secretary Michael Chertoff, admitting his department made a mistake last summer by cutting anti-terrorism funds for New York and Washington and giving smaller places in mid-America more access to the pork barrel wealth, New York Post, Nov. 29.**

The Greatest Threat

"I don't think terrorism is the greatest threat. I think that terrorism is a weapon of choice for violent extremists, and violent extremism is, in my view, the threat. It is that conviction that they want to destabilize moderate, mainstream Muslim regimes and establish a caliphate and have a handful of clerics determine what everyone in that country can do, and then spread that across the globe from Indonesia to the Middle East through North Africa and Southern Europe."—**Outgoing Secretary of Defense Donald H. Rumsfeld at his 42nd (and last) "Town Hall" meeting with Pentagon staff, Dec. 8.**

Losing in the Postwar

"The problem is that bad guys get

smarter, shifting their efforts from a 'first half' (war) they cannot win against our world-class forces to a 'second half' (postwar) where they can prevail against our rather mediocre nation-builders. Simply put, insurgents avoid our Leviathan force during war, waiting until the follow-on peace can be sabotaged by terrorism and the battered populace co-opted by their superior forms of tribe-building. ... As our overdeveloped warfighting force gets stronger, it drives up the resource requirements of our underdeveloped peacemaking force. We write checks with airpower that boots on the ground cannot possibly cash."—**Thomas P.M. Barnett, Capitol Hill Blue, Dec. 9.**

Military Victory Not Possible

"If you mean by 'military victory,' an Iraqi government that can be established and whose writ runs across the whole country, that gets the civil war under control and sectarian violence under control in a time period that the political processes of the democracies will support, I don't believe that is possible."—**Former Secretary of State Henry A. Kissinger to the British Broadcasting Corp., as reported by the Associated Press, Nov. 20.**

But What Do They Know?

"Not all journalists are idiots. Jonathan Karl of ABC asked why the President should pay more attention to the recommendations of the ISG [Iraq Study Group], a group that spent all of four days in Iraq, than to the recommendations of his commanders in the field."—**Jack Kelly, Pittsburgh Post-Gazette, Dec. 10.**

Iraqization

"The real answer is to go 'Iraqi.' The Iraqi forces are quickly reaching the maturity level required for stability operations. Patrolling streets in Baghdad does not require the capability of the 1st Marine Division or the 101st Airborne."—**Outgoing House Armed Services Committee Chairman Duncan Hunter (R-Calif.), Nov. 20.**

The New Vietnam

"History has a long march to it. Societies change and relationships can constantly be altered to the good."—**President Bush in Hanoi on state visit to Vietnam, New York Times, Nov. 18.**

Old Story on Unit Cost

"Every time critics succeed in getting it cut, the average cost of the airplane goes up. What is beginning to happen to the F-35 is precisely what happened to the F-22."—**Loren Thompson, Lexington Institute, on the rise in unit cost when the production run of the F-35 Joint Strike Fighter is reduced, Associated Press, Dec. 3.**

Old Story on Force Cuts

"Today, the US Air Force and US Navy can achieve air dominance over any potential enemy. However, the committee believes that such a future capability is not assured, given (1) the expected development by China of sophisticated integrated air defense systems, including fighter aircraft that may meet or exceed the capabilities of all current US fighters except the F-22; (2) the closure of all but one US production line for fixed-wing military fighter aircraft in the next six years; and (3) reduction in the numbers of fielded F-22s and potential reduction in numbers of the Joint Strike Fighter."—**Report of the Committee Defense Review, House Armed Services Committee, December.**

Family Force

"We are a family force, and so we have people who serve this nation who need to be able to take care of their families. We're expeditionary, too, so people are gone a lot or work long hours, and there are dual-military and single-parent families. Things like child care are critically important, and so we must maintain that capability to give confidence to those who serve that their families will be taken care of."—**Lt. Gen. Roger A. Brady, Air Force deputy chief of staff for manpower and personnel, Air Force Print News, Nov. 21.**

Why He Did It

"The reason I disclosed this classified information was to establish the technological credibility with the potential customers for future business. I wanted to help these countries to further their aircraft self protection systems. My personal gain would be business."—**Former defense contractor Noshir S. Gowadia, indicted for giving China technology for B-2 bomber engines, Washington Times, Nov. 23.**

It's nice to have friends in *very* high places



The U.S. Air Force RQ-4 Global Hawk, produced by Northrop Grumman, flies higher, farther and stays aloft longer than any unmanned aircraft in history. It has broken records, crossed oceans, and, most importantly, has helped to support our troops in the Middle East flying over 8,000 combat hours. And it's powered by a single Rolls-Royce/Allison F137-AD-100(AE 3007H)

turbofan engine. From first flight test to surveillance in the skies above Iraq, the engine has provided Global Hawk with consistent, reliable power. What the world's most sophisticated UAV does at over 60,000 feet is its business. How it gets there is ours.

Trusted to deliver excellence

www.rolls-royce.com

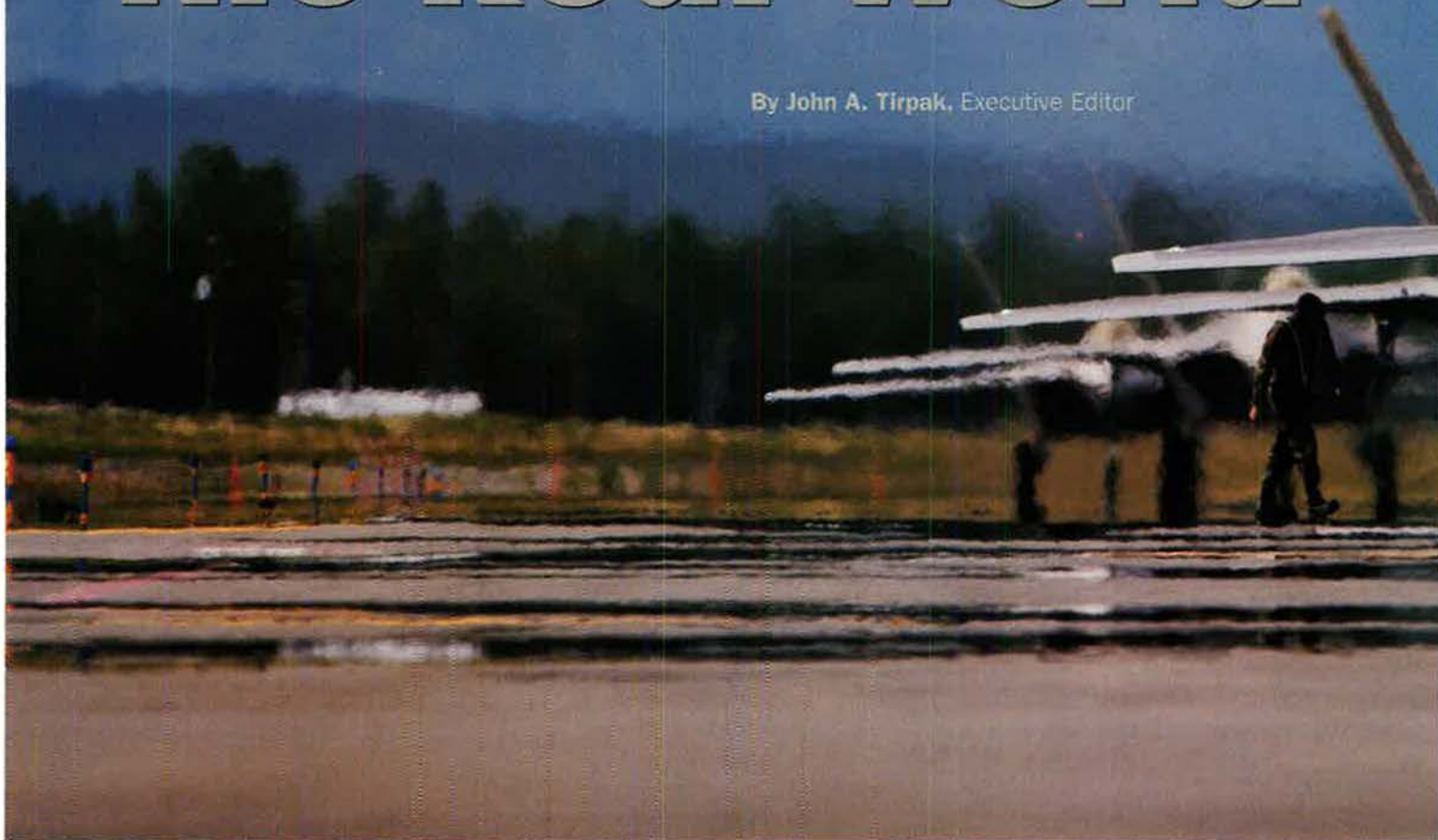


Rolls-Royce

The F-22 Raptor isn't a novelty anymore. It's in squadron service, pulling duty around the world.

The Raptor in the Real World

By John A. Tirpak, Executive Editor



In little more than a year, the Air Force has transformed its newly operational F-22 into something remarkable—a weapon of true intimidation. The Raptor has proved itself time and time again in USAF's toughest wargames. In live exercises, it has trounced the best "opponents" USAF can muster. It hits them at unprecedented speeds and altitudes—and with impunity.

The F-22 does this while in the hands of operators—not test pilots, but rank and

file fighter pilots. They consider it to be nearly as reliable as mature F-15 and F-16 fighters. Moreover, the Raptor has shown capabilities that may vastly amplify the power of the rest of the force.

In short, the F-22 is delivering on even the most ambitious claims made for it.

The 1st Fighter Wing, located at Langley AFB, Va., now operates two 20-fighter F-22 squadrons. The 27th FS, which in December 2005 became the first operational unit, is today pull-

ing real-world alert as part of an Air and Space Expeditionary Force (AEF) deployment to Kadena AB, Japan. The 27th's sister squadron, the 94th FS, is at Red Flag exercises in Nevada this month, marking the Raptor's operational debut in that wargame.

In May, the 94th will also deploy on an AEF rotation. Its destination has not been announced. A third F-22 squadron, to be based in Alaska, is now taking shape.

Lt. Col. Wade Tolliver, 27th FS



F-22s line up on the flight line at Elmendorf AFB, Alaska, in preparation for Northern Edge, the Raptor's first major exercise.

commander, said his unit has been working toward the Kadena deployment for about two years.

"We worked hard to bring this jet to initial operational capability," Tolliver said in an interview in his Langley office, "and, when we accomplished that in December '05, the celebration was great, but the next day, we got everybody in the squadron [together, to] make sure they understand the focus: what's next. Well, AEF 5 and 6 [has] ... been our focus ever since."

Big Contribution

He added that, "AEFs aside, we're sitting here at Langley with two squadrons the COCOMs [combatant commanders] can call on right now, anywhere in the world." In any conflict in which the US is engaged, said Tolliver, the F-22 can make a big contribution.

"The jet's performing very well for where it is at this stage—probably better than any other fighter that we've brought on line," he said. It all adds up

to "a significantly increased combat capability" compared to what the F-22 had when IOC was declared.

The F-22 has had a busy year, prompted in part by circumstance: Last summer, Langley's runways had to be closed for major repair, obliging all flying units at the base to relocate for two months. The 1st Fighter Wing dispatched its F-22s to multiple locations, where it could demonstrate or confirm new capabilities.

A dozen F-22s, flown by a cadre of



Two F-22s fly over Langley AFB, Va., in fall 2005. Langley's 1st FW now operates two squadrons of Raptors, each with 20 aircraft.

handpicked pilots and kept in shape by the 27th's best maintainers, went to Northern Edge, a two-week joint-force wargame in Alaska. Participants included 5,000 troops in Army ground units, Marine Corps ground units, Navy Aegis cruisers and aircraft, and Air Force aircraft ranging from fighters and search and rescue helicopters to E-3 Airborne Warning and Control System aircraft.

Col. Thomas Bergeson, the 1st Operations Group commander, said it was the largest exercise for him in 20 or so years. In one Northern Edge engagement, USAF and its sister services put more than 40 fighters in the air at once, as well as E-2C Hawkeye and E-3 AWACS aircraft.

To confront the F-22-led "Blue Air" collection, the joint force mustered its best "Red Air" threat—front-line F-15s, F-16s, and Navy F/A-18 Super Hornets. The F-22's team blitzed the opposition with a favorable 241-to-two kill ratio. What's more, the two lost aircraft were F-15Cs, not F-22s. The Raptors came through the engagements untouched.

In Red Flags, Bergeson said, "you have a great day if you lose only 10 percent of your forces." The massively lopsided victory for the stealthy F-22-led force was unprecedented.

"They [the Red Air adversaries] couldn't see us," Tolliver said. This was true even when the opponents were assisted by AWACS. "And that's what makes the F-22 special," Tolliver went on. "I'm out there and I have

weapons like an F-15C or an F-16, but ... I'm basically invisible to the other guy's radar."

The 241-to-two record was amassed over two weeks of air engagements. Tolliver noted that, in such battles, Red Air units were allowed to regenerate and return to the fight, but lost Blue forces could not. Even with such handicaps, in the largest single engagement, F-22-led forces claimed 83 enemies to one loss, after facing down an opposing force that had generated or regenerated 103 adversary fighters.

And what about the two losses?
"If you see numbers where you never have a loss, I don't think you're training to your full ability," Tolliver said. "If you don't, at some point, have that simulated loss, we're not going to push ourselves to be as capable as we are."

Lt. Col. Dirk Smith, commander of the 94th FS, said that these aircraft losses stemmed from the aggressiveness of pilots, which was a good thing.

"They wanted to fly to the merge, they wanted to show" what such a fighter package can do "when you're highly outnumbered." Such exercises are "the perfect place to learn that kind of lesson ... so that, when it comes to real bullets flying, they've learned that."

"No Problem"

Although the Air Force would prefer that F-22 pilots destroy their targets at long range, there's no penalty if pilots get close enough to use heat-seeking missiles or guns.

Bergeson said he and a captain, flying F-22s, engaged six F-16s at close range, but it was "no problem." "We have a lot of capability in the close-in regime," noted Smith.

Red Air forces in Northern Edge posed a threat stiffer than what real-world enemies might generate, Tolliver added. "These are some of the best pilots in the world flying the best machines in the world," he said, "so



Lt. Col. Dirk Smith, commander of the 94th Fighter Squadron at Langley, speaks with reporters after delivering the unit's first F-22 in March 2006.



During Northern Edge, Raptors from Langley dropped 26 inert JDAMs, such as the ones seen here. All scored direct hits.

we're fighting a pretty lethal threat out there."

The exercise called for alternating air-to-air and ground-attack engagements. The F-22s dropped 26 inert 1,000-pound Joint Direct Attack Munitions, responding to close air support requests from ground troops. It was the first time Raptors had coordinated with ground-based joint tactical air controllers, and "every one of those [targets they designated] was a hit," Tolliver said. For some of the Raptor pilots, it was the first time they'd released real ordnance from the F-22.

Tolliver cautioned, "We're not an A-10; we're not an F-16. We don't do close support like that, but we do carry two 1,000-pound JDAMs, and we can support that ground troop, and that's ... what we proved." He noted that in the future, the F-22 will be rigged to carry up to eight 250-pound Small Diameter Bombs, so USAF's F-22 fleet is going to increase its ground-attack power.

Tolliver noted another eye-opening aspect of the exercise.

Even after using up all eight of their air-to-air missiles, he said, the F-22s did not have to leave the fight. The Raptors, protected by their stealthiness, could fly far ahead of the rest of their force, using their powerful onboard sensors to fill in the gaps where AWACS could not see, such as behind mountains. Raptor pilots could talk their non-Raptor colleagues into the vicinity of enemies no one else could spot. The F-22s were acting, in effect, as forward air controllers.

"Being airborne, with our sensors,

... basically increased the combat capability of every single asset that was sitting out there, including the AWACS, including the EA-6Bs," said Tolliver.

Advantage Raptor

The F-22's futuristic avionics suite, Tolliver said, allows the Raptor pilot to see all air and ground threats in a single picture, "without my having to build it mentally in my mind." It is "an amazing advantage for a fighter pilot," he asserted.

Overall, Tolliver went on, the exercise was "a great opportunity to work with all those assets and find out what the Raptor really does bring to the fight."

Air Force Secretary Michael W. Wynne has said that he wants all friendly platforms in an area to be able to see what an F-22 sees with its systems. At present, this kind of "common air picture" is not attainable because existing systems cannot transmit F-22 displays to other aircraft. Pilots must communicate by voice. Several F-22s, however, can share the same situation display. Data links that will allow the transmission of more information to other aircraft is one of the planned improvements for the program.

Though the F-22's Northern Edge combat victory was impressive, the Raptor reliability story may have been the bigger news. Of the 105 sorties assigned to the Raptor, it flew 102. That signifies an astounding 97 percent mission effective rate, Tolliver noted. He pointed out that it was an

unprecedented achievement for any brand-new fighter.

"In all the things we did at Northern Edge, I think that ... is the biggest success story," said Tolliver. "We proved ... that this jet can go on the road, away from its [support] structure here at Langley, ... and be able to generate those kinds of sorties [outside the continental US], and make it happen with that kind of effectiveness. We proved we can be an immediate contributor to the fight."

The 27th took with it about 170 short tons of cargo, somewhat more than would be needed for an F-15 squadron. When it has been flown for about 100,000 hours, the F-22 will have achieved what is considered "maturity" and will require less baggage on a deployment. Maturity is still about five or six years away.

"We're still kind of learning which parts fail, for the supply chain," Tolliver said. In future deployments, it won't be necessary to take as many spares since the unit will have an ever-better handle on what it needs to take—and what it really doesn't.

While the 27th was fighting the massed Red Air battles in Alaska, the 94th FS, commanded by Smith, flew to Hill AFB, Utah, for a different kind of action. Smith took 16 airplanes along, which was all of the 94th's airplanes as well as a few from the 27th that didn't go to Northern Edge. His force grew to 20 airplanes over the summer, as four more Raptors arrived from the Lockheed Martin plant in Marietta, Ga.

At the Utah Test and Training Range, the 94th's F-22 fighters dropped 40 JDAMs while in supersonic flight. It was further validation of a capability that had been demonstrated in testing just once, with one bomb. It was also the first supersonic weapons delivery by an operational unit.

Just before the F-22s arrived, the test community cleared the Raptor for release of JDAMs at Mach 1.5, from an altitude of 50,000 feet. At that altitude and speed, Smith said, "we're dropping on coordinates from quite a long ways away." The rounds were inert, but were released in a variety of ways so as to further "validate the weapons employment zone" for the F-22's main ground-attack weapon.

On Target

"They were all direct hits," Smith said. The JDAMs do not need to be altered for supersonic delivery.

Smith noted that his group included the least-experienced F-22 pilots and maintainers, many of whom were getting on-the-job training. "I was just completely blown away by how these brand-new [people] figured out how to get the job done," Smith said.

During the time at Hill, without the F-22's regular support facilities, the maintainers turned in a utilization rate of 17.9 sorties per aircraft, per month, compared to about 20 for the F-15C, which is a mature system.

Smith said it was worth noting that the F-22 is no longer a pampered machine that has experts standing around to take care of the slightest glitch. "Here it comes, out of the factory, and you give it to a 26-year-old pilot and 20- to 22-year-old crew chief, and they figure it out ... and figure it out fast."

While at Hill, the 94th FS sent some airplanes to Mountain Home AFB, Idaho, to demonstrate the F-22's ability to deploy to an away base, recover at yet a third base, operate from there as a transient, and come back to the deployment base.

From Hill, the F-22s flew down to Tyndall AFB, Fla., where the 94th demonstrated live shots with real AIM-120C radar-guided and AIM-9 heat-seeking missiles, marking yet another first—that of an operational F-22 shooting real missiles and killing real aircraft.

Not many drones "died" in the Weapon System Evaluation Program piece of the road trip, because the weapons test organization has a limited budget for missiles and drones alike. Weather

claims some sorties, as do required functions such as clearing the ocean test range of fishing boats. Drones may have mechanical problems. Other tests may take precedence.

"About 94 major and minor miracles" all have to happen to conduct a live missile shot, Smith noted.

Some shots were fired at the very edge of the employment envelope in hopes that the missile would score a "lethal miss," allowing the drone to survive and live to "fight" another day. Three AIM-120C-5 AMRAAMs and 13 AIM-9M Sidewinders were fired, because that's what the test budget would allow.

Why is shooting a live missile such a big deal?

Smith said the missile launches help pilots to know what a real missile launch will look, sound, and feel like, so they will know when it looks right and when it doesn't.

Practice It First

"When I push the pickle button, it takes about a second, time slows down, it seems like it takes an eternity, and you hear a clunk, and you hear a big roar, and you see a big fireball and a smoke trail, and then all of a sudden, it's gone," Smith said of the experience. "And what does it look like if it's guiding right? And what's it look like if it's not guiding right and you need to shoot another one?" The first time a pilot experiences this should not be in combat, he added.

Likewise, the experiences of the ground crews in handling, loading, and

wiring up real missiles that are going to be fired is different than working with training shapes or inert rounds.

Also at Tyndall, the 94th's pilots got a chance to use the F-22's internal gun—another operational first—by firing at a target dragged by a Learjet.

Northern Edge, the supersonic drops, and the missile firings: all were part of the workup to get the 27th and 94th ready for their AEF deployments, Tolliver said. Most AEF units get to go to a Red Flag as part of their workup; Northern Edge counted as the 27th's Red Flag equivalent.

Maintenance continues to improve on the F-22 as experience is accumulated with the airplane. Col. Dain West, chief of F-22 maintenance at the 1st Fighter Wing, noted that, as good as things are now, they will improve, as "the book" on the airplane is written.

He doesn't have "a whole lot of well-seasoned mid- and senior-level NCOs that have been working on the plane forever," and those who are there don't have the benefit of years of tech orders that describe how best to diagnose and repair problems.

"We're writing the book. And while you're writing the book, you're also trying to train new guys, with a book that's continuing to be updated." The "book" will also form the basis of an Air Education and Training Command curriculum in F-22 maintenance, to be ready by 2008.

The F-22 is helping to make that go faster, however, with the most advanced self-diagnostic system ever fielded. The airplane will tell the maintainer about any anomalies during a flight, so he can check them out as soon as it lands. Frequent updates, in which contractors update the software to reduce the number of false alarms, help streamline the work even more.

West said there has been strong teamwork between the Air Force and its contractors on the F-22, what Smith called "the blue shirts and the polo shirts."

He also said that mission capable rates, a common measure of how well aircraft are performing mechanically, are hovering at "about 70 to 75 percent," which is "just below" the Air Force-desired 75 to 78 percent.

Fewer Fighters

About the only thing holding back the F-22 program at this point is the planned inventory. The Air Force was compelled to accept a fleet of 183 Raptors as

Lockheed Martin photo by Eric Hehls



Two aircraft maintainers from the 27th Fighter Squadron at Langley leave the flight line after checking out the F-22s.



USAF photo by TSgt Ben Boker

Two F-22s of the 27th FS fly in formation with an F-15 over the Virginia countryside during a training sortie.

one result of last year's Quadrennial Defense Review. The service has long maintained that it requires a minimum of 381 to meet its obligations.

The Air Force has accommodated to the lower number by making changes at nearly every level. The 1st FW was to have fielded three squadrons of F-22s, for a total of 72 aircraft, or 24 combat-ready fighters per squadron. Now, the size of the squadrons has been trimmed to 18 (plus two attrition spares per squadron). Moreover, the 1st FW will field just two squadrons of Raptors.

"Post-QDR, when the decision was made to reduce to ... 183 Raptors, then the decision was made to field them at seven full squadrons at 20 jets per squadron," Bergeson said. The 1st FW's third squadron—the 71st FS—will keep its F-15Cs.

The third F-22 squadron will stand up at Elmendorf AFB, Alaska, next year.

Already, the first Elmendorf-bound aircraft are arriving at Langley. Pilots and maintainers will gain experience at Langley by integrating with the 27th and 94th for a time. When Elmendorf is ready to receive the aircraft and there are enough personnel to make it work, the F-22s with the "AK" tail code will head out to Alaska.

"The pilots that we populate Elmendorf with will come from a few different locations," Bergeson explained.

"We'll give them some seed corn—some experienced pilots from the 1st Fighter Wing," between six and eight who are instructors, and the rest will

be drawn from other fighter types. The same model was applied in standing up the 94th.

However, peeling off pilots to give to Elmendorf, as well as the normal attrition of pilots who must leave to go to schools or new assignments, means the Raptor fleet will be chronically short of pilots for awhile. That means the pilots who do fly the type get a few more hours every month than fighter pilots in other aircraft. Smith, however, noted that this will contribute to developing a seasoned cadre of F-22 pilots more rapidly than would normally be the case.

"We define 100 hours [in the aircraft] as 'experienced,'" Smith said, and this benchmark has affected the transition of Virginia Air National Guard crews to their new assignment working on the F-22 at Langley.

Under the Base Realignment and Closure commission, the 192nd Fighter Wing from Richmond, Va., is giving up its F-16s and becoming an "associate" unit at Langley. Members of the ANG unit will work alongside the 1st FW's personnel in almost all fields, from maintainer to pilot. However, Smith said it will take some time before the F-22 can be a typical Guard pilot assignment.

Not Smart

"Both parties agreed, we didn't think it would be smart" to put a 2,500-hour F-16 pilot in the F-22 "and fly one weekend a month in a brand-new airplane," Smith said.

"We want you to get seasoned for a period of time as a full-time guy," but the mechanics of how this will work have yet to be decided, because ANG pilots are assigned and paid differently than active duty pilots.

"I personally think it ought to be about a year" for a pilot to work at the squadron full-time, "and then he probably has enough soaked in about the airplane to be ready to start doing part-time."

One good thing about the ANG coming in, though, is that as the Guard maintainers and technicians become practiced with the F-22, they will stay put, helping ease the experience drain that will come as active duty personnel leave the unit.

The F-22 pilots and maintainers have few complaints about the F-22, but they are developing a wish list of things they would like to add to its impressive portfolio of capabilities. They would like to add an ability to use a dual mode bomb, able to guide either by satellite or laser, to provide a more responsive ground-attack capability. They would like to have a helmet-mounted weapons cuing system and are anxious for the day when they can transmit their comprehensive picture of the airspace to anyone in the air or on the ground who needs it.

Already in the program—improvements called "spirals"—are upgraded synthetic aperture radar, new radars (already being delivered in new aircraft), better geo-location of targets, and shadowy capabilities in airborne electronic attack. (See "Where Next With Electronic Attack?," October 2006, p. 30.)

Bergeson said he is trying to educate the rest of the Air Force and the services as a whole about what the F-22 can offer.

"I've had one of my operations officers travel around to the various combatant commands and give a capabilities briefing at the classified level to all their planners, so they know what we can bring to the fight right now—what we can and can't do."

The regional commanders have started to "develop us into their war plans. And all the briefings have been very well received," he said.

"As people become more familiar with the fact that we're really here, we're really flying, there will be more demand." Already, however, he acknowledged that the long-anticipated F-22, with its awesome capabilities, is "right now ... a low-density, high-demand asset." ■

Strategic Force

With or without nukes, USAF's B-2s and B-52s can signal a warning or deliver a punch between the eyes.

By Adam J. Hebert, Senior Editor

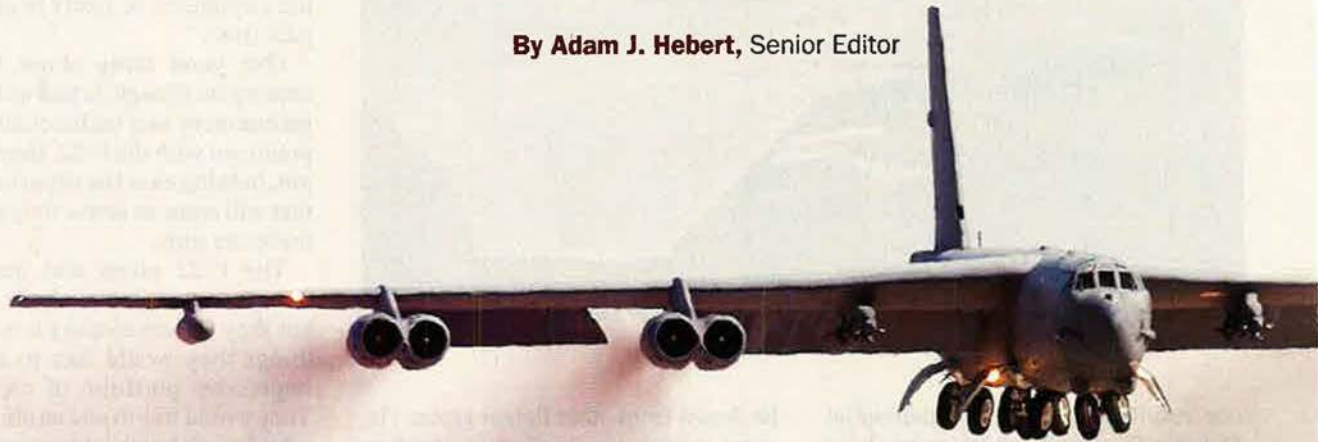


Photo by Richard VanderMeulen

Since the days of the deepest Cold War, Americans have embraced a strategic nuclear triad of land-based missiles, submarine-based weapons, and heavy bombers. The three “legs” are said to be mutually supportive and reinforcing.

The existence of that triad, said Lt. Gen. Robert J. Elder Jr., commander of 8th Air Force at Barksdale AFB, La., ensured that the Soviet Union “could not defeat any one leg of the triad and think [the US] wouldn’t still have an effective force.”

The Cold War is long gone, but, for two elements—ICBMs and seaborne ballistic missiles—the fundamentals

have not changed. These forces, while far smaller than they once were, operate essentially as they did during the superpower standoff.

The same cannot be said for the heavy bomber portion of America’s nuclear deterrent. The bomber force has undergone a major shift not only in size but also in composition, and—most importantly—purpose. In the process, its value has risen, too.

The fleet of US nuclear-capable bombers, once more than 300 aircraft, today numbers 115 aircraft—94 B-52H and 21 stealthy B-2 systems. Once, many Strategic Air Command bombers stood on day-to-day alert. Today, none do, and haven’t for 15 years.

Not a single one of those 115 bombers is exclusively dedicated to the nuclear mission. The B-52 and B-2 fleets have been made dual-capable, ready for nuclear or conventional strategic missions.

In short, the force has acquired great flexibility.

“We’ve moved away from looking at [strategic forces] in terms of [just] a nuclear response,” Elder said. “The goal is to provide options that can be presented to the command authority to determine what is in the best interest of the nation.”

Those options could entail either nuclear or conventional actions. Both are considered “strategic.”



Pictured is a B-52H on takeoff. The legendary bombers have attracted significant attention in recent years for their conventional capabilities.

The emergence of a new breed of strategic threat—rogue states either possessing or seeking nuclear, chemical, biological, or radiological weapons—is propelling the Air Force’s nuclear-capable manned bombers into new prominence.

Because of the proliferation of these “weapons of mass destruction” types of threats, the Pentagon emphasizes flexibility in its nuclear war planning.

Family of Attack Plans

“There is a family of plans,” said Elder, “and that is because the goal here is WMD deterrence, not specifically nuclear deterrence against a particular state actor.”

Elder went on, “The bomber’s role

now is in this larger construct. We’re less interested with just trying to deal with one adversary, obviously, but we’re really trying to deter use of WMD across a fairly large spectrum.”

From its facilities set in the woodlands of northwest Louisiana, 8th Air Force serves as America’s only heavy bomber warfighting headquarters, employing global strike aircraft as directed by US Strategic Command and combatant commanders. It is the heart of bomber country.

At Barksdale, officers believe that nuclear-capable bombers offer unique powers that have, if anything, strengthened their relative value within the overall deterrent force.

First and most obviously, the bomber delivery mechanism is different from all others. Even if an adversary developed a means for defeating a missile warhead flying through space, that still would not help him defeat a weapon dropped from the air.

Another bomber “plus” is responsiveness, even with nuclear weapons. “You have some flexibility” in planning, Elder said. The nuclear cruise missiles launched by the B-52 fly certain types of mission profiles but offer targeting flexibility similar to that of conventional weapons.

“Within the [realm of the] nuclear cruise missile, there is such a thing as ‘flex-targeting,’” he said, indicating that there is latitude for retargeting before or even after the bomber gets airborne.

The B-2, which can drop B61 and B83 nuclear gravity bombs, is even less restricted. Because it will not be intercepted en route to a target, the stealthy, penetrating bomber can fly to an exact release point and put a nuclear weapon wherever it needs to go.

In short, bomber missions are relatively easy to conceive, plan, and update. This kind of flexibility is important in a world of vague and fluid—yet still deadly—threats.

Another benefit: Nuclear bombers can carry weapons of enormous size and power. In some cases, these are the only types of weapons that will do the job. As Elder said, there are “certain target sets” for which a bomber-sized weapon “gets to be advantageous.”

Finally, bombers are uniquely suitable for sending a visible and intimidating message.

“We can do things to increase the posture ... on an ICBM or an SLBM,” said Elder, “but nobody would know that you did it, because the ICBMs are in a hole and the SLBMs are in the water.” If the United States wants to make an open, unambiguous statement of intent—to say “we’re really serious”—it can put its long-range bombers on alert or move them closer to a foe.

B-52 Bombers

The cornerstone of America’s nuclear-capable fleet is the venerable B-52 bomber. The youngest B-52 is nearly 45 years old, but it anchors the strategic air arsenal, even more so now that conventional strike has a key role.

At present, USAF fields a total of



94 such aircraft. They are organized into three major US-based formations: 2nd Bomb Wing, Barksdale; 5th Bomb Wing, Minot AFB, N.D.; and the 917th Wing (AFRC), also at Barksdale.

Maj. Gen. Richard Y. Newton III, assistant director of operations on the Air Staff in Washington, D.C., said USAF plans to keep a large number of these eight-engine airplanes until 2040. The old bomber, which Newton and his father both flew, is “still meeting today’s combatant commander needs,” he said.

For all that, though, the B-52 fleet could soon undergo a 40 percent numerical reduction, dropping down from 94 bombers today to just 56 by Fiscal 2008.

The hit list has already been drawn up. At present, the Air Force is maintaining 18 nonoperational attrition reserve aircraft—four at Barksdale, 14 at Minot.



The mechanical pea pod at top is actually a B-52’s rotary launcher loaded with eight AGM-88 cruise missiles. The BUFF can carry three more cruise missiles under each wing, as seen above.

Top service leaders are “pretty confident” USAF does not need these aircraft, Elder said. The Air Force doesn’t even have crews for them, he noted, and “when you have airplanes without crews, it leaves something to be desired.”

“perhaps somewhat counterintuitive,” but he explained the move this way: To continue to use the B-52s in the desired manner, the service needs to modernize them. Yet the Air Force essentially is working with a fixed pot of money; there is no more to be had. Spreading the available modernization money across 56 airplanes, and not across 94, means that the service can spend more on each individual bomber, producing more robust aircraft.

Increased B-52 Training

Meanwhile, a reduction in the number of airplanes “does not necessarily equate to a reduction in the number of crews,” noted Elder. At present, 8th Air Force plans to produce the same number of crews and will actually increase the amount of training available to them, through the use of advanced simulators.

“In the past, we typically figured we had to have a squadron of 12 airplanes in order to be able to deploy six,” the commander said. With simulators reducing



The versatility of the B-2 stealth bomber is constantly honed through participation in training exercises. The three shown here are at Nellis AFB, Nev.

the need for aircraft dedicated to training, USAF might only need eight airframes to be able to deploy those six.

The bottom line, said Elder, is that a modernized but smaller B-52 force will cost less and be more potent than today's larger but less capable fleet.

"The intent is to have the same deployable capability we have right now," Elder reported. "This is not intended to lead to a reduction in capability—it's actually an enhancement."

Thus far, Congress has not approved the B-52 retirements, and USAF continues to rotate the attrition reserve B-52s into and out of service. "They go into a status where they don't fly for about half a year, then they go back onto the flying schedule," Elder explained.

The Air Force is doing this because airmen prefer that the jets not sit idly by. B-52s perform best when flown regularly, said SrA. Joshua Johnson, a crew chief at Barksdale. Conversely, he went on, the airframes that have been parked for extended periods tend to be the ones that develop short-term maintenance problems. Added Capt. Tom Stayer, a B-52 instructor pilot, "A flying jet is a happy jet."

Moreover, some of the 38 B-52s on the hit list soon will need major overhauls, said Elder, and "our preference would be to not fly them past the point where they have to go into programmed depot maintenance."

Welch on the Importance of Being Balanced

Over the years, some nuclear strategists have called for going to a nuclear "dyad" of only two legs. Virtually everyone is in favor of keeping the submarine component. Various critics, however, have condemned either the ICBM or the bomber forces as being too vulnerable, too expensive, or too provocative.

One top strategist who sees merit in maintaining a strong triad is retired USAF Gen. Larry D. Welch, former Chief of Staff and commander of Strategic Air Command. Even if the American nuclear stockpile got to be "awfully small," Welch said in a recent speech, he "would still want a triad."

He cited the case of France in the Cold War. At one point, Paris could deploy only 18 land-based missiles, two missile-firing submarines, and one squadron of nuclear-capable fighters, but that small force, said Welch, "provided an enormous deterrent capability, because it was balanced and because the Soviets had to consider what the French might do."

He believes that it is still wise to confront possible aggressors with that

Right now, the fleet is in good shape. In its most recent inspection, the B-52 wing at Barksdale got no write-ups for unsatisfactory capabilities. Col. Daniel J. Charchian, commander of the 2nd BW, said the test affirms the wing "can perform this critical mission" and shows "the continued lethality of the B-52."

B-2 Stealth Bombers

The rugged B-52 may be the workhorse of the dual-capable bomber force, but the stealthy B-2 is the racehorse, the one that far outperforms other aircraft.

The B-2s are precious combat assets. The Air Force owns only 21 of the radar-foiling bombers, and, of these, only 16 at any given time are ready for war. The stealth fleet is organized into a single unit, the 509th Bomb Wing, Whiteman AFB, Mo.

The Air Force estimates the B-2 service life to be 20,000 flying hours and that its readiness for combat operations thereby will stretch all the way until 2058. Meanwhile, though, the B-2s can't get into depot maintenance quickly enough.

The fleet is receiving major upgrades as it goes through planned depot rework at a rate of three per year. Northrop Grumman, the original B-2 contractor, is adding the Alternate High Frequency Material (AHFM) low observable finish to the aircraft at Air Force Plant 42 in Palmdale, Calif.

This "spray-on" stealth coating dramatically reduces the maintenance time that is required to fix up a B-2 and return it to mission-ready status.

As of November, the Whiteman wing had deployed six AHFM-equipped bombers. An additional eight bombers now at Whiteman went through PDM before the AHFM program, according to Don Wilkes, chief B-2 engineer for Northrop Grumman. Plans call for applying the finish to all of the bombers.

The bomber fleet is not a static entity. In time, the B-2 and B-52 will have a new stable mate. Under current USAF plans, the service will make its initial deployment of a next generation long-range strike aircraft in 2018. (See "The 2018 Bomber and Its Friends," October 2006, p. 42.)

Like the B-2 and B-52, this bomber



Capt. Patrick Hook performs a walk around of a B-52 at Minot AFB, N. D. The Air Force currently has more B-52s than crews to fly them.

will have nuclear-weapons-carrying capability, said Newton, and will shoulder its share of the nuclear mission. It will also have a conventional strike capability.

Then there are standoff nuclear cruise missiles, the ground-hugging flying bombs introduced in the 1970s, which, by obviating the need to penetrate sophisticated air defenses, extended the useful life of the B-52.

Today, the Air Force has an inventory of 1,140 AGM-86 Air Launched Cruise Missiles and 460 stealthy AGM-129 Advanced Cruise Missiles, all of which have nuclear payloads.

There is no certainty that USAF will seek to acquire a next generation nuclear cruise missile. At present, the Air Force has no firm plans for developing a successor to today's bomber-born cruise missiles.

Harry C. Disbrow Jr., Air Force assistant director of operational capability requirements, said service officials still are engaged in policy debates about whether new nuclear cruise missiles are necessary or desirable.

In the meantime, he said, both cruise missile types are being well-maintained and regularly updated. Major service life extensions will keep them operational until at least 2030.

Some military officials in the combat commands are proposing bomber enhancements of their own. They seek to bring about improvements in "connectivity"—that is, links between the bomber force and its commanders.

Leaders of US Strategic Command

The Decline of the Mighty Arsenal

Under terms of the 2001 US Nuclear Posture Review and the 2002 Moscow Treaty, Washington will drastically reduce its force of operational warheads—those stored near, or on, their actual delivery systems and ready for swift employment.

The Congressional Research Service notes that the US had more than 12,300 nuclear warheads in 1990. The target is about 2,200 warheads by the end of 2012. Thus, once cuts are complete, only about 20 percent of America's fearsome Cold War arsenal will remain.

How many nuclear weapons does the US now have? It depends on what "counting rules" you use.

The private Arms Control Association calculates that, under rules established by the US-Soviet Strategic Arms Reduction Talks treaties, the US in 2006 had 5,966 warheads.

Yet that total is squishy. For one thing, it includes 500 warheads from the now-defunct Peacekeeper ICBM (because the US has not destroyed the Peacekeeper launchers). For another, it attributes 81 warheads to the B-1B bomber, which doesn't carry nuclear weapons anymore.

Each B-1B and B-2 bomber counts as only a single warhead, though they once could drop tens of nuclear bombs. Each B-52 counts as 10 warheads.

On the other hand, the US way of calculating does not count thousands of nuclear warheads that are in storage—away from their delivery systems—but presumably usable.

and the other unified combatant commanders "have asked for increased connectivity for global strike forces," said Elder. In a developing crisis, bombers must be able to receive mission updates—whether new targets or even a recall order.

B-52s will undergo refurbishment in the Combat Network Communications Technology (CONNECT) program, a long-term upgrade that will add extremely high frequency (EHF) satellite communications, the Link 16 data link,

and other connectivity improvements.

Elder and Charchian both praised the B-52 Avionics Midlife Improvement program, which will vastly improve the bomber's computer and navigation systems.

The B-2 also will get radar improvements and a powerful EHF satellite communications capability that will ensure its secure connectivity throughout an entire nuclear mission profile.

Programs such as these are typically initiated "for the nuclear mission," Elder said, but are "at least as useful for some of the conventional missions that we're dealing with."

Dual-Mode Deterrence

This kind of dual-mode deterrence capability promises to become increasingly important. In Elder's view, the reassurance of friends and allies will require Washington to "have the capability to be [globally] responsive—without being forced to go and use nuclear weapons."

Put another way: Today's global missions require "strategic options," but not necessarily nuclear options.

In many ways, a heavy bomber's combination of global range and large, diverse payload makes it the ideal platform for the new age of deterrence. It can perform strategic missions with or without nuclear weapons, and can either signal a warning or deliver a massive punch between the eyes.

USAF photo by MSgt. Val Gempis



SSgt. Nick Grady (center) and three other airmen perform a phase inspection on a B-52 deployed to Andersen AFB, Guam.

Both the B-52 and the B-2 (and the B-1B, which by treaty no longer has any nuclear capability) can generate strategic effects with conventional weapons. The B-52, of course, carries an enormous bomb load and has non-nuclear cruise missiles at its disposal.

A new smart bomb rack for the stealth bomber allows the B-2 to deliver up to 80 independently targetable, satellite-guided Joint Direct Attack Munitions. The B-2 also can drop a mammoth, bunker-busting 5,000-pound EGBU-28 bomb.

In 8th Air Force today, priorities are almost evenly balanced between the nuclear and conventional missions. "Probably only about 25 percent of the [crew] training we do is focused solely on nuclear" missions, Elder said. Another 25 percent applies only to conventional operations. The other 50 percent of the training "could go either way," he said, in that it could support either type of mission.

In the face of tensions on the Korean Peninsula, the US has continuously deployed heavy bombers to Andersen AFB, Guam, in a reinforcement of US military commitment to the region. At the end of 2006, the 96th Bomb Squadron at Barksdale was preparing for a rotation to Guam to support the Pacific presence mission. These four-month deployments typically involve more than 250 airmen and six bombers.

Officials say bomber crews are prepared to perform nuclear and conventional operations at all times. Charchian said his B-52 wing carries out a balanced program of exercises and inspections for both types of missions.

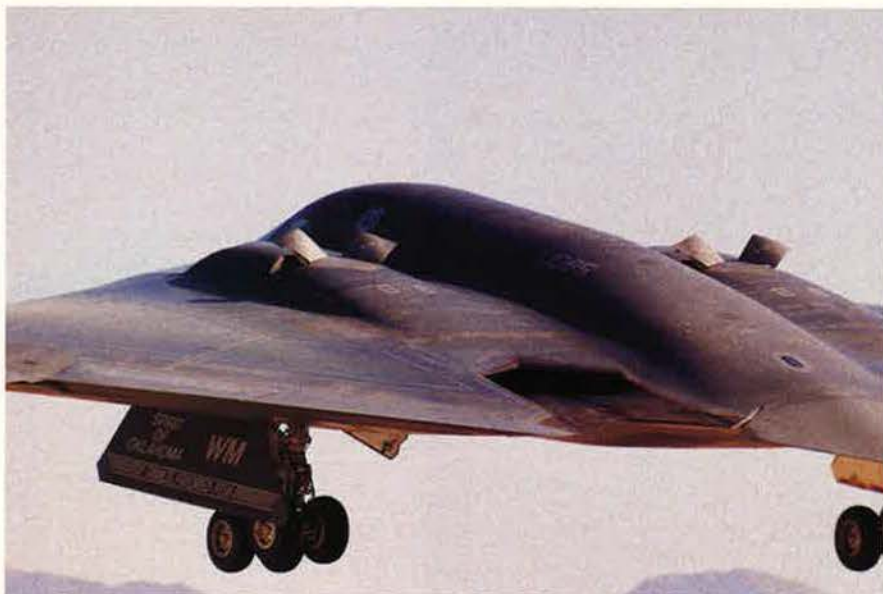


Photo by Richard VanderMeulen

A B-2 takes off from Nellis. The stealth bomber is valued for its ability to reach and attack the most heavily defended of enemy targets.

A recent nuclear surety inspection "put us at the height of readiness for our nuclear mission," he said. The NSI is a base-wide evaluation of every aspect of the nuclear mission, from maintenance of weapons and storage safety to aircrew preparation and correct "control" procedures. A team of 55 Air Combat Command inspectors in October spent a week at the base performing the NSI.

The base also has periodic nuclear operational readiness inspections, which evaluate its ability to generate wartime sorties.

High Standards

Nuclear weapons demand the highest standard of training and security, so the base has an NSI at least once every

18 months. Maj. Brett Wilkinson, who led the NSI preparation effort for the base, noted that Barksdale's overall "satisfactory" rating was "the best you can get."

When the NSI was completed, the 96th BS returned its focus to the skills needed for the upcoming Pacific mission. Planners "look at potential adversaries in the theater" and make indicated adjustments to force planning and training, said Lt. Col. Tom Hesterman, director of operations for the 96th.

Certain taskings are different for the Pacific mission, he said. The deploying crews focus on conventional skills, such as non-nuclear cruise missile operations and low-altitude mine-laying, all while remaining "on tap" for possible taskings from US Strategic Command.

Even at the height of conventional preparations, the B-52 units will still be conducting small exercises for STRATCOM, said Charchian. When the 96th BS returns from Guam in the spring, it will begin its spin up for the next nuclear operational readiness exercise.

"The priority ... when they come back from a deployment is to focus on nuclear training," Elder said. "Then, as you're getting ready for deployment again, you focus on the requirement" for that particular mission.

"We kind of alternate between the nuclear and the conventional" focus, Charchian said, but "it is not tiered readiness; we are always ready to do both missions." ■



USAF photo by MSgt. Lance Cheung

SSgt. Kory McLeod inspects the wingtip of a B-52. USAF's nuclear-capable bombers prepare equally for nuclear and conventional missions.



USAF photo by MSgt. Scott Weigens

“Kill or capture Rocket Men.” That, in a nutshell, was the mission of Operation Desert Safeside. In this unusual action, USAF security forces took full responsibility for a sector of base defense around Balad Air Base in Iraq. It was the first time since 1969 that airmen had staged an offensive ground campaign, according to MSgt. Rodney Holland, first sergeant of the 823rd Security Forces Squadron.

“Rocket Man” was the enemy, and he seemed to be everywhere.

Desert Safeside, which unfolded in

early 2005, came about for a straightforward reason: Insurgents were pelting Balad with mortars and small-arms fire, and it had to stop. In the preceding 12 months, the bad guys had hit Balad with a total of 359 indirect-fire attacks, killing 14 and wounding 25.

For Col. Bradley D. Spacy, the operation’s planner, the attacks carried clear implications. He knew “the only way to stop the enemy from attacking our air bases was to go out and kill or capture him and take his weapons.”

The quickly assembled team of more than 200 USAF security forces did

precisely that. The team mounted 338 combat patrols, 56 sniper insertions, 26 direct action patrols, and 131 hasty raids. By the time it was over, the airmen had bagged 17 “high value” enemies, discovered eight major arms caches, and seized more than 100 heavy weapons.

Equally important, every airman came back alive.


Prime Target

Not since the Vietnam War in the 1960s had Air Force security forces pulled together that kind of concerted, outside-the-wire effort. Balad sat in

Safeside in the Desert

Two years ago, security forces airmen mounted a campaign that still reverberates in defense circles.

By Rebecca Grant



A Black Hawk helicopter touches down near Balad AB, Iraq.

the midst of a Sunni-dominated area about 50 miles north of Baghdad. The base quickly became a prime target for small-arms fire and mortar attacks.

One July 2003 incident produced 16 US casualties, but that was just the beginning. On one day in April 2004, 20 mortars hit the base. In July 2004, one attack killed four and wounded 20.

This was intolerable. Balad was essential to coalition operations in Iraq. Its 11,000-foot runway was used by Air Force fighters and mobility aircraft, Army helicopters, and various types of

unmanned systems. The Army's Logistic Support Area Anaconda was built up around the airfield.

Balad acquired greater importance in mid-2004 when the commander of US Central Command, Army Gen. John P. Abizaid, said the base would become the region's primary military air hub, allowing Baghdad Airport to revert to civilian control.

By that time, incoming mortar fire had become almost routine. The 2,000 airmen and 13,000 Army soldiers at Balad and Anaconda were constantly at risk. Mortars peppered runways,

taxiways, areas near chow halls, and other buildings.

One airman who had just finished refueling a C-5 transport, saw a rocket land right in front of his truck. He swerved, but hit the unexploded round anyway.

For all that, airmen kept up the refueling and maintenance of about 220 aircraft per week.

At first, the Army forces responsible for guarding Balad tried to counter the mortar fire. Counter-battery radar permitted soldiers to pinpoint firing locations to within about five yards and



Members of Task Force 1041 patrol near Baghdad, performing searches and fighting when necessary.

quickly return fire. Predators armed with Hellfire missiles performed surveillance and strike missions.

During one attack, Predators scanned the base area while Apache attack helicopters hovered nearby, ready to launch missile or gun attacks.

Yet the mortar rounds kept falling, and no one could find the attacker. "You can see how hard it is to spot one or two guys with a tube," Maj. John Erickson, a Predator pilot, told the *Christian Science Monitor*.

However, by the fall of 2004, it was clear that reacting to Rocket Man was not enough. Army patrols outside the base were accomplishing little.

Aircraft were also taking hits. One F-16, a UH-60, and three CH-47s were damaged—along with numerous other vehicles.

It was at that point that a small group of security forces airmen decided to go on the offensive. In fall 2004, Lt. Gen. Walter E. Buchanan III, then commander of US Central Command Air Forces, approved the plan. It called for 60 days of aggressive, offensive operations outside the wire. Airmen from the 820th Security Forces Group provided the core group of personnel.

They called themselves Task Force 1041—a name used by their Vietnam War forebears. (See box, p. 47.)

Pickup Game

It was something of a pickup game. The force's on-scene commander, Lt. Col. Chris Bargery, was seconded from another post to run the operation. In need

of more than 200 security forces, planners began pulling together personnel and equipment from different sources. Eighty percent of the forces came from other locations in Iraq, the rest from the US and worldwide bases.

One who got the call was Amn. Aaron Szulborski, who was deployed to Kirkuk Air Base, about 160 miles northwest of Baghdad. Szulborski didn't know quite what to expect from this new mission. His duties at Kirkuk included manning towers and guarding the perimeter gates. Security forces did some dismounted patrols

off base, but as Szulborski said, "the area wasn't as dangerous."

SSgt. Michael Minnick was one of those responsible for pulling the mission together. Minnick explained how they tapped individual troops based primarily on weapons qualifications: the M-2 machine gun, MK-19 automatic grenade launcher, and M-240 turret mounted machine gun.

Planners also scoured Iraq for equipment. Up-armored Humvees arrived from as far away as Japan.

When the chosen forces arrived at Balad, they embarked on two weeks of intensive training to improve combat skills and unit cohesion. "The Army told us what they wanted to see: how we reacted to contact, small-arms fire, and IEDs, how we handled personnel, both good guys and bad guys," said Minnick. For three days, the TF 1041 team leaders rode "right seat" with the Army unit they'd replace.

Then, it was time to carry out the mission.

Operation Desert Safeside began officially on Jan. 1, 2005. Task Force 1041 assumed responsibility for one whole sector of the base's perimeter area. USAF forces remained under the TACON—tactical control—of the Army's 2nd Brigade Combat Team. TF 1041's designated area of operations was one of the most violent areas in the region. It was "roughly 10 kilometers wide and six [kilometers] deep, ranging from the Balad perimeter fence to the Tigris River," said planner Spacy.



TSgt. Christopher Barnett and his military working dog, Rocco, search for explosives during a dismounted patrol near Balad Air Base.

TF 1041 went straight to the heart of the problem. Its mission was to target the so-called "anti-Iraq forces." Around Balad, those threats consisted of local insurgents, foreign fighters, and terrorist cells. Targets included the brains of the organizations, such as financiers, organizers, and bomb-makers. Part of the plan was to disrupt logistics and hiding places in the areas around the Tigris.

Backing up the security forces were tremendous resources mustered by Central Command Air Forces. At the Combined Air Operations Center, intelligence-surveillance-reconnaissance types became top-flight insurgent trackers.

Teams patrolled constantly. Some individuals went out on several operations per day. "Being on the offensive was different for all of us," said Minnick.

Szulborski's group got hit by an improvised explosive device on one of its first patrols. Szulborski was facing the rear, from his position as the No. 2 Humvee's turret gunner, when the lead vehicle was hit. He heard the explosion, "saw black smoke everywhere," and doubted anyone in the forward Humvee would survive.

Fortunately, no one was hurt: The enhanced armor worked. TF 1041 took more IED hits but suffered no casualties. "The worst thing that happened was ringing ears," said Minnick.

One Team

Participants were quick to point out that TF 1041 augmented theater man-

The Original Task Force 1041

In fall 1965, a survey of Vietnam air bases revealed potential security problems. Under instructions from Gen. John P. McConnell, Air Force Chief of Staff, a select group of airmen completed Army Ranger training then exercised in mountain operations in Hawaii.

The 1041st Security Police Squadron (Test) stood up on Sept. 1, 1966. It was to carry out Operation Safeside.

Among its first deployment sites was Phu Cat Air Base in South Vietnam. In 1967, the unit maintained security in a 9.3 square-mile area with a combination of day and night reconnaissance patrols, sweep operations, and other tactics. Before it left, the 1041st trained other security police at the base.

"I remember well the small groups of men in camouflage uniforms moving out of the base camp at dusk, dedicated to taking the night and the jungle away from the enemy," recalled Lt. Col. William H. Wise, an early leader of TF 1041.

"Some day perhaps the Air Force will once again find itself unprepared to protect its people and resources in a hostile environment," said Wise during the 1969 stand-down ceremony for the 1041st. "There may be another crash program to organize, train, equip, and deploy a unit such as Safeside."

Thirty-six years later, his prediction was borne out.

power and that they worked under the "one team, one fight" concept with Army forces.

Yet there were specific differences in the airmen's approach. First, TF 1041 was able to "saturate the area with the manning we had," said MSgt. Paul J. Schaaf II, 823rd Security Forces Squadron. That was something the Army forces protecting Balad had not been able to do because of other demands.

The area of responsibility for the land component forces covered thousands of square miles, whereas the airmen focused on defending their air base.

The increased manning of TF 1041 allowed it to take the initiative. Desert Safeside extended the base security zone

well beyond the formal base boundary. In this new operations concept, nearby rural areas and villages were part of the security area.

USAF security forces took on a spectrum of missions ranging from meeting with locals to searching out weapons caches, all in the name of better security in that zone.

The Desert Safeside mission, said Schaaf, attracted "the most resources I've had available in my whole career." These went from Army helicopters to Predator UAVs, and the security forces had a wealth of real-time ISR data at their disposal.

TF 1041 had quite a few women airmen. Two were members of Schaaf's team. One was a fire team leader. "She was leading guys in" on direct action patrols, said Schaaf. "They were trained and hardened just like the guys were." One TF 1041 member, SrA. Polly-Jan Bobseine, was named Air Combat Command's Airman of the Year for her performance in Desert Safeside. (See "The Outstanding Airmen," September 2006, p. 96.)

Many of TF 1041's raids sought to capture individuals tracked by CENTCOM. Planners used pattern analysis of insurgent activity to help pinpoint when a target would be at a specific location.

Direct action was seen by some as a "very unorthodox" operational method for security forces, Schaaf said, because "we are not special ops." A typical pattern for these direct action patrols would be to get a call "to go get this high value target at this time." The team would make its way to the site and then leave its armored vehicles. Entry teams

USAF photo



A1C Rebecca Weston turns in her automatic weapon to SSgt. Sean Morris after a patrol near Balad Air Base in Iraq.



SSgt. Myron Verett (l) and SSgt. Joseph Trumbull, both with TF 1041, conduct a patrol outside the wire of Balad.

would then clear suspected insurgent strongholds.

By the Book

In their 60-day campaign, the security forces teams were careful to handle captive insurgents strictly by the book. Schaaf said he had heard about abuses of prisoners elsewhere. "I told my guys, 'We don't need that kind of problem,'" said Schaaf.

Other missions targeted the attackers' key strength: their ability to freely roam the area, set up mortars, shoot, and then disappear into the urban jungle.

Turret gunner Szulborski said some of his missions entailed establishing traffic control points; others involved talking with local Iraqi residents and getting their assistance.

Airmen found it was common for their patrols to attract small-arms fire. Usually, what they heard were potshots taken from a distance. "All they were trying to do was bait you out of your vehicles," Minnick said.

Around Balad, mortar attacks "went down to nothing" during the 60-day operation, noted Schaaf.

Desert Safeside took security operations to a new level. An after-action report stated: "Task Force 1041 proved the Air Force possessed the capabilities needed to successfully dominate the base security zone [BSZ] and provide a secure operating environment from which to launch, recover, and sustain airpower."

The operation "dispelled the per-

ception that Army units are better organized, trained, and equipped than Air Force security forces to conduct such operations," said the after-action report.

Desert Safeside set the standard for securing air bases in the middle of hot spots. Two years later, the full implications of the operation are still being debated, but there's no turning back. The Air Force and Army formally agreed in 2005 to drop Joint Service Agreement 8, which tasked the Army with defending bases in theater.

Reinforcing the point, joint doctrine published in August 2006 directed that "forward operating bases protect themselves against direct and standoff threats designed to interrupt, interfere, and impair the effectiveness of joint operations."

Gen. Ronald E. Keys, ACC commander, said that, in the past, airmen "were based far enough back ... that people didn't have to worry" about defending them. "Now that we're doing forward basing, and we're out there in our own little foxhole, someone has got to worry about defending the bases."

As Desert Safeside showed, securing an expeditionary air base is not like defending an Army post. Keys said,

"When you have a lot of thin-skinned pieces of machinery sitting around on the ramp, you're going to want to push the threat out ... farther than if you've got land forces on a post"—because the land forces have more inherent self-defense capability.

Securing the air base demands a bigger perimeter, to protect approach and departure corridors and keep flight line and base support activities safe.

Air Force officials feel it is essential to defend the air base out to about six miles, the typical range of weapons that could attack aircraft and other targets. Providing such a perimeter requires security forces to conduct offensive operations.

New Debate

The question of how to posture for that mission is causing debate within the Air Force because of the perceived trade-offs with other security forces missions. According to Keys, the Air Force has been analyzing how many bases its security forces should defend and at what threat levels.

One school of thought advocates preparing all USAF security forces for enhanced missions. Balad was a high-threat location, but it did have significant infrastructure in place. Early in a conflict, it might take even more personnel—perhaps hundreds of security forces—to secure a major base for full-scale flight operations.

Some bases, such as those in remote spots or in allied territory, would require much lighter manning to provide the same six-mile buffer.

Domestic base security needs must still be taken into account. Nuclear security remains a high-priority, manpower-intensive mission.

Commanders also want tranquility at their home bases. "We're just like any big city, and so we have a requirement for some law and order on our bases," said Keys of the ACC bases.

As a result, it is not clear when there will be another mission like Desert Safeside, but the participants say they are ready. "We know how to guard an air base," Schaaf asserted. "If those are our resources, why aren't we protecting them?" ■

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. Her most recent article, "Cat Against the Sun," appeared in the January issue.



WHERE THERE'S A V-22, THERE'S A WAY.

NO OTHER AIRCRAFT GETS SPECIAL FORCES IN AND OUT OF DANGER LIKE THE V-22.

Ready for deployment this year, the Bell Boeing V-22 revolutionizes insertion and extraction. It performs at night, in any weather, and completes missions in one period of darkness. Helping special forces leave the same way they arrived: undetected.

Bell
Helicopter A Textron Company

BOEING



©2006 Bell® Helicopter Textron Inc./Boeing, all rights reserved.

10.41.413

© 1971 The New York Times Company

NEW YORK, SUNDAY, JUNE 13, 1971

The Times is published seven days a week, except on public holidays.

BQLI 50 CENTS

Nixon Takes Vows Men at White House

CITY TO DISCLOSE BUDGETARY TRIMS FOR DEPARTMENTS

Vietnam Archive: Pentagon Study Traces 3 Decades of Growing U. S. Involvement

U.S. URGES INDIANS AND PAKISTANIS TO USE RESTRAINT

KEY TAGO

Following are the text of the Pentagon's study of the December, 1963, through the 1964, and its aftermath. Except the documents are printed verbatim, typographical errors corrected.

McNamara Report On the Situation in

Situation," from
on B. Johnson, D
quest this
any con-
nam on
I ha
ously
4.
during
my des
has in
country
extent th

The Pentagon Papers

A secret study of the Vietnam War set off an incredible sequence of events.

By John T. Correll

In June 1967, Secretary of Defense Robert S. McNamara commissioned a sweeping study of the Vietnam War that would later become known as "The Pentagon Papers."

Earlier, McNamara had been a leading proponent of US involvement in Vietnam, but by 1967, he was disillusioned with the war and no longer believed in the policies he had been so instrumental in establishing.

His motives for launching the Pentagon Papers project are not clear. Years afterward, McNamara said his purpose had been to preserve a written record for researchers, but there are doubts about his explanation.

When the Pentagon Papers were published by the newspapers in 1971,



FROM PEN- TETNAM STUDY

ments accompanying
var, for the period
incident in August,
rpting is specified,
only unmistakable

Johnson
on in '63

Defense Robert S.

it and are acting vigor-
specific spheres.
progress has been great
since the coup, with
ing that the situation
deteriorating in the
July to a far greater
ized because of our
on distorted Viet-
The Viet Cong now
proportions of the
y provinces, par-
ly south and west
ic Hamlet Program
extended in those
et Cong has been
7 hamlets, while
foned or in some
by the govern-
1 Corps. In these
Cong have de-
roads, and are

we must get
ste its military
e strength in
lly doubted.
for increases
M staffs, in-
sible, inde-
be status of
pacification
cating ade-
remaining
and work

predom-
und the
to ac-
ves was
on. The
central
d does
ostan-
Hark-
made
all of

an
suc-
ible
the
ich
rol
er.
ne
re
is
t
-

Cambodia; (b) the Mekong River water-
ways from Cambodia; (c) some possible
entry from the sea and the tip of the
Delta. The best guess is that 1000-1500
Viet Cong cadres entered South Viet-
nam from Laos in the first nine months
of 1963. The Mekong route (and also
the possible sea entry) is apparently
used for heavier weapons (and also
million and raw materials which have
been turning up in increasing numbers
in the south and of which we have
captured a few shipments.

To counter this infiltration, we re-
viewed in Saigon various plans pro-
posed for cross-border operations into
Laos. On the scale proposed, I am
quite clear that these would not be
politically acceptable or even militarily
effective. Our first need would be im-
mediate U-2 mapping of the whole Laos
and Cambodian border, and this we are
preparing on an urgent basis.

One other step we can take is to
expand the existing limited but remark-
ably effective operations on the Laos
side, the so-called Operation HARD-
NOSE, so that it at least provides rea-
sonable intelligence on movements all
the way along the Laos corridor; plans
to expand this will be prepared and
presented for approval in about two
weeks.

As to the waterways, the military
plans presented in Saigon were unsat-
isfactory, and a special naval team is
being sent at once from Honolulu to
determine what more can be done.
The whole waterway system is so vast,
however, that effective policing may be
impossible.

In general, the infiltration problem,
while serious and annoying, is a lower
priority than the key problems dis-
cussed earlier. However, we should do
what we can to reduce it.

6. Plans for Covert Action into North
Vietnam were prepared as we had re-
quested and were an excellent job.
They present a wide variety of sabotage
and psychological operations against
North Vietnam from which I believe we
should aim to select those that pro-
vide maximum pressure with minimum
risk. In accordance with your direction
at the meeting, General Krulak of the
JCS is chairing a group that will lay
out a program in the next ten days for
your consideration.

7. Possible neutralization of Vietnam
is strongly opposed by Minh, and our
attitude is somewhat suspect because of
editorials by the New York Times and
mention by Walter Lippmann and others.
We reassured them as strongly as pos-
sible on this—and in somewhat more
general terms on the neutralization of
Cambodia. I recommend that you con-
vey to Minh a Presidential message for
the New Year that would also be a ve-
hicle to stress the necessity of strong
central direction by the government and
specifically by Minh himself.

8. U.S. resources and personnel can-
not usefully be substantially increased.
I have directed a modest artillery sup-
plement, and also the provision of uni-
forms for the Self Defense Corps, which
is the most exposed force and suffers
from low morale. Of greater potential
significance, I have directed the Mil-
itary Departments to review urgently
the quality of the people we are send-

former President Lyndon B. Johnson
and former Secretary of State Dean
Rusk—who were not informed about
the project—speculated that the in-
tention had been to provide political
ammunition for McNamara's friend,
Robert F. Kennedy, who challenged
Johnson for the Democratic presiden-
tial nomination in 1968.

"I never thought to mention the
project to the President or the sec-
retary of state," McNamara said in
his memoirs. "It was hardly a secret,
however, nor could it have been with
36 researchers and analysts ultimately
involved." In actuality, the study was
carried out with great secrecy, and
special measures were taken to avoid
discovery by the White House.

The Vietnam Study Task Force was
created June 17, 1967 and tasked with
creating an "encyclopedic history of
the Vietnam War." Cleverly, McNa-
mara did not assign the job to the
regular historians in the Department
of Defense. Instead, he gave it to his
trusted colleague, John T. McNaugh-
ton, assistant secretary of defense for
international security affairs. General
supervision of the project was assigned
to McNaughton's deputy, Morton H.
Halperin. Leslie H. Gelb, the director
of policy planning and arms control
in ISA, was picked to direct the study
on a daily basis.

There was an extraordinary number
of linkages between the Pentagon Pa-
pers project and Harvard University.
According to David Rudenstine, author
of *The Day the Presses Stopped: A
History of the Pentagon Papers Case*

(University of California Press, 1996),
the idea for the study may have first
occurred to McNamara during a visit
to the Kennedy Institute of Politics at
Harvard in November 1966.

McNaughton, who encouraged Mc-
Namara to sponsor the project, had
been a professor of law at Harvard.
McNaughton's first action, after re-
ceiving his direction for the study
from McNamara, was to ask Harvard
professor Richard E. Neustadt to lead
it. When Neustadt was not available,
McNaughton turned to Halperin and
Gelb, who had been faculty assistants
to Henry A. Kissinger at Harvard.
(At one point, Kissinger himself was
consulted on structure of the secret
study. He does not mention this in
his memoirs.) One more Harvard con-
nection was yet to come when Daniel
Ellsberg, Ph.D., Harvard, 1963, briefly
joined the study in 1967 as one of the
analysts.

Once McNamara set the project in
motion, he did not interfere with it. He
figured it would take about six people
and would be finished in three months.
Ultimately, Gelb employed 36 analysts.
Half of them were active duty military
officers. A fourth were federal civilian
employees, and the final fourth were
professional scholars. When McNa-
mara left office in February 1968, the
study was still in progress.

The Study

Gelb's team worked primarily from
documents in the Office of the Secre-
tary of Defense files. There were no
interviews, no calls to the military

Daniel Ellsberg. After two weeks
on the run, Ellsberg (l) on June 28,
1971 arrives at the federal courthouse
in Boston, where he was promptly ar-
rested.



Anthony J. Russo Jr. Ellsberg accomplice and co-defendant enters the federal
courthouse in Los Angeles.

Photo © Beltrami/Corbis



Robert S. McNamara. Before his disillusionment, the Pentagon chief and architect of the war makes an upbeat tour of South Vietnam.

services for input, no consultation with other federal agencies. According to Halperin, these restrictions—as well as the top secret classification—were intended to keep national security advisor Walt W. Rostow from learning about the project, telling Lyndon Johnson, and getting it canceled.

The study drew mainly on McNamara's and McNaughton's files. William P. Bundy, former assistant secretary of state for far eastern affairs, also provided some material. The OSD files included some documents from the CIA and the services, but the study team had no access to White House files or to military department documents unless copies had been sent to McNamara or McNaughton.

On Jan. 15, 1969, five days before the Nixon Administration took office, Gelb sent the completed study to Secretary of Defense Clark M. Clifford, who claims that he never read it.

In his letter of transmittal to Clifford, Gelb said that the early chapters “concerning the years 1945 to 1961 tend to be generally nonstartling—although there are many interesting tidbits.” The fireworks were embodied in the bulk of the study that followed, covering the overthrow of South Vietnamese President Diem, the Tonkin Gulf incident, the beginnings of the air war and the ground war, strategy and diplomacy, and candid assessments along the way.

Gelb and Halperin classified the study “Top Secret—Sensitive.” As

author Rudenstine has noted, “Sensitive” was not part of the official classification system. They added it as a signal that disclosure of the contents could cause embarrassment.

The study filled 47 volumes, a total of 7,000 pages. Of these, 3,000 pages were historical studies and the other 4,000 pages were government documents. The official title was “US-Vietnam Relations, 1945-1967: History of US Decision Making Process on Vietnam Policy.” It was dubbed “The Pentagon Papers” by the news media in 1971.

Only 15 copies of the study were produced. Of these, two copies were deposited with RAND, a federal contract research center that did a considerable amount of defense work. One of the RAND copies was contributed by Paul Warnke, who succeeded McNaughton at International Security Affairs. The other was from Gelb and Halperin, who had been given a copy jointly. Access to the RAND copies required concurrence from two out of the three donors.

Ellsberg Copies the Papers

Daniel Ellsberg had drifted in and out of defense policy circles for years. He was on first-name terms with McNaughton, Halperin, Gelb, and Kissinger. He graduated from Harvard in 1952 and finished his course work for a Ph.D. in economics in 1954, but his doctorate was not awarded until he completed his dissertation in 1963. He served as a Marine Corps infantry officer for two years in the 1950s, then went to work for RAND.

In July 1964, McNaughton offered him a job as his special assistant. In that capacity, his most important duty was screening all of the information that came in on Vietnam. Ellsberg figured this would lead to his appointment “at the deputy assistant secretary level” in less than a year. That did not happen, and in 1965, he moved over to the State Department and went to Vietnam as a foreign service officer.

When Ellsberg returned to the Unit-



Lyndon B. Johnson. The Texan, seen here in 1964, soon became a war president. He later suspected McNamara of conniving with Robert F. Kennedy.



McNamara (l) and John T. McNaughton. McNamara bypassed regular DOD historians in favor of giving the project to McNaughton, a trusted political ally.

ed States in 1967, Halperin and Gelb recruited him to work on the Pentagon Papers for several months. He went back to RAND in 1968. At this point, he was choosing his friends and associates primarily from the political left and his opposition to the Vietnam War had hardened.

In 1969, he requested access to the RAND copies of the Pentagon papers. Gelb was reluctant to give approval, but Halperin—who was then on Kissinger's staff at the National Security Council—spoke up for Ellsberg and Gelb relented.

Unknown to Halperin and Gelb, Ellsberg had already leaked at least one classified document to the *New York Times* in 1968. Now, finding himself in possession of "7,000 pages of documentary evidence of lying by four Presidents and their Administrations over 23 years to conceal plans and actions of mass murder," Ellsberg decided to copy the study and "get it out somehow."

Copying of the Pentagon Papers began the night of Oct. 1, 1969. Ellsberg enlisted Anthony J. Russo Jr., a like-minded colleague who had recently been let go by RAND, to assist him. They made their copies on a machine at an advertising agency owned by a friend of Russo's. Ellsberg carried the papers out of RAND at night in batches in his briefcase and returned them the next morning. He made multiple sets of the papers, which he would put to effective use in due time.

Ellsberg did not give the papers to the newspapers right away. Instead, he shopped them around Washington, of-

fering them to Kissinger, Sen. J. William Fulbright, Sen. George McGovern, and others. He found no takers.

New York Times and Nixon

In February 1971, Ellsberg told Neil Sheehan of the *New York Times* about the papers and they began discussing the possibility of publication. In March, Ellsberg made the papers available to Sheehan. He held back four of the volumes, covering diplomatic history from 1964 to 1968, to avoid criticism that he had harmed the peace negotiations.

Sheehan made copies and took them to his leaders. The *Times* decided to publish the material, despite warnings from its lawyers that newspaper officials would be vulnerable to prosecution under the criminal espionage statutes.

Publication of all 7,000 pages in the newspaper was not possible. The editors decided to print 134 of the documents along with staff-written introductions and summaries instead of the long and dull "narrative-analyses" from the actual study. The published material did not go beyond the information in the study except where necessary to establish enough context for understanding by general readers.

The first installment appeared in the *Times* on Sunday, June 13, with a front page headline that said, "Vietnam Archive: Pentagon Study Traces Three Decades of Growing US Involvement."

The debut of the Pentagon Papers was underwhelming. *Time* Magazine described the layout as "six pages of

deliberately low-key prose and column after gray column of official cables, memorandums, and position papers. The mass of material seemed to repel readers and even other newsmen. Nearly a day went by before the networks and wire services took note."

President Nixon's reaction that Sunday morning was that the damage fell mostly on the Johnson Administration and that he should leave it alone. That afternoon, however, security advisor Kissinger convinced Nixon that he had to act on "this wholesale theft and unauthorized disclosure."

"The massive hemorrhage of state secrets was bound to raise doubts about our reliability in the minds of other governments, friend or foe, and indeed about the stability of our political system," Kissinger said in his memoirs.

Once energized, Nixon soon became obsessed. Dissatisfied with the FBI's progress in the case, he organized his own group of investigators in the White House. They styled themselves "the plumbers" because their job was to stop leaks.

What the Study Disclosed

Most of what the Pentagon Papers revealed was already known in a general way, or at least suspected. A *Washington Post* editorial June 17 said, "The story that unfolds is not new in its essence—the calculated misleading of the public, the purposeful manipulation of public opinion, the stunning discrepancies between public pronouncements and private plans—we had bits and pieces of all that before. But not in such incredibly damning form, not with such irrefutable documentation."

The archive also provided complete documents rather than excerpts, and it exposed the differences between official public statements and what government officials were saying to each other internally. Among the instances noted were these.

- The Diem overthrow. The Kennedy Administration professed shock and surprise when South Vietnamese President Ngo Dinh Diem was overthrown and killed in November 1963. However, in a top secret cablegram Aug. 29, Ambassador Henry Cabot Lodge said, "We are launched on a course from which there is no respectable turning back: the overthrow of the Diem government." On Oct. 30, McGeorge Bundy, special assistant to the President, cabled Lodge that "once



Leslie H. Gelb. DOD policy planning head had day-to-day control of the study. He later became a State Department official and New York Times correspondent.

a coup under responsible leadership has begun, ... it is in the interest of the US government that it should succeed." Bundy said there should be no direct US intervention on either side "without authorization from Washington."

■ Escalation of the war. In the 1964 election campaign, the Democrats depicted Republican challenger Barry M. Goldwater as a dangerous extremist, determined to expand the war into North Vietnam. In fact, the Administration's thoughts were not all that different from Goldwater's.

In September, a contingency plan by McNamara's confidant, McNaughton, proposed actions that "should be likely at some point to provoke a military response [and] the provoked response should be likely to provide good grounds for us to escalate if we wished." Care should be taken, McNaughton said, so these actions were not "distorted to the US public" before the upcoming elections.

■ The ground war. In October 1964, Johnson said, "We are not about to send American boys nine or ten thousand miles away from home to do what Asian boys ought to be doing for themselves."

In March 1965, two Marine battalions landed at Da Nang for the sole purpose of defending the air base there. Less than a month later, their mission was changed "to permit their more active use." The White House directed that "premature publicity be avoided" to "minimize any appearance of sudden changes in policy" and continued

to deny that the mission of ground troops in Vietnam had changed. In July, Johnson approved the deployment of 44 ground battalions to Vietnam.

■ Purpose of the war. In early 1964, Johnson and McNamara said that the central US aim was to secure an "independent, non-Communist South Vietnam." In a March 24, 1965 "Plan for Action for Vietnam," McNaughton listed a different set of priorities:

"US Aims: 70 percent—To avoid a humiliating US defeat (to our reputation as a guarantor). 20 percent—To keep SVN (and the adjacent) territory from Chinese hands. 10 percent—To

permit the people of SVN to enjoy a better, freer way of life. ALSO—To emerge from the crisis without unacceptable taint from methods used. NOT—To 'help a friend,' although it would be hard to stay in if asked out."

The Case Goes to Court

The Justice Department had several options in how to proceed with the Pentagon Papers case. One of its most powerful tools was the Espionage Act of 1917, which authorized criminal prosecution of whoever "communicates, furnishes, [or] transmits" classified information to unauthorized persons or who "publishes or uses" such information "in any manner prejudicial to the safety or interest of the United States."

The government decided to move first against the newspapers. Instead of waiting until the articles had been published and then prosecuting on criminal charges, the Justice Department chose to seek "prior restraint," attempting to block any further publication before it happened. That legal approach was far more difficult than criminal prosecution.

In a telegram to the *New York Times* June 14, Attorney General John N. Mitchell said the material was protected by the Espionage Act and that "further publication of information of this character will cause irreparable injury to the defense interests of the United States." Then as later, the government could not seem to do

Morton H. Halperin. McNaughton's deputy had general supervisory authority over the project. In 1969, he moved from the Pentagon to Henry Kissinger's National Security Council staff. The FBI, acting without a court order, wiretapped numerous conversations between Halperin and Ellsberg.





Henry A. Kissinger (l) and Richard M. Nixon. At first, Nixon ignored the leak, but Kissinger convinced him he had to act on "this wholesale theft and unauthorized disclosure." Once energized, Nixon became obsessed, organizing his own group of unofficial "plumbers" to plug national security leaks.

anything right. The telegram was mistakenly transmitted to a fish company in Brooklyn.

Also on June 14, McNamara had dinner with his friend, the noted *New York Times* columnist James B. Reston, and told him he thought the *Times* should continue publishing the papers.

After the first three installments, the Federal District Court in New York issued a temporary restraining order against the *Times*. Ellsberg, who had multiple copies of the papers, dropped out of sight and made deliveries elsewhere. As soon as one newspaper was enjoined, the next one picked up publication. The *Washington Post* began publication June 18, followed by the *Boston Globe*, the *Chicago Sun-Times*, the *St. Louis Post-Dispatch*, and 12 other papers.

Lawyer Edward Bennett Williams advised the *Washington Post* to go ahead and publish. "What's Nixon going to do?" he said. "Put every major editor and publisher in jail?"

On June 30, the US Supreme Court reversed the injunctions against the newspapers, ruling that the government had not met the "heavy burden of showing justification for the enforcement of such a restraint." However, five of the nine justices mentioned explicitly that the government could prosecute the newspapers under the criminal statute.

Ellsberg and Russo

The FBI chased Ellsberg for two weeks. When he ran out of copies to

distribute, he surrendered and was indicted on June 30 by a grand jury in Los Angeles for violating the Espionage Act and for theft of government property. More charges, including conspiracy, were added in December. By Ellsberg's accounting, he faced the possibility of 115 years in prison. Russo was named as a co-conspirator.

The trial began in January 1973. It came to a surprise ending after prosecutors told the judge on April 26 that they had learned that two government employees, E. Howard Hunt and G. Gordon Liddy—who had already been convicted of conspiracy, burglary, and wiretapping in the Watergate case—had broken into the office of Ellsberg's psychiatrist looking for evidence.

Hunt and Liddy were, of course, "the plumbers," who had been recruited by the White House to stop leaks in the Pentagon Papers case. They had burglarized the psychiatrist's office in September 1971, prior to their break-in at the Watergate in June 1972.

Nor was that all. Without a court order, the FBI had wiretapped telephone conversations between Morton Halperin and Ellsberg. The tapes and logs of the wiretaps had "disappeared" from the files of both the FBI and the Justice Department.

On May 11, the judge declared a mistrial and dismissed the charges against Ellsberg and Russo. The cover-up of the Watergate burglary by the plumbers eventually led to Nixon's resignation in 1974.

The Papers and National Security

Most accounts of the Pentagon Papers case focus on freedom of the press issues, and the effect on national security is usually treated as secondary.

The bottom line is that the Pentagon Papers were grossly overclassified and did not cause a national security problem of any significance, although they might have done so. The Vietnam War was not yet over in 1971. The Pentagon Papers gave the North Vietnamese rich insights into early US objectives, strategies, uncertainties, and degrees of commitment. However, the documents were several years old by the time of publication so the insights, to considerable extent, had been overcome by events.

For the most part, the Pentagon Papers were about the machinations of politicians rather than about operations of the armed forces, and their publication appears to have had little or no effect on the remaining course of the war.

Solicitor General Erwin N. Griswold, who presented the government case to the Supreme Court, had not been permitted to see all of the papers. In 1989, Griswold called it an instance of "massive overclassification" and said he saw no "trace of a threat to the national security" in what was published.

Melvin R. Laird, Secretary of Defense at the time, said he had not read the full report when he came to the Pentagon. "I had already spent seven years on the defense subcommittee of the House Appropriations Committee listening to McNamara justify the escalation of the war," he said. "How we got into Vietnam was no longer my concern."

Attorney General Mitchell said that Laird had told him publication of the Pentagon Papers would damage national security. However, according to Rudenstine, who interviewed Laird for *The Day the Presses Stopped*, "Laird contended he was glad the papers were in the public domain, for he felt they strengthened his policy recommendations that the United States should pull its troops out of South Vietnam far more quickly than it was doing."

Few people have ever seen or read more than a fraction of the Pentagon Papers. Study director Gelb estimated that the *New York Times* published only about five percent of the material from the study. A Bantam paperback in July



E. Howard Hunt. Along with G. Gordon Liddy, Hunt on Sept. 3, 1971 burglarized a doctor's office, seeking dirt on Ellsberg. Watergate came nine months later.

1971 reprinted the *Times* reports and sold 1.5 million copies.

A fuller text appeared in the so-called Gravel edition, published in four volumes by Beacon Press in 1971. Ellsberg had given one of his sets to Sen. Mike Gravel (D-Alaska), who entered it into the Congressional Record. The preface to the Gravel edition says that it consists of "about 2,900 pages of narrative, 1,000 pages of appended documents, and a 200-page collection of public statements by government officials justifying US involvement in Vietnam. According to the information reported in the press, the Defense Department study included in total a narrative of about 3,000 pages and documents amounting to about 4,000 pages."

The Gravel edition had low circulation, as did a House Armed Services Committee version authorized by the Nixon Administration and issued by the Government Printing Office in 1971.

The classification imbroglio came full circle in 1974 when Morton Halperin—who was responsible for applying the top secret-sensitive classification to begin with—sought public release of additional parts of the papers under the Freedom of Information Act. He obtained most of the material, which was published in 1983 by the University of Texas. The last of the documents was finally published in 2002 by the National Security Archive.

Curiously, despite all of the official

and unofficial publishing activity, the Pentagon Papers remain classified today.

The Age of Whistle-Blowing

With the passage of time, Ellsberg has become something of a folk hero. A popular misconception has also arisen—reinforced by the *New York Times* and others—that after the Pentagon Papers experience, the press is free to publish classified information whenever it chooses.

That belief was expressed again by Bill Keller, executive editor of the *New York Times*, in a letter May 2, 2006 to the *Wall Street Journal*, which had criticized the *Times* for the recent publication of classified information.

"Presidents are entitled to a respectful and attentive hearing, particularly when they make claims based on the safety of the country," Keller said. In the current instance, "President Bush and other figures in his Administration were given abundant opportunities to explain why they felt our information should not be published. We considered the evidence presented to us, agonized over it, delayed publication because of it. In the end, their case did not stand up to the evidence our reporters amassed, and we judged that the responsible course was to publish what we knew

and let readers assess it themselves. You are welcome to question that judgment, but you have presented no basis for challenging it."

Contrary to Keller's claim, there is no law, court decision, or precedent from the Pentagon Papers case or anywhere else that legalizes the leaking of national security information or allows newspapers to decide for themselves which secrets to publish.

The Espionage Act is still in effect. Under that act, in January 2006, former Department of Defense analyst Lawrence A. Franklin was sentenced to more than 12 years in prison for passing classified information to a pro-Israel lobbying group. Those who received the material from him are vulnerable to prosecution under the same act.

"Whistle-blowing," in which federal employees reveal the government's dirty laundry to the news media and Congress, is often regarded positively by the public. There are several "whistle-blower protection acts," but they do not give leakers nearly as much latitude as some enthusiasts believe.

In the case of national security information, a whistle-blower can take the information to Congress or to an inspector general within the department. Passing such information to the newspapers is a crime under the Espionage Act.

Ellsberg and Russo were not acquitted, nor was the law set aside. The case against them was thrown out of court because it had been compromised by outrageous actions on the part of the government.

The Supreme Court decision on the Pentagon Papers had nothing to do with freedom of the press. The Justice Department went after the newspapers seeking prior restraint and failed to make its case. As a majority of the Supreme Court justices noted, the avenue to criminal prosecution was still wide open.

In a technical sense, the government had a number of legal moves remaining, but the series of fumbles had made it politically impossible to push the prosecution any further.

The outcome of the case was the result of government bungling and malfeasance and nothing else. ■

John T. Correll was editor in chief of Air Force Magazine for 18 years and is now a contributing editor. His most recent article, "The Flying Tigers," appeared in the December 2006 issue.

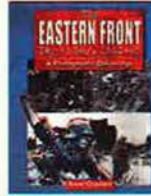
Books

Compiled by Chequita Wood, Media Research Editor

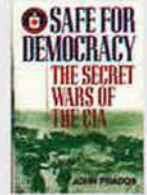
Aircraft Carriers: A History of Carrier Aviation and Its Influence on World Events, Vol. 1, 1909-1945. Norman Polmar. Potomac Books, Dulles, VA (800-775-2518). 576 pages. \$49.95.



The Eastern Front Day by Day, 1941-45: A Photographic Chronology. Steve Crawford. Potomac Books, Dulles, VA (800-775-2518). 192 pages. \$19.95.



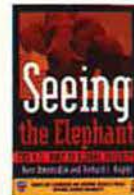
Safe for Democracy: The Secret Wars of the CIA. John Prados, Ivan R. Dee, Chicago (800-462-6420). 696 pages. \$35.00.



Battling Tradition: Robert F. McDermott and Shaping the US Air Force Academy. Paul T. Ringenbach. Order from: Imprint Publications, Chicago (773-288-0782). 333 pages. \$24.95.

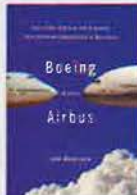


The Few: The American "Knights of the Air" Who Risked Everything To Fight in the Battle of Britain. Alex Kershaw. Da Capo Press, Jackson, TN (800-343-4499). 301 pages. \$25.00.



Seeing the Elephant: The US Role in Global Security. Hans Binnendijk and Richard L. Kugler. Potomac Books, Dulles, VA (800-775-2518). 319 pages. \$30.00.

Boeing Versus Airbus: The Inside Story of the Greatest International Competition in Business. John Newhouse, Alfred A. Knopf, New York (212-782-9000). 254 pages. \$26.95.



History of the Office of the Secretary of Defense, Vol. 5: The McNamara Ascendancy 1961-1965. Lawrence S. Kaplan, Ronald D. Landa, and Edward J. Drea. GPO, Supt. of Documents, Washington, DC (866-512-1800). 664 pages. \$49.00.



Utilization of Space: Today and Tomorrow. B.P. Feuerbacher and H. Stoewer, eds. American Institute of Aeronautics & Astronautics, Herndon, VA (800-682-2422). 410 pages. \$79.95.



The Boeing XF8B-1 Fighter: Last of the Line. Jared A. Zichek. Schiffer Publishing, Atglen, PA (610-593-1777). 372 pages. \$59.95.



Incidents in the Life of a B-25 Pilot. Roy Lee Grover. AuthorHouse, Bloomington, IN (800-839-8640). 163 pages. \$14.35.



War Hawgs: A-10s of the USAF. Don Logan. Schiffer Publishing, Atglen, PA (610-593-1777). 224 pages. \$49.95.

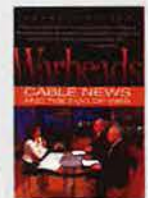
Coming to Colorado: A Young Immigrant's Journey To Become an American Flyer. Wolfgang W.E. Samuel. University Press of Mississippi, Jackson, MS (800-737-7788). 336 pages. \$32.00.



Leading at the Speed of Light: New Strategies for US Security in the Information Age. Daniel M. Gerstein. Potomac Books, Dulles, VA (800-775-2518). 185 pages. \$19.95.



Warheads: Cable News and the Fog of War. Kenneth Ailard. Naval Institute Press, Annapolis, MD (800-233-8764). 156 pages. \$26.95.



Curtiss Fighter Aircraft: A Photographic History 1917-1948. Francis H. Dean and Dan Hagedorn. Schiffer Publishing, Atglen, PA (610-593-1777). 384 pages. \$69.95.

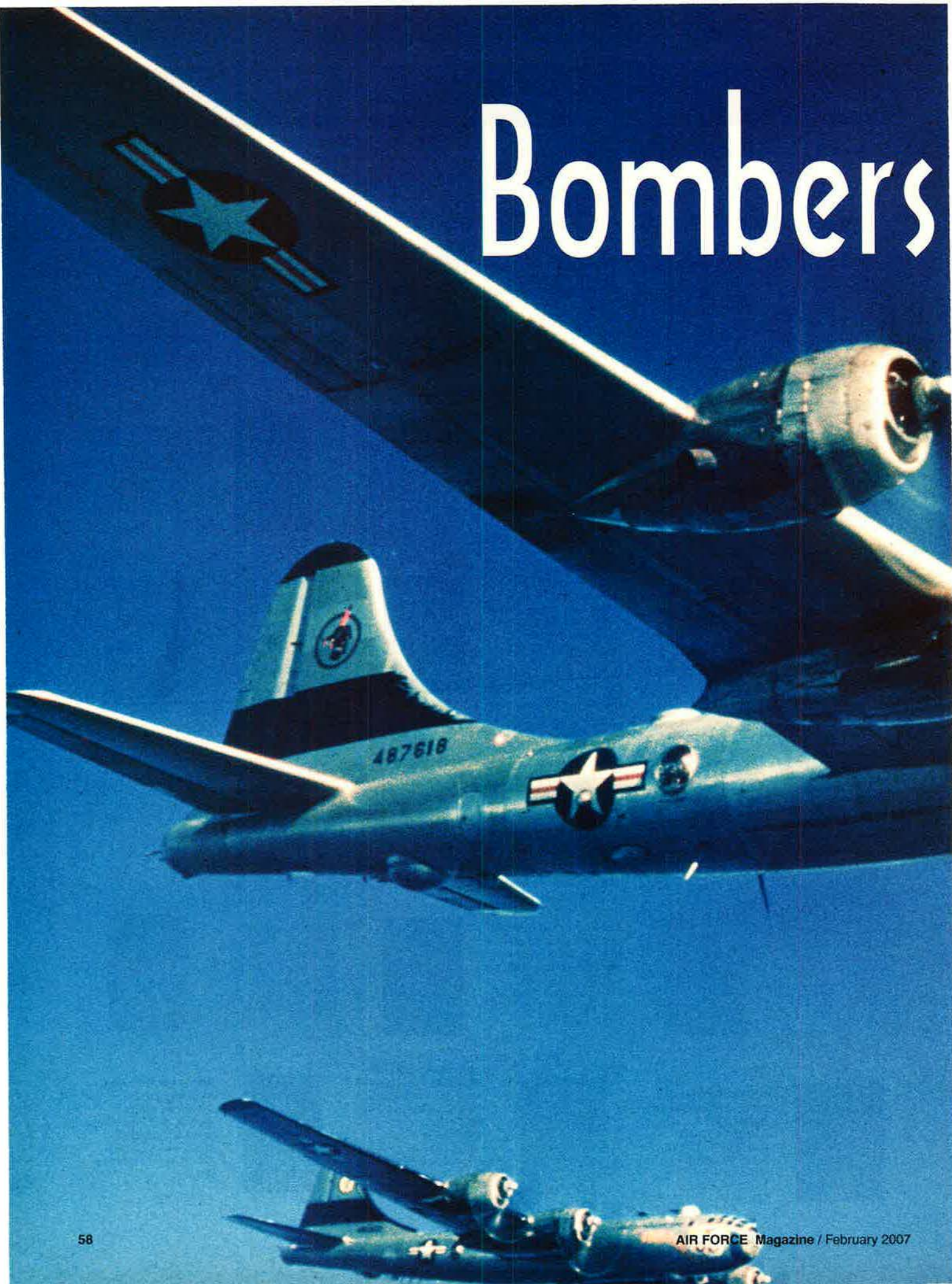


Reflections of a Technocrat: Managing Defense, Air, and Space Programs During the Cold War. John L. McClucas, with Kenneth J. Alnwick and Lawrence R. Benson. Air University Press, Maxwell AFB, AL (334-953-6281). 367 pages.



Women at War: Iraq, Afghanistan, and Other Conflicts. James E. Wise Jr. and Scott Baron. Naval Institute Press, Annapolis, MD (800-233-8764). 234 pages. \$29.95.

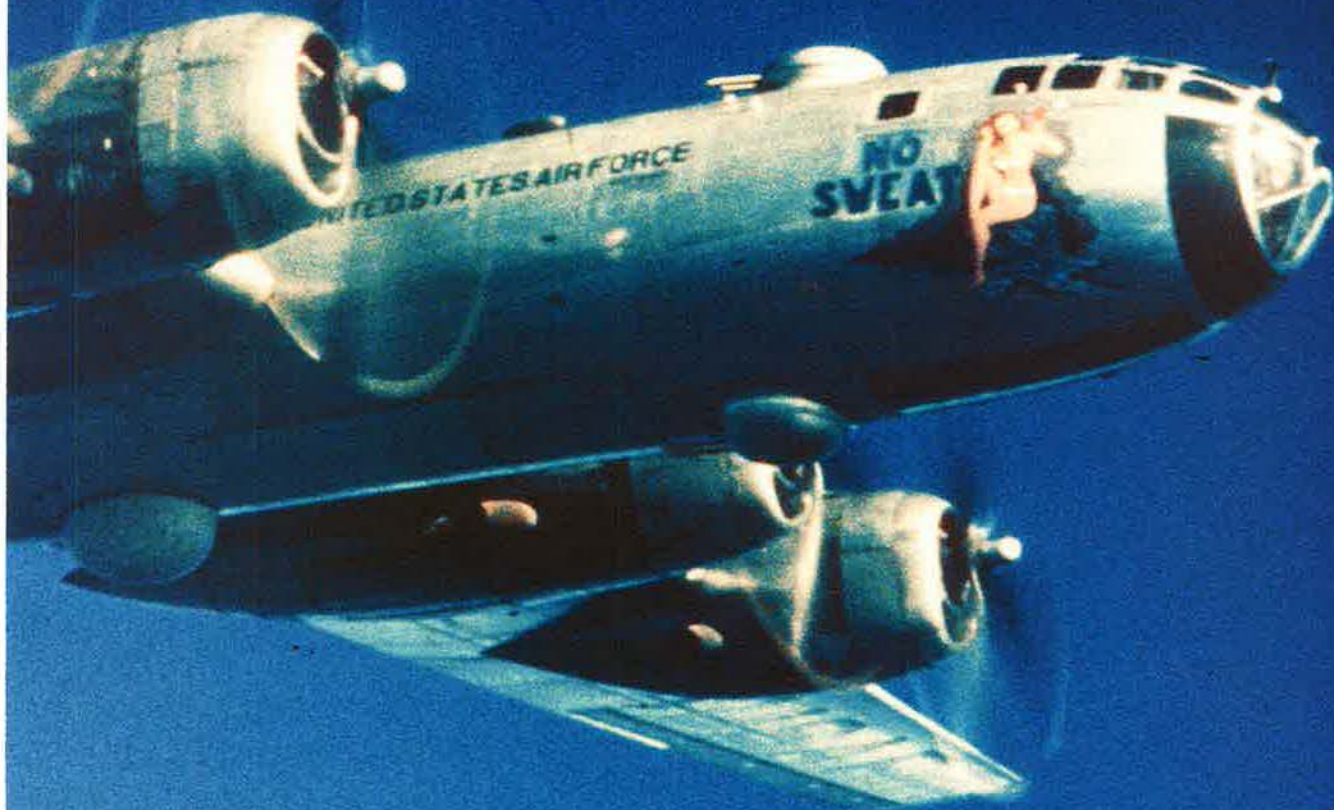
Bombers



Over Korea

The Superfortresses and Invaders seemed over the hill, until they were needed in Korea.

Photographs from the collection of Warren E. Thompson



When North Korea crossed the 38th parallel, the closest bombers were the B-29s of the 19th Bomb Group. Here, No Sweat, part of that group's 28th Bomb Squadron, and a companion B-29 head out.

After North Korea's June 25, 1950 invasion of the South, US Air Force bombers—B-29 Superfortresses and B-26 Invaders—stood in the gap. These rare color photos make clear that both types were in widespread service around the war theater. B-29 Superfortresses of the 19th Bomb Group became the first bombers to attack targets on the peninsula, striking railways, bridges, and ground traffic. They ultimately flew some 650 combat missions and dropped more than 52,000 tons of ordnance. At first, President Harry S. Truman kept them on the southern side of the 38th parallel. Later, B-29s carried the fight north to the border of China.

Right: An American airman works on the gun of the B-29 Dixie Babe.

Below: Superforts of the 93rd Bomb Squadron strike targets near Pyongyang in early 1951, after communist China entered the war.



The Invader medium bomber also played a key role in the war. It was well-suited to interdiction because it could fly low at night and carry a wide variety of ordnance. Two above: An 8th Bomb Squadron B-26 Invader at Kunsan, Sweet Bettye, readies for a spring 1952 mission. Directly above: Pasadena Pistol

Facker II, a B-26 loaded with napalm and rockets, is readied at Miho AB, Japan, for a night interdiction raid over Korea. Left: B-26s of the 95th Bomb Squadron at Pusan East AB, South Korea, adorned with the "kicking mule" emblem.



The 3rd Bomb Wing flew B-26 Invaders through the entire 37-month Korean War. By late 1950, nearly all strategic targets in North Korea had been destroyed, and B-29 missions then were aimed at disrupting Chinese logistics near the Yalu River.

Counterclockwise, from left: The B-26 Midnight Rendezvous of the 8th BS at Kunsan in spring 1952. • The colorful B-26 The 7th Chadwick was flown by the commander of the 13th BS, 3rd BW (at the time of this photo, Lt. Col. Alvin R. Fortney). • B-29s of the 28th BS on a daytime mission to targets in North Korea, circa late 1950. Relentless MiG-15 attacks eventually forced the B-29s to bomb at night.



Left: An all-black B-26 Invader of the 90th Bomb Squadron on June 15, 1952 makes a rare daytime raid on communist forces. This airplane was part of the Air Force Reserve's 452nd Bomb Wing, Long Beach, Calif. By law, the Reserve wing could only be deployed a year. When the airmen went home,

the deployed airplanes stayed in Korea. Above, this B-29 of the 98th BG crashed at Taegu after taking heavy damage from MiG-15s and anti-aircraft batteries based north of the Yalu.

Right: B-29s embark on the long trip from Okinawa for an Oct. 22, 1951 mission against North Korea. The 19th BG made a maximum effort, two-squadron strike on Taechon, an air base in the North.

Below, top to bottom: The "Grim Reaper," painted on this B-26, was the emblem of the 13th BS. • The business end of a 92nd BG B-29 is seen in this shot of the airplane at Yokota AB, Japan, in fall 1950. • A row of 500-pound general-purpose bombs represented the payload of one B-29. North Korea's heavy industry was leveled within weeks.



Two above: Another Chadwick, also belonging to the 13th BS, is shown at Johnson AB, Japan.

Above: B-29 Command Decision crew members. These airmen were held in special regard; the nonfighter crew held unofficial "ace" status, having shot down five MiG-15 jet fighters with their defensive guns.





Counterclockwise from left: The B-26 Invader *Bostonians Express*, part of the 13th BS, was painted black for night strikes. At the start of the war, it flew out of Iwakuni AB, Japan. • Invaders of the 729th Bomb Squadron depart Pusan in late afternoon, hoping to catch North Korean supply vehicles heading out at dusk. • A black Invader of the 34th Bomb Squadron returns to Pusan after a dawn mission.



Clockwise from left: *Stateside Reject*, a B-29 based at Kadena, was flown by the 19th BG; the unit was called to action early and flew combat missions until the fighting stopped in July 1953. • An Invader assigned to the 8th Bomb

Squadron at Kunsan AB, Japan, in spring 1953. • *Mrs. Myk*, a B-26 of the 13th BS, had a nose full of .50 cal. guns that proved highly effective against trucks and railcars.

Right: Involuntary of the 731st Bomb Squadron, on the ramp at Iwakuni, displays many mission markers.

Below: The mission of this Invader, already loaded with napalm and rockets, is delayed by an engine problem.

Below right: The blue trim on this black Invader denotes it as a 95th Bomb Squadron bird.



Counterclockwise from above: A B-29 of the 307th Bomb Wing, based at Kadana, shows the unit's distinctive "Box Y" tail marking; the wing was one of the war's longest-serving units. • The B-29 Mission Inn was one of the bombers that Strategic Air Command dispatched to Korea early in the war. • Another B-29 of the 19th BG shows off a huge number of mission markers.



Left: The aircraft of the 37th BS spread out along a primitive airstrip in front of a rugged mountain chain. The Invaders flew dangerous low-level attacks up North.

Below left: Blue Tail Fly, a B-29 of the 30th BS, returns from an early 1951 daylight mission.

Below: The heavily damaged Invader Dream Girl of the 34th BS gets a nose job at Pusan East Air Base.



Counterclockwise from above: The 452nd BW Invader Brown Nose was an aircraft that stayed in Korea when the wing's personnel went home after a year. • The colorful B-29 My Assam Dragon III used artwork adapted from a World War II unit. • Kadena-based B-29 The Outlaw con-

tures up actress Jane Russell in the Howard Hughes movie of the same name. ■

Radio Free Rabbit



In the late summer of 1943, Fifteenth Air Force set up a number of bomber bases in southern Italy. One of these bases, located at Manduria, became the home of the 450th Bombardment Group, a B-24 outfit. The 450th Liberators were well-known because of their distinctive, white-painted rudders, a characteristic that brought the unit the nickname "Cottontails." When the Cottontails moved to Manduria, however, radio reception was poor, and the group didn't want to do without, so the airmen built their own transmitter and broadcast booth from spare and salvaged parts.

Coincidentally, the base was filled with rabbits, which bred like, well, rabbits. Some of them became station mascots. Here, SSgt. Emil P. Michowski, a station announcer, goes on the air with "L'ibby," short for Liberatr.

smiths

High Performance Aircraft. High Performance Supplier.



Digital Video Recording by Smiths

With a comprehensive range of digital, mechanical and electrical power systems and products on major US and international fighters, Smiths is a leader in digital video recording.

Trust Smiths Aerospace to provide the very latest, entry-level, solid-state Digital Video Recorder at the best possible price. Selected for the F-16 Block 50, it is the perfect example of the growing importance of digital video recording in developing true net centric connectivity. Synchronized video and audio debriefing, including ACMI-like simulation,

delivers improved operational capabilities as well. Then there is the world-leading Smiths quality and support that you've come to expect. Easy and cost-effective to install in your choice of airborne platforms, this 1-3 channel digital video recorder meets both your exacting requirements and your budget.

Visit our Booth 319
at the Air Force Association
Air Warfare Symposium,
February 8th & 9th, Orlando, FL.

INNOVATION • GROWTH • VALUE • SMITHS PERFORM

www.smiths-aerospace.com

Schriever's "Space Superiority" Speech

Sputnik was still months away, but Maj. Gen. Bernard A. Schriever already was sounding a call to arms. "In the long haul," he told a scientific gathering, "our safety as a nation may depend upon our achieving 'space superiority.'" Time Magazine summed up the USAF general's sensational remarks this way: "The conquest of outer space appears right around the corner—and that corner must soon be turned if the US is to maintain its air supremacy."

Schriever headed Western Development Division, charged with developing a workable ICBM, and his speech dealt primarily with missiles. However, he had for the first time lifted the veil on the concept of a struggle for space. Then came the Soviet Union's launching of Spuntnik on Oct. 4, 1957, and the race was on.

As commander of the Western Development Division, I am deeply engrossed in man's first concerted attempt to penetrate outer space. The compelling motive for the development of space technology is the requirement for national defense. ...

Since 1954, the United States has come a long way in the development of space technology. ... What appears to be a logical future program? It is very difficult to make a firm prognosis on military need during a 20-year period for something as new and revolutionary as ballistic missiles, Earth satellites, and space vehicles. We are somewhat in the same position today as were military planners at the close of the First World War, when they were trying to anticipate the use of aircraft in the Second World War.

Consequently, my prognoses ... go from those which are reasonably firm to those which might be considered visionary. Fortunately, there is a considerable overlap between the advances in the state of the art which are required for firm and for visionary military needs. ...

A word is necessary on the relationship between military need and scientific feasibility in space technology. In the long haul, our safety as a nation may depend upon our achieving "space superiority." Several decades from now, the important battles may not be sea battles or air battles, but space battles, and we should be spending a certain fraction of our national resources to insure that we do not lag in obtaining space supremacy.

Besides the direct military importance of space, our prestige as world leaders might well dictate that we undertake lunar expeditions and even interplanetary flight when the appropriate technological advances have been made and the time is ripe. Thus it is indeed fortunate that the technological advances required in support of military objectives can, in large part, directly support these more speculative space ventures. ...

Now, where does all this lead? My thought is that the evolution of space vehicles will be a gradual step-by-step process, with the first step beyond ballistic missiles being unmanned, artificial Earth satellites and then perhaps unmanned exploratory flights to the Moon or Mars. These first flights would no doubt be research vehicles to gather scientific data and to accumulate information on space environmental conditions for future design use. The information gathered from these flights will supplement the information gathered from ballistic missile test flights.

Many of the things that we can learn from satellites will lead not only to a better understanding of conditions to be encountered in space, but will lead to a better understanding of our own planet. Weather reconnaissance can be accomplished in

"A Step Toward Space Conquest"

Maj. Gen. Bernard A. Schriever
Commander, Western Development Division,
Air Research and Development Command
Address to Astronautics Symposium
Air Force Office of Scientific Research
San Diego
Feb. 19, 1957

Find the full text on the
Air Force Association's Web site
www.afa.org
Air Force Magazine
"The Keeper File"

a more effective manner. This will lead to a better understanding of the movements of polar air masses and the course of jet streams and will permit improved long-range weather forecasts and improved aircraft and missile operations. A better understanding of the Earth's magnetic field will lead to better radio communications, more reliable navigation instruments, and perhaps new ideas for propulsive devices. Refined data on the Earth's gravitational effects will lead to improved guidance. Much remains to be known about cosmic rays. Unmanned satellites will be the means for obtaining this information.

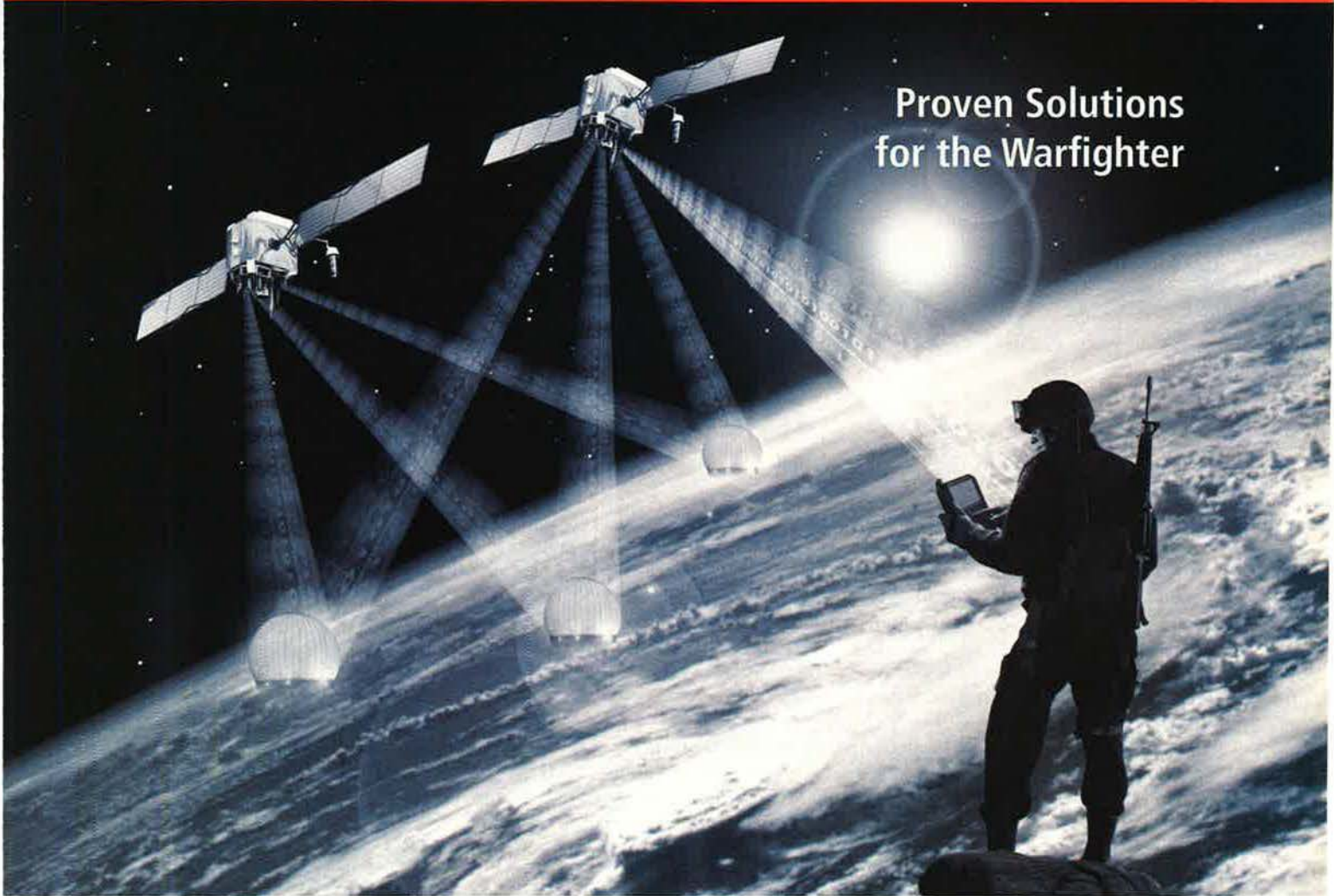
I have described some of the benefits to be derived from our early ventures into space and the contributions the ICBM program is making in this direction. Payload capability of a future satellite could be in the order of hundreds or even a thousand pounds. Such payload would permit more instrumentation and many varied types of space experiments. ...

Given vehicles with these capabilities, still another avenue for a scientific achievement is immediately opened. With additional rocket thrust, a lunar research vehicle may be possible. In view of the small additional cost of such an experiment, it seems certain that someday it will be tried. ...

We can see that the ICBM program, through the technology it is fostering, the facilities that have been established, the industrial teams being developed, and the vehicles themselves, is providing the key to the further development of spaceflight. Many fascinating new horizons are sure to open within the next decade as a direct result. ■

NSOM
Network and Space Operations & Maintenance

**Proven Solutions
for the Warfighter**



Team Raytheon offers the 50th Space Wing the best value solution for the Network and Space Operations and Maintenance (NSOM) program. Our Team's demonstrated expertise in every function and location of the Air Force Satellite Control Network (AFSCN) assures agile and innovative solutions to Air Force Space Command, the 50th Space Wing and all users of the AFSCN. Team Raytheon's enterprise approach enhances operational effectiveness through proven processes and customer responsive organizational structures. We offer the lowest risk, best value choice for the future of the AFSCN and America's space systems.

www.raytheon.com

Raytheon

Customer Success Is Our Mission

© 2006 Raytheon Company. All rights reserved.

AMP - 00001271-06



NORTHROP GRUMMAN

LOCKHEED MARTIN

The future lineup will include UAVs that can refuel, "see" obstacles, and fly in formation.

UAVs— The Next Generation

By Catherine MacRae Hockmuth

The dazzling success of unmanned aerial vehicles in the Global War on Terrorism has opened military eyes to the potential of robotic systems. The MQ-1 Predator, with its phenomenal surveillance and strike capabilities, seems to point the way to broader and more sophisticated UAV operations.

For all that, Predator also has been seen to suffer some crippling shortcomings. Being small, it cannot carry much onboard fuel, which limits range and endurance. It cannot refuel in air, as do manned aircraft. Because Predator operates alone, it often winds up watching targets already being watched by others. The Predator, flown by humans, is subject to poor human judgment.

Each weakness highlights a need for certain technologies, report Pentagon and industrial officials. Developers are therefore pushing forward with several next generation capabilities aimed at satisfying specific needs.

Foremost among these is the need for unmanned aerial refueling capability. Research into autonomous refueling is well advanced. The end result will be an unmanned aircraft that flies up to a tanker and uses various sensors to sink its fuel line into a trailing tanker receptacle.

The Defense Advanced Research

Projects Agency has demonstrated the capability using the probe-and-drogue method, in which a UAV's probe uses newly developed optical sensors to find its way into a basket on the tanker. (See "Aerospace World: Midair Refueling Tests Successful," November 2006, p. 20.)

50-Hour Missions?

Air Force Lt. Col. James McCormick, DARPA program manager, said the service needs autonomous aerial refueling capabilities to extend the endurance of unmanned aircraft. USAF, referring to the Joint Unmanned Combat Air System program, "used to talk about a 50-hour mission limited by the need to change the oil," noted McCormick.

The test aircraft relies on GPS-based navigation and an off-the-shelf digital camera image of the basket, or drogue, to determine its location relative to the tanker.

This 15-month program ended last October after successful flight tests of an F/A-18 modified to simulate an unmanned aircraft. (A pilot was in the cockpit for safety reasons, but the aircraft was flying autonomously.) The program was then extended for flight tests with realistic environmental factors such as turbulence and an aircraft turning during refueling.



Northrop Grumman illustration by Aliso Spaldon

The technology could also be applied to manned aircraft. McCormick said manual refueling is tedious and taxing for pilots because the aircraft must be flown in precise formation close to the tanker. DARPA is working with the Air Force, Navy, various combatant commands, and Air Mobility Command to develop the autonomous refueling capability.



An artist's conception of a supersonic UAV for sustained and rapid deep strike.

“We used existing off-the-shelf technology so, technically, the capability is here today,” said McCormick. Delay in fielding such a capability would come from standard testing and integration periods.

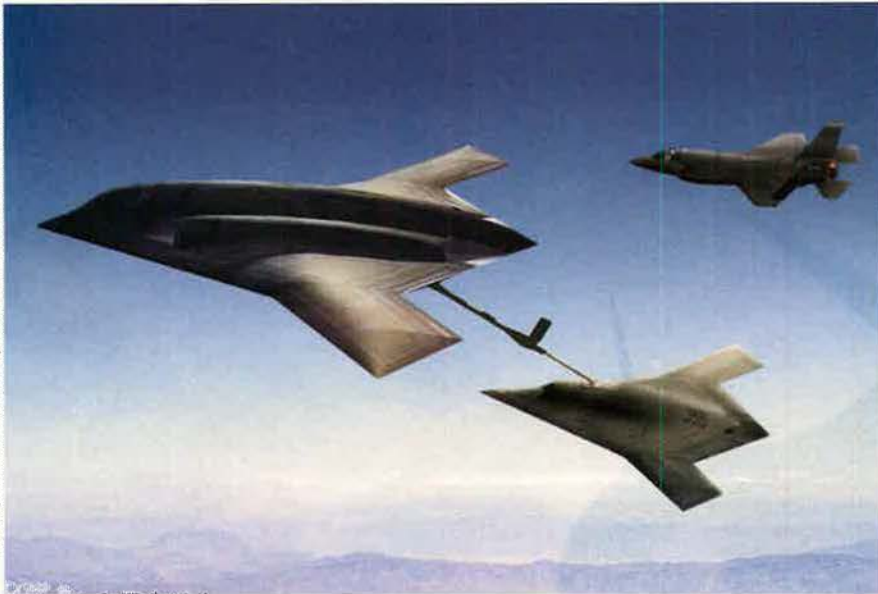
McCormick estimated that it could take as little as three years to field UAVs that can autonomously refuel, but a more

realistic goal is 10 years. The need to develop a concept of operations, determine the aircraft to which the technology would be applied, and to come up with funding will slow things down.

There is at least the potential for rapid results, however. Both the Predator and Global Hawk UAVs began their lives as DARPA projects and were rushed

into wartime service for their unique capabilities.

Meanwhile, the Air Force Research Laboratory’s Air Vehicles Directorate at Wright-Patterson AFB, Ohio, is in the fifth year of a six-year program to develop autonomous aerial refueling capability based on USAF’s preferred “boom and receptacle” method, which



Here, an illustration of an unmanned aerial vehicle refueling in flight. USAF is attempting to develop autonomous aerial refueling capabilities.

works much like gassing up an automobile.

An aircraft flies directly behind a tanker, where a boom operator connects a long hose to the aircraft. This program was initially part of an advanced technology demonstration associated with the J-UCAS program, which was dissolved last February.

The program has a series of flight tests scheduled over the next year, culminating in a major event in the fall in which multiple aircraft will fly in formation off the wingtip of the tanker and drop back one by one to refuel. That flight test will also involve an autonomous emergency breakaway from the tanker.

The reliability of GPS data is a particular challenge for both refueling programs because of the high safety margins. AFRL Program Manager Jake Hinchman said the goal is to establish a level of integrity at which there is only a one-in-a-million chance that the refueling aircraft will bump into the tanker.

The intensity and duration—as long as 23 minutes—of the formation flight required for aerial refueling is another major challenge.

See and Avoid

Equally important is the need for technologies that allow UAVs to see and avoid what is in their way so they can better operate in congested airspace.

Despite the successes of unmanned aircraft over the past several years, UAVs still have one major pitfall: They are flown by humans. They can't autonomously see or avoid obstacles in their

path, which can lead to collisions with buildings and other aircraft.

A see and avoid, or sense and avoid, capability is ranked as one of the top objectives for unmanned aircraft systems in the Pentagon's 2005 unmanned aircraft roadmap. (See "Will We Have an Unmanned Armada?" November 2005, p. 54.)

Gen. William T. Hobbins, commander of US Air Forces in Europe and director of NATO's Joint Air Power Competency Center, discussed the air traffic hazards created by the proliferation of unmanned aircraft in a recent speech in Germany.

Hobbins said that, in August 2004, an

unmanned German aircraft flying over Afghanistan came within 50 feet of an Afghan Airbus carrying more than 100 passengers. The airline pilot's quick reflexes and a "bit of luck" prevented a collision, he said, but the unmanned aircraft still crashed due to turbulence.

The airspace below 3,000 feet is crowded with tactical UAVs and helicopters, according to Hobbins, who said three collisions have occurred between UAVs and helicopters since the conflict in Afghanistan began.

AFRL has therefore placed a high premium on see and avoid capabilities, said Bruce Clough, chief of strategic planning at the lab. "Human beings can look around them so they don't crash into things," said Clough. "How do you build a system that will do that?"

A major facet of the capability is the need to give unmanned systems the ability to "orient." Orient is the capability to understand the meaning of what is seen—something a pilot or soldier with years of experience does instinctively.

For example, Clough said, a human might say, "There's a tank there. Oh, I'm being attacked by a mechanized division." The challenge of giving a machine that kind of understanding is significant.

DARPA's Organic Air Vehicle program has been flight-testing an obstacle avoidance capability that enables a micro UAV to sense what's in front of it and modify its preset flight plan accordingly. The program's small ducted-fan UAV, which flies like a helicopter, has performed well in ongoing tests, ac-



USAF photo

The Reaper is USAF's new name for the MQ-9 unmanned aerial vehicle.

Rapid Growth in UAV Operations

The ongoing wars in Iraq and Afghanistan have led to a rapid and dramatic increase in UAV flight hours.

UAV flying hours have increased from less than 20,000 in 2001 to more than 160,000 in 2006, according to the Office of the Secretary of Defense's Unmanned Aircraft Systems Task Force.

The biggest gains have come not from the Air Force but from the Army, which logged 80,000 UAV flight hours in 2006—compared to 60,000 for the Air Force. (These totals exclude small UAVs weighing less than 10 pounds.)

By comparison, the Air Force flew two-thirds of the 60,000 flight hours that DOD UAVs logged in 2004.

Meanwhile, the Pentagon's overall UAV inventory has grown from 217 aircraft to 3,428 over the past four years. The task force attributes the growth to rising demand for smaller UAVs, which account for 2,908 of the UAVs in the US inventory. The Defense Department had just 90 small UAVs in 2002.

cording to Daniel Newman, program manager.

Finally, a key requirement is for far more effective command and control linkages. Improved integration is needed to realize the military's dream of network-centric warfare. Without it, the advance of UAV capabilities will be blocked.

The integration should be so thorough that combat forces treat unmanned systems like any other piece of equipment.

Like Manned Aircraft

Unmanned aircraft need to "act like manned aircraft," said Hobbins. "We need unmanned aircraft to be tasked like manned aircraft. We need unmanned aircraft to fly in strike packages with manned aircraft. ... We should be capable of flying both manned and unmanned platforms together, to include multiple unmanned airframes controlled by one operator. And we need commanders to have the confidence that—unmanned or manned—it doesn't make any difference, as they are equally effective."

Toward that end, Hobbins' NATO joint competency center is developing a "flight plan" to guide the alliance in the development of unmanned aircraft systems. NATO is pursuing unmanned technology as voraciously as the United States military—Hobbins said there are 32 nations developing more than 250 models of UAVs.

Dyke Weatherington's Pentagon task force, meanwhile, is preparing an updated roadmap, to be released this year, to guide the integration and interoperability of all US unmanned systems.

Major technology challenges already identified include: bandwidth and processing speed; air traffic control (domestically and in war zones where collisions between UAVs and manned aircraft are

a constant threat); cooperative control of multiple UAVs by a single operator; and getting formations of unmanned aircraft, ground vehicles, and underwater vehicles operating as a team.

Weatherington said C2 is a significant issue because most UAVs are still operated independently of one another.

Air Force Capt. Nidal Jodeh, program manager for an AFRL effort that would put multiple small and micro UAVs under the control of a single operator, said the lack of coordination among UAVs being used in Iraq and Afghanistan can create redundancies, misinterpretation of facts on the ground, and radar interference.

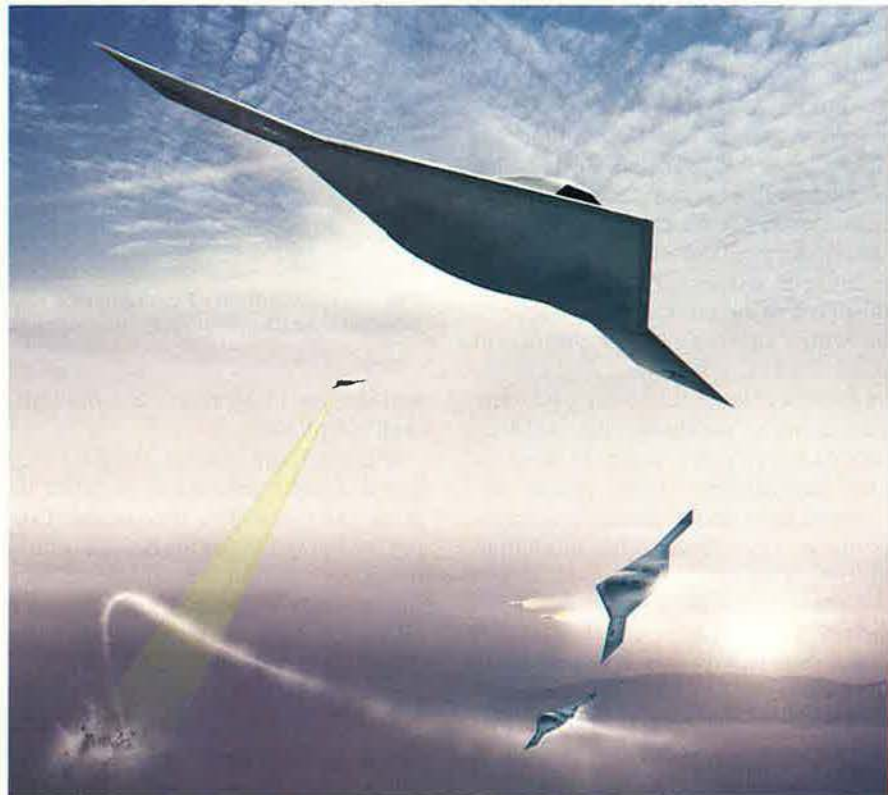
For example, three different UAVs sent out by separate commanders may all be tracking the same target, creating a costly waste of resources and potential confusion.

The AFRL Cooperative Operations in Urban Terrain, or COUNTER, program that Jodeh leads is designed to enable a single operator to control four micro UAVs and one small UAV in a coordinated mission. This should improve situational awareness for ground forces in urban environments.

The human interface remains a major challenge. Can a single operator handle five video streams? What tasks can be automated to relieve stress on the operator?

Another factor that limits coordination is that the aircraft must stay above the tops of buildings—in part because of the lack of a sense and avoid capability that would prevent collisions with those buildings. Urban UAV navigation is a hot topic of research at several universities, said Steven J. Rasmussen, a General Dynamics consultant working on the COUNTER program.

For its part, Northrop Grumman, builder of the Global Hawk, believes the ability of one unmanned aircraft to operate autonomously but in conjunction with other unmanned systems may bring the greatest gain to combat forces.



The program to develop autonomous refueling was originally part of the J-UCAS UAV, shown here in an artist's conception.



UAVs have proved hugely successful in real-world operations. Here, Beale AFB, Calif., technicians ready a Global Hawk. This type has logged more than 20,000 hours.

Gene Fraser, vice president of the company's unmanned systems division, said Northrop is developing technology to let UAVs flying in formation reconfigure themselves according to mission needs. The company has been demonstrating the capability on several unmanned platforms, including a small helicopter and two fixed-wing aircraft.

Where Now?

The technological advance of unmanned systems goes far beyond these three general areas. While some of the needs may be obvious, others are not.

"What do cars need? What do boats need?" asked Thomas J. Cassidy Jr., president of General Atomics Aeronautical Systems, which builds the highly successful Predator.

Indeed, just as for cars and boats, the needs of unmanned aircraft depend on who's driving (or not driving in some cases); what kind of vehicle; and where. Those details have become increasingly varied as the military invests heavily in systems of all sizes and capabilities—from micro unmanned aircraft weighing less than a pound to aircraft weighing more than 40,000 pounds.

Some of the primary areas of research are:

- **Urban Navigation.** Researchers at the University of California, Berkeley, are leading military-funded research into development of swarms and formations of unmanned aircraft able to navigate in and around buildings and cityscapes. The effort involves high-level autonomy,



Lockheed Martin artist's conception

The next generation of unmanned aircraft will need the ability to navigate through cities, recognize when they are under attack, and adjust their flight plans accord-

multisensor integration, and multi-aircraft coordination.

- **Long-Range Strike.** The Air Force wants a next generation bomber by 2018 and it could be unmanned. Taking the human out of the bomber could improve mission durations, reduce the aircraft's radar signature, and eliminate risks to pilots. (See "The 2018 Bomber and Its Friends" October 2006, p. 24.)

- **Heavy Fuel Engines.** Many UAVs are powered by conventional gasoline engines, which pose logistical and safety issues because most other military vehicles use heavy fuels. Gasoline is also more volatile than diesel.

- **Precision Strike.** Northrop Grumman's Fraser says the company's work to make existing UAVs more lethal tends not to focus on free-fall bombs.

- **Contingency Response.** Unmanned aircraft flying in formation will eventually be able to reconfigure themselves and respond to contingencies. This will require them to disrupt their flight plan without human interference.

- **Muzzle-Flash Detection.** General Atomics is working on sensors to detect flashes from rifles and other weapons. The capability is particularly applicable to urban conflict.

- **HDTV.** High-definition television is not just for sports. General Atomics is adding HDTV to its sensor packages, a move that will offer better resolution of the images transmitted by its UAVs.

For UAVs, as for manned aircraft, technological advance is assured. The only question is when the new systems and capabilities will move out of the factory and into combat operations. ■

Catherine MacRae Hockmuth is a San Diego-based freelance writer and former managing editor of the Inside the Pentagon defense newsletter. Her most recent article for Air Force Magazine, "The Promise and Problem of Laser Weapons," appeared in the December 2001 issue.

persistent awareness.



Remotely operated aircraft systems produced by General Atomics Aeronautical Systems are routinely operated over world trouble spots. With the precision capability to detect, identify, track, and even strike time-sensitive targets instantly, the USAF Predator and Predator B fly missions beyond the capabilities of manned aircraft. The multi-mission Predator B, equipped with electro-optical/infrared (EO/IR) streaming day and night video and Lynx Synthetic Aperture Radar (SAR), provides unparalleled surveillance support to ground forces.

A cost-effective force multiplier in every sense. Not only operational, but indispensable.



AFA Field Contacts



Central East Region

Region President

William "Skip" Williams
6547 Hitt Ave., McLean, VA 22101-4654 (703) 413-1000

State Contact

DELAWARE: Richard B. Bundy, 39 Pin Oak Dr., Dover, DE 19904-2375 (302) 730-1459.
DISTRICT OF COLUMBIA: Robert P. Walsh, 6378 Phillip Ct., Springfield, VA 22152-2800 (703) 418-7255.
MARYLAND: Julie Petrina, 3007 Lost Creek Blvd., Laurel, MD 20724-2920 (703) 980-9911.
VIRGINIA: Scott Van Cleef, 3287 Springwood Rd., Fincastle, VA 24090-3028 (540) 473-8681.
WEST VIRGINIA: John R. Pfalzgraf, 1906 Foley Ave., Parkersburg, WV 26104-2110 (304) 485-4105.

Far West Region

Region President

Michael Peters
5800 Lone Star Oaks Ct., Auburn, CA 95602-9280 (530) 305-4126

State Contact

CALIFORNIA: Wayne R. Kauffman, 3601 N. Aviation Blvd., Ste. 3300, Manhattan Beach, CA 90266-3783 (310) 643-9303.
HAWAII: Timothy L. Saffold, 75 Kaneohe Bay Dr., Kailua, HI 96734-1705 (808) 449-0119.

Florida Region

Region President

Emil Friedauer
10 Ridgelake Dr., Mary Esther, FL 32569-1658 (850) 884-5100

State Contact

FLORIDA: Emil Friedauer, 10 Ridgelake Dr., Mary Esther, FL 32569-1658 (850) 884-5100.

Great Lakes Region

Region President

William A. Howard Jr.
202 Northwest Passage Trail, Fort Wayne, IN 46825-2082 (260) 489-7660

State Contact

INDIANA: Thomas Eisenhuth, 8205 Tewksbury Ct., Fort Wayne, IN 46835-8316 (260) 492-8277.
KENTUCKY: Jonathan G. Rosa, 4621 Outer Loop, Apt. 201, Louisville, KY 40219-3970 (502) 937-5459.
MICHIGAN: Thomas C. Craft, 19525 Williamson Dr., Clinton Township, MI 48035-4841 (586) 792-0036.
OHIO: John McCance, 2406 Hillside Dr., Beavercreek, OH 45431-5671 (937) 429-4272.

Midwest Region

Region President

Marvin Tooman
1515 S. Lakeview Dr., West Des Moines, IA 50266-3829 (515) 490-4107

State Contact

ILLINOIS: Tom O'Shea, 11828 Chatfield Crossing, Huntley, IL 60142-6220 (847) 659-1055.
IOWA: Justin M. Faiferlick, 1500 28th Ave., N., Fort Dodge, IA 50501-7249 (515) 570-7992.
KANSAS: Sunny Siler, 3017 Westover Dr., Wichita, KS 67210-1768 (210) 273-0240.
MISSOURI: Patricia J. Snyder, 14611 Eby St., Overland Park, KS 66221-2214 (913) 685-3592.
NEBRASKA: Jerry Needham, 21887 Old Lincoln Way, Crescent, IA 51526-4097 (712) 256-7787.

New England Region

Region President

Joseph P. Bisognano Jr.
4 Torrington Ln., Acton, MA 01720-2826 (781) 271-6020

State Contact

CONNECTICUT: Daniel R. Scace, 38 Walnut Hill Rd., East Lyme, CT 06333-1023 (860) 443-0640.
MAINE: Joseph P. Bisognano Jr., 4 Torrington Ln., Acton, MA 01720-2826 (781) 271-6020.
MASSACHUSETTS: Ronald M. Adams, 5A Old Colony Dr., Westford, MA 01886-1074 (978) 392-1371.
NEW HAMPSHIRE: Louis Emond, 100 Gilman St., Nashua, NH 03060-3731 (603) 880-8191.
RHODE ISLAND: Joseph Waller, 202 Winchester Dr., Wakefield, RI 02879-4600 (401) 783-7048.
VERMONT: Ralph Goss, 97 Summit Cir., Shelburne, VT 05482-6753 (802) 985-2257.

North Central Region

Region President

James W. Simons
900 N. Broadway, Ste. 120, Minot, ND 58703-2382 (701) 839-6669

State Contact

MINNESOTA: Glenn Shull, 9066 Hyland Creek Rd., Bloomington, MN 55437-1955 (952) 831-5235.
MONTANA: Matthew C. Leardini, P.O. Box 424, Ulm, MT 59485-0424 (406) 781-4917.
NORTH DAKOTA: Tom Nelson, 100 Highway 10E, #B, Hawley, MN 56549-4116 (701) 367-3690.
SOUTH DAKOTA: Ronald W. Mielke, 4833 Sunflower Trail, Sioux Falls, SD 57108-2877 (605) 339-1023.
WISCONSIN: Victor Johnson, 6535 Northwestern Ave., Racine, WI 53406-9077 (262) 886-9077.

Northeast Region

Region President

Maxine Donnelly
236 Farber Dr., West Babylon, NY 11704-5143 (631) 888-0037

State Contact

NEW JERSEY: Robert Nunemann, 73 Phillips Rd., Branchville, NJ 07826-4123 (973) 948-3751.
NEW YORK: Alfred Smith, 251 Navarre Rd., Rochester, NY 14621-1041 (585) 544-2839.
PENNSYLVANIA: Robert Rutledge, 295 Cinema Dr., Johnstown, PA 15905-1216 (814) 255-4819.

Northwest Region

Region President

Gary A. Hoff
16111 Bridgewood Cir., Anchorage, AK 99516-7516 (907) 552-8132

State Contact

ALASKA: Karen Washburn, P.O. Box 81068, Fairbanks, AK 99708-1068 (907) 322-2845.
IDAHO: Donald Walbrecht, 1915 Bel Air Ct., Mountain Home, ID 83647 (208) 587-2266.
OREGON: John Lee, 3793 E. Nanitch Cir., S., Salem, OR 97306-9734 (503) 581-3682.
WASHINGTON: Ernest L. "Laird" Hansen, 9326 N.E. 143rd St., Bothell, WA 98011-5162 (206) 821-9103.

Rocky Mountain Region

Region President

Karl McCleary
2374 West 5750 South, Roy, UT 84067-1522 (801) 773-5401

State Contact

COLORADO: Joan Sell, 10252 Antler Creek Dr., Peyton, CO 80831-7069 (719) 540-2335.
UTAH: Grant Hicinbotham, 2911 West 1425 North, Layton, UT 84041-3453 (801) 444-2014.
WYOMING: Irene Johnigan, 503 Notre Dame Ct., Cheyenne, WY 82009-2608 (307) 632-9465.

South Central Region

Region President

Leonard R. Vernamonti
1860 McRaven Rd., Clinton, MS 39056-9311 (601) 925-5532

State Contact

ALABAMA: Mark Dierlam, 7737 Lakeridge Lp., Montgomery, AL 36117-7423 (334) 271-2849.
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: Jerry Daws, 2167 Cumbernauld Cir., West, Germantown, TN 38139-5309 (901) 757-8578.

Southeast Region

Region President

David T. "Bush" Hanson
450 Mallard Dr., Sumter, SC 29150-3100 (803) 895-2451

State Contact

GEORGIA: Lynn Morley, 108 Club Dr., Warner Robins, GA 31088-7533 (478) 926-6295.
NORTH CAROLINA: Joyce Feuerstein, 404 Fairview Rd., Apex, NC 27502-1304 (919) 362-7800.
SOUTH CAROLINA: Rodgers K. Greenawalt, 2420 Clematis Trail, Sumter, SC 29150-2312 (803) 469-4945.

Southwest Region

Region President

Robert J. Herculson Jr.
1810 Nuevo Rd., Henderson, NV 89014-5120 (702) 458-4173

State Contact

ARIZONA: James I. Wheeler, 5069 E. North Regency Cir., Tucson, AZ 85711-3000 (520) 790-5899.
NEVADA: Joseph E. Peltier III, 1865 Ouarley Pl., Henderson, NV 89014-3875 (702) 451-6483.
NEW MEXICO: Edward S. Tooley, 6709 Suerte Pl., N.E., Albuquerque, NM 87113-1967 (505) 858-0682.

Texoma Region

Region President

Edward W. Garland
5206 Sagail Pl., San Antonio, TX 78249-1798 (210) 558-7149

State Contact

OKLAHOMA: Terry Cox, 1118 Briar Creek Rd., Enid, OK 73703-2835 (580) 234-8734.
TEXAS: Robert L. Slaughter, 3150 S. Garrison Rd., #201, Denton, TX 76210 (940) 270-2770.

Special Assistant Europe

Special Assistant

Vacant

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

AFA & You...side by side.




Air Force Association
1-800-727-3337

Join Today.

Working together for aerospace power, for the Air Force, and for Air Force people—active, Guard, Reserve, civilian. . . . On Capitol Hill, in the power centers of Washington, with the news media, in the nation's classrooms, and in 300 communities and bases worldwide.

Members receive AFA's journal, Air Force Magazine, every month, and our famous USAF Almanac issue each May.

www.afa.org



The 90-Year Tanker Saga

Start with a World War I Russian pilot and go from there to US power projection.

By Phillip S. Meilinger

A KC-10 tanker prepares to refuel an approaching B-52.

The United States Air Force operates 650 tanker aircraft—the largest aerial refueler fleet on Earth. The rest of the world has perhaps as many as 250 tankers, and, of these, 80 belong to the US Marine Corps.

In short, the Air Force possesses a near monopoly on large-scale aerial refueling capability.

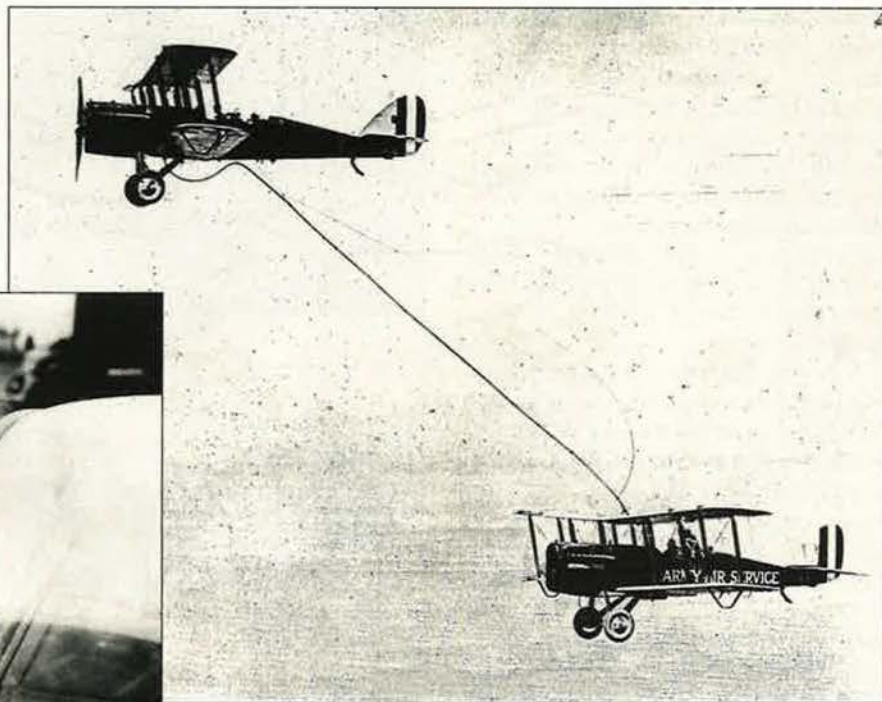
It is a unique asymmetric advantage, but it wasn't easy to attain. Aerial refueling has had a long, difficult, and convoluted history. Air Force leaders have recently placed acquisition of a new fleet of tankers atop USAF's priority list—recognition, if one were needed, of the tanker's enormous value.

Where did this capability come from? Where is it going?

Start with Alexander P. de Seversky of Imperial Russia. In World War I, Seversky became an ace fighter pilot in the Russian Navy, flying many missions. One of those missions had momentous repercussions. In it, Seversky recalled, he was escorting a Russian bomber, flying behind and below the bigger aircraft, when out of boredom or playfulness he reached out of his open cockpit and grabbed the bomber's long trailing radio antenna. (See "Sasha the Salesman," August 2003, p. 74.)

From this event sprang a simple idea: What if the wire actually were a

While in the World War I Russian Navy, Alexander de Seversky (below) came up with the idea of passing fuel from one aircraft to another. Right: Flying at the end of a long hose, a DH-4 biplane carrying Lt. Lowell Smith and Lt. John Richter, takes on fuel in a 1923 test.



hose that could pass gasoline from one airplane to another, thus extending its range? Escort fighters could then accompany the bombers to their targets and back.

The October 1917 revolution drove Seversky from his native land and he immigrated to the United States, becoming an American citizen and an aeronautical engineer. However, he never forgot about the air tanker idea. Seversky's first US patent covered the concept of an air refueling device that he sold to the Army Air Service.

In June 1923, a DH-4 biplane used Seversky's invention to refuel another DH-4 in flight. A few months later, the same airplane made a longer flight—from Suma, Wash., to San Diego—using four inflight refuelings. The gas-ups quadrupled the range of the receiving aircraft.

The pilots of the receiving aircraft were Lt. Lowell H. Smith and Lt. John P. Richter. In an indication of the marginal importance assigned at that time to the refueling community, most accounts do not even list the names of the pilots supplying the gas. Such disregard would become standard fare for tanker crews.

Question Mark

In January 1929, air refueling took another major step forward. The Air Corps' C-2A *Question Mark* on New Year's Day took off from Los Angeles with the crew aiming to find out how

long it could keep the aircraft aloft. Two Douglas C-1 transports were equipped with hoses that would allow them to transfer gas down to *Question Mark*. (See "Question Mark," March 2003, p. 66.)

The Fokker C-2A flew over the Rose Bowl football game (final score, Georgia Tech 8, California 7). The mission went on for another six days. The C-1s passed 5,660 gallons of gas to *Question Mark*, as well as food, parts, oil, tools, and mail.

Of *Question Mark's* five-man crew, two would later become four-star gen-

erals: Carl A. Spaatz and Ira C. Eaker. The other three crew members were 2nd Lt. Elwood R. Quesada (later a lieutenant general), 1st Lt. Harry Halverson, and Sgt. Roy Hooe. The five crewmen received Distinguished Flying Crosses; the crews of the two tankers were ignored.

Although the flight of *Question Mark* seemed to herald an aeronautical revolution, the day of the air refueler had not yet come. The military could see no practical application for the capability.

Then came World War II, which



Lt. Frank Seifert (l) and Lt. Virgil Hines on June 28, 1923 flew the refueling DH-4 biplane in the world's first air refueling. The nozzle shown here was mated to the receiving aircraft below.

demonstrated the need for extended range. Although B-17 and B-24 bombers could reach Berlin from forward bases in England and Italy, the ranges in the Pacific Theater were more extreme. Even the Mariana Islands were not close enough to allow those bombers to strike the Japanese home islands.

Only B-29s, not available until mid-1944, had the range to hit Japan, and tankers would have been very useful.

More important, aerial refueling would have extended the range of escort fighters accompanying the heavy bombers—the use that Seversky had contemplated in 1917. The lack of escort fighters early in the war led to Allied catastrophes at places such as Schweinfurt, when the bombers went in alone against heavy German defenses and suffered horrendous losses. (See “Against Regensburg and Schweinfurt,” September 1993, p. 48.)

Yet American factories were straining to produce enough aircraft to supply a global war. The idea of diverting production capacity for construction of tankers was unthinkable.

So air refueling lay dormant through yet another world war. It was not until the coming of the Cold War that the advantages offered by air refueling were re-examined.

In this face-off, NATO nations confronted the Soviet-led Warsaw Pact in Central Europe, where the East had a ground-force superiority of three to one. NATO couldn't match these numbers with conventional forces. Instead, “massive retaliation” against the Soviet heartland—based on America's nuclear bomber force—was to serve as a deterrent against a Soviet invasion.

Moscow was, to put it mildly, a long way from the United States. Air refueling would have to provide greater range to USAF B-29s and the bombers that succeeded them.

Grab and Drag

USAF looked first at the old “grab and drag” method which had been employed in the 1920s. Tanker aircraft trailed a hose to be grappled by the receiver. The receiver would then winch in the hose, plug it into the aircraft's fuel system, and begin pumping gas. This was a cumbersome and somewhat hazardous system, but it worked—at least for large aircraft.

In February 1949, the Air Force flew a B-50 bomber, *Lucky Lady II*,



A KB-29 tanker, a converted B-29 Superfortress bomber, prepares to pass fuel to a trailing F-84 fighter. The year was 1950.

on a nonstop flight around the world. Stationed along the route were several KB-29 tankers, equipped with the looped-hose system. Ninety-four hours and one minute after takeoff, *Lucky Lady II* landed in Texas, completing history's first around-the-world nonstop flight. (See “*Lucky Lady II*,” March 1999, p.72.)

It was a momentous event, designed to show Moscow that all targets were now within range of Strategic Air Command bombers.

The crew of *Lucky Lady II* was hailed, feted, and honored with Distinguished Flying Crosses. Like the tanker pilots who had made the 1929 *Question Mark* flight a reality, the tanker crews who enabled the 1949 circumnavigation were ignored.

Over the next several years, the number of B-29s, B-50s, and C-97s modified to use the looped-hose system multiplied. Soon, however, Air Force officials realized that this system had serious limitations—it could not be used at speeds surpassing 218 mph, nor by fighter aircraft.

The Air Force asked for new ideas. One of these was the probe-and-drogue system. In this setup, a hose reeled out from the tanker. Attached at the end of it was a basket that looked like a huge shuttlecock. The receiver aircraft was equipped with a jutting probe that plugged into the basket as the two airplanes closed toward each other.

This system worked well for smaller aircraft, but large aircraft were difficult to maneuver to plug into a basket.

Moreover, the probe-and-drogue

could transfer only a small amount of fuel—about 250 gallons per minute. At that rate, it would take more than an hour to fill a B-52 bomber.

These kinds of limitations led to a new system—a flying boom—which was perfected by 1950. This was, in effect, a retractable pipeline. Once deployed from the tanker aircraft, it could extend, telescope-like, to twice its usual length. A boom operator, sitting in the old tail gunner's position aboard the tanker, could actually “fly” the boom because it was equipped with small wings. The receiver maneuvered behind the tanker and flew formation; the boomer would then fly his boom into the receiver aircraft's receptacle. The boom transferred fuel at 700 gallons per minute—nearly triple that of the probe and drogue.

The Jet Tanker

With the move toward an all-jet bomber force, even boom-equipped KB-50s and KC-97s were inadequate. Piston-driven tankers couldn't keep up with jet bombers, nor could they match their altitude while loaded with fuel.

The Air Force needed a jet-powered tanker, and the solution was the KC-135, which made its first flight in 1956.

The KC-135 provided a huge leap in capability over the KB-50. It had space for cargo and passengers and could offload nearly six times as much fuel as the KB-50, at the same speed and altitude as the receiving bomber.

SAC embraced the KC-135. The

command purchased 732 KC-135 Stratotankers, to go with its 744 B-52 bombers.

The SAC concept of operations was straightforward: Bomber and tanker aircraft sat alert together, launched together, and flew together. As the bombers approached enemy airspace, the tankers would break off and return home.

For the next 30 years, this was the SAC routine, and both types of aircraft spent most of their time on alert.

There were, however, exceptions to the above scenario.

What of the thousands of Air Force fighters? Tactical Air Command went heavily into the nuclear delivery role in the late 1950s, and fighter pilots trained to deliver nuclear weapons as much as they trained to conduct close air support. As the fighters immersed themselves in the nuclear role, they began to call for air refueling, too.

SAC would not let go of its new KC-135s, but grudgingly relinquished some older KB-50s. Even at the time, TAC realized that, someday, it would have to jettison these antiquated, piston-engine aircraft. What then?

That question was answered sooner than expected.

With rising US involvement in Vietnam, American fighters began deploying to Asia with refueling support provided by the piston-driven tankers of TAC and Pacific Air Forces.

Then disaster struck. In October 1964, a KB-50 crashed after takeoff from Takhli AB, Thailand. The entire

crew was killed, and the subsequent investigation determined that the wings were badly corroded and had simply snapped off. Other KB-50s displayed similar decay. TAC's entire KB-50 inventory was immediately and permanently grounded.

SAC was willing to fill the gap, on the condition that it retained control of all tankers. Even though the nation was at war in Southeast Asia, nuclear deterrence needed to remain in force, so as not to tempt the Soviets into doing something foolish. Washington granted SAC's wishes.

The KC-135 was essential to the war in Southeast Asia. (See "The Young Tigers and Their Friends," June 1998, p. 74.) During the Rolling Thunder bombing campaign of 1965-68, virtually every Air Force strike sortie flown north required air refueling. Because TAC's fighters used the probe and drogue, the Stratotankers added a boom adapter that allowed them to continue this practice; eventually, all Air Force fighters were equipped with receptacles.

KC-135 operations in Southeast Asia lasted more than nine years, with the tankers flying some 200,000 sorties and providing more than 800,000 air refuelings. Of greater significance was the impact the tankers had on the Air Force. Essentially, air refueling turned short-range fighters into long-range bombers.

Nickel Grass

Shortly thereafter, a crisis in the

Middle East indicated that air refueling was necessary for cargo aircraft as well.

In October 1973, Egypt and Syria went to war with Israel. The October War found Israel in dire straits after several weeks, and Jerusalem asked the US for weapons and spare parts. Arab oil-producing nations retaliated by threatening an oil embargo against any nation helping Israel. In response, US NATO allies refused landing rights to US aircraft en route to Israel.

The exception was Portugal, which allowed the use of its airfield in the Azores, an island group in the Atlantic 800 miles west of Lisbon.

Over the next several weeks, US airlifters flew from the East Coast to the Azores—more than 3,500 miles—refueled, and then flew a further 3,000 miles to Tel Aviv's Lod Airport. This airlift operation, termed Nickel Grass, demonstrated that airlifters would be far more efficient if they too could be refueled in air (at that point only the C-5 had a refueling receptacle).

Nickel Grass proved that air mobility was a key facet of power projection. In order to ensure global influence, the US required big tankers and cargo airplanes. But what if those capabilities existed in the same aircraft? (See "Nickel Grass," December 1998, p. 54.)

The Air Force had already seen the demands on its tanker fleet increase dramatically. In 1960 there were 2,000 air refuelable aircraft in its inventory; by 1980 that number had jumped to 4,500—3,000 of which were fighters.

At the same time, SAC was doing almost as much refueling for the Navy and Marines as it was for the Air Force. Although the KC-135 fleet still had many years of life ahead of it, the hundreds of thousands of sorties flown worldwide had taken their toll. New engines were needed to rejuvenate the Stratotankers.

In early 1980 the Air Force began replacing the original J57 engines on the KC-135s with new CFM56s that allowed the airplanes to offload 50 percent more fuel while also being 25 percent more fuel efficient. The Stratotankers were also strengthened to carry extra weight and received cockpit and instrumentation upgrades, new brakes, and other improvements. These aircraft became KC-135Rs.

The cost of this modification was about \$20 million per airplane, so USAF elected to refit 157 aircraft with



A KC-135 refuels F-4 Phantoms. The Stratotanker was invaluable in the Vietnam War, since virtually every mission headed to North Vietnam required air refueling.



A1C Ben Davis, a boom operator, refuels a B-52 from aboard a KC-135. The average age of a KC-135 is 44 years.

used TF33 engines. Although not as powerful, the TF33s were less than half the cost of new engines. These tankers were designated KC-135Es.

New Tanker

The Air Force also decided to buy a new tanker. Wanting a large aircraft that could double as an airlifter, USAF settled on the KC-10. First delivered in 1981, the KC-10 Extender is equipped with both a boom and a hose reel and drogue. It can refuel either type of receiver on the same flight. Later, 20 KC-10s were fitted with wing pods holding hose reels and drogues that allowed it to refuel two aircraft simultaneously.

As an airlifter, the KC-10 can carry up to 27 pallets or 75 people and 17 pallets. More significantly, the Extender has a refueling receptacle allowing it to be air refueled.

This last capability was demonstrated in 1986 during Operation El Dorado Canyon, when Air Force and Navy aircraft bombed Libya in retaliation for terrorist attacks. France and Spain refused permission for the strike aircraft to overfly their territory, so tankers were essential. A total of 29 refuelers were employed: KC-135s topped off the KC-10s, which then provided multiple air refuelings to the attacking F-111s. (See "El Dorado Canyon," March 1999, p. 56.)

The Air Force had elected not to put a refueling receptacle on the bulk of its KC-135 fleet. Only eight Stratotankers were modified to be air refuelable.

Saddam Hussein's invasion of Kuwait in August 1990 provoked a rapid

response. Within days, mountains of materiel and the personnel needed to fight for Kuwait's liberation began moving into the Middle East. Over the next six months, US airlifters moved 500,000 people and 540,000 tons of cargo into the theater, and 100 tankers operated from nine countries to form an "air bridge."

During Desert Storm, the tankers flew 16,865 sorties to support coalition aircraft—and 24 percent of all refueling events were for Navy and Marine aircraft.

Afterward, the use of Air Force tankers to support Navy and Marine aircraft took on increased emphasis. The sea services felt the Air Force was not sufficiently supportive of their needs.

After the Persian Gulf War, the US and its coalition partners flew more than 300,000 sorties in Operation Northern Watch and Operation Southern Watch over Iraq.

With the terrorist attacks of 9/11, the homeland air defense mission of Operation Noble Eagle was launched, while al Qaeda terrorist camps in Afghanistan and the overthrow of the Taliban regime required global power projection into a region with little modern infrastructure.

Tankers allowed fighters from all the services and allied countries to deploy to bases in the crisis regions; they refu-

eled the airlifters maintaining the air bridge from the US; and they refueled aircraft throughout the combat operations themselves.

Despite the obvious necessity of air refueling in all phases of military operations, the tanker community within the Air Force has rarely enjoyed either power or prestige.

No Four Stars

There were no tanker wings in SAC until 1988. Previously, there were only bomb wings with both bomber and tanker squadrons. These wings were almost always commanded by a bomber pilot. After 1992, with the creation of Air Mobility Command, tanker personnel still had trouble obtaining the influence of the top positions. Since the formation of AMC, the command has had eight commanders: three have been fighter pilots, four have flown airlifters (C-141, C-5, or C-17 pilots), and one was a bomber pilot.

Indeed, in the entire history of the Air Force there has never been a career tanker pilot who has reached the four-star level.

The E model KC-135s, those with the used engines, are worn out, and many have been grounded for safety reasons, perhaps permanently. The average age of the KC-135 exceeds 44 years.

A related issue has also arisen. The Air National Guard and Air Force Reserve own 58 percent of the KC-135 force. This force structure situation gives the refuelers an unusual amount of protection from Congress and the various state governments where the tankers are based.

This manifested itself recently when Congress barred the service from retiring any of the maintenance-intensive aircraft, even though many of them were grounded for being unsafe. (See "Washington Watch: The Hit List: 654 Airplanes," p. 12.)

The top Air Force leadership has realized that modernization of the aerial refueling force is essential, and after many fits and starts a refueling tanker modernization program is finally moving forward, with a KC-X program scheduled to begin replacing the oldest KC-135s.

Thus, the hidden hero of US power projection—aerial refueling—is hidden no longer. ■

Phillip S. Meilinger is a freelance writer living near Chicago. He is a retired Air Force command pilot with a Ph.D. in military history. His last article for Air Force Magazine, "Bogus Charges Against Airpower," appeared in the September 2002 issue.

The Wyoming Guard and Air Mobility Command have launched the “active associate” concept.

High Plains Lifters

By Breanne Wagner, Associate Editor

An arid patch of High Plains scrubland in southeastern Wyoming has become the scene of what may well prove to be the Air Force’s most important personnel experiment in years.

There, in the town of Cheyenne, USAF has brought together active duty and Air National Guard airmen in an attempt to compel peacetime cohabitation. The goal: Prove that the two components, despite different cultures and procedures, can work together under the command of an Air Guardsman.

A visitor to Cheyenne, a town at 6,000 feet elevation and within sight of the majestic Rocky Mountains range, finds genuine enthusiasm for this project. Still, there’s no roadmap for what lies ahead, and both sides agree there is no assurance of success.

The focus of the effort is the 153rd Airlift Wing of the Wyoming Air National Guard, a C-130 unit at Cheyenne’s regional airport. Its operations building is located near a hangar festooned with Wyoming’s popular bucking-horse-and-rider seal. The symbolism seems apt, given the difficulties ahead.

The 153rd has become the first Guard wing to gain operational control of an active duty unit. The unit is the 30th Airlift Squadron, formed last July with active duty members.



Maj. Pep Devore (l), an active duty member with the 30th Airlift Squadron, and Maj. Wylie Walno from ANG’s 187th Airlift Squadron go over a preflight checklist.

Those airmen are flying ANG C-130 aircraft. They work side by side with Air Guardsmen. More importantly, they report to—and take operational orders from—a Guardsman. He is Col. Harold Reed, commander of the 153rd.

Though the 30th AS is now just one of some 20 units under the 153rd AW, there is no doubt it is very much an active duty unit. Its members are still active duty personnel and are functionally under Air Mobility Command. Their training is different from the Air Guardsmen.

The administrative control of 30th AS personnel is held by the active duty 463rd Airlift Group, in Little Rock AFB, Ark. This unit handles personnel issues such as promotions for these airmen, but everything else comes from the Air Guard.

“Active Associate”

The 30th is the Air Force’s first “active associate” squadron. USAF long has benefited from “reserve associates”—Air Force Reserve units affiliated with larger active duty wings. However, this new arrangement goes in the other

direction. For that reason, some call it the “reverse associate” concept.

Whatever the name, it is forging a Guard-active partnership never before seen in the Air Force.

The 153rd Airlift Wing, activated on Aug. 10, 1946, was among the first Air Guard units created after World War II. While it has undergone many changes over the last six decades, it is safe to say none have been as challenging as today’s.

“There are lots of questions,” said CMSgt. Doug Hensala, a maintainer with the Wyoming ANG’s 187th AS. “We have a real steep learning curve.”

This particular setup required writing a new concept of operations addressing legal and operational challenges that have—and will—crop up. It took two years to hammer out.

How is the experiment progressing thus far?

For months, the 30th AS has been in “the build-up phase,” said Lt. Col. Steven Hopkins, commander of the 30th. The unit has been receiving taskings from the National Guard Bureau, but its activation



will not be complete until this month. Then, it could start to receive AMC taskings for overseas deployments.

By December, the active personnel flew through the first of three manning phases to become a fully deployable unit, months ahead of schedule. It only took a month for the active duty crews to start flying with the Wyoming Guard crews on Wyoming airplanes. At that time, four air crews were fully integrated into wing operations and maintainer units at Cheyenne.

The 30th's first group of 77 active duty airmen came from around the world—Pope AFB, N.C., Dyess AFB, Tex., Little Rock AFB, Ark., Elmendorf AFB, Alaska, and Yokota Air Base in Japan. Most had experience with the C-130. By the end of this month, the squadron will have grown to 137 airmen, heading toward a goal of 180.

Guardsmen now and always will far outnumber Cheyenne's active airmen. At present, the 153rd has 1,200 Guardsmen, 400 of whom are full-time. "We are just another squadron in the hierarchy of the 153rd AW," Hopkins said.

The 30th AS participates in training, local flying, and all other missions it normally would perform while operating from an active base. The 30th has "melded into the wing," said a spokeswoman for the Wyoming Military Department.

The spokeswoman said the state Guard's C-130 flights can be crewed with any mix of Guard and active duty members, depending on the mission and who is available. Individual active airmen can plug in and work in predominantly Guard crews.

In November, for example, a C-130 crewed by Guardsmen and one active duty loadmaster air dropped a group of Navy Seals into the area around Norfolk, Va., as part of a training exercise.

A Push From BRAC

Creation of a reverse associate unit stemmed from the work of the 2005 Base Realignment and Closure (BRAC) commission.

It proposed, for the sake of efficiency, shifting four C-130s of the Idaho ANG's 124th Wing at Boise to the Wyoming Guard at Cheyenne, which already had eight. The sunk cost could be spread more effectively across a larger flying wing.

However, it paired that recommendation with another—that an associate unit should be created, with active duty associating on the ANG aircraft.



USAF photo

Modular Airborne Fire Fighting System equipment is loaded on a C-130 aircraft by members of the 153rd Airlift Wing in preparation for an annual fire fighting exercise.

According to BRAC, the unit would support a Total Force USAF, which was contemplating active duty units commanded by Air National Guard or Air Force Reserve officers.

These reverse associate units are expected to generate several distinct benefits.

First, the service gets a chance to season some of its young, active duty airmen by associating them on a day-to-day basis with older and more experienced Guard members.

"The vast majority of our [Guard] maintainers are a little older and a little more experienced," said Brig. Gen. Charles V. Ickes II, deputy director of the Air National Guard in Washington. "They will more rapidly [give] experience [to] the young active duty folks."

Second, the Air Force can make fuller use of all of its Total Force mobility assets—specifically, Guard C-130s. Active duty airmen will gain greater access to Guard airplanes.

This is necessary because USAF cannot buy more C-130s (at \$90 million apiece) to fill out active mobility forces in their entirety.

For USAF officials, Cheyenne was attractive for several reasons. One, evidently, was the quality of 153rd AW leadership. Last year, the wing's 187th AS won the Spaatz Trophy as the outstanding Air National Guard unit for 2006.

Another factor in Cheyenne's favor was its proximity to F.E. Warren AFB, Wyo., an active duty base. Airmen go there for medical, commissary, family support, schooling, and similar needs. Also at F.E. Warren, the active airmen

receive their combat arms training and carry out their administrative communications with the 463rd AG.

From all appearances at the wing, the transition has not negatively affected operational matters.

Each year, the Wyoming ANG is federalized for Coronet Oak, a deployment in support of US Southern Command's movement of troops and equipment through Central and South America. The 153rd AW's personnel—both active duty and Guardsmen—flew Coronet Oak missions in late 2006. This entailed two-week rotations of a pair of C-130s and 50 air and ground crew members.

Out in Cheyenne, active airmen appear eager to participate with the Guard units in the US Forest Service's Modular Airborne Fire Fighting System missions. (See "Aerospace World: Air Force C-130s Fight Fires," July 2002, p. 14.) MAFFS traditionally is a reserve mission, and training is held every May. Hopkins and the Wyoming Guard leadership will decide whether active airmen will be selected.

At present, one active duty airman from the 30th has been dispatched to



Yuma, Ariz., to take part in Operation Jump Start, the US Border Patrol's border enforcement mission. The Wyoming wing may send more airmen later this year.

Pushing and Shoving

Despite years of planning, there has been some pushing and shoving. Guard and active leaders note several issues.

One problem stemmed from different views of scheduling and working hours. Guard personnel tend to work a traditional eight-hour day. Active personnel do not, instead putting in extra hours or working late to finish a job. The way the active force schedules its work "does not take into consideration the [Guard's] technician ... force," said a Guardsman.

Sorting out the funding responsibilities was also an issue.

Title 10 covers federal missions, applying to both active and reserve forces, while Title 32 applies to the National Guard operating under state control but performing duties of federal interest, such as responding to a terrorist attack. In both cases, funding comes from the federal coffers. However, under current law, Guard officers in Title 32 status cannot command Title 10 forces. And, to be in Title 10 status, a Guardsman must be called to active duty.

Then there is the third status in which Guard forces operate solely in state service under control of the governor and financed by the state. Governors usually employ their Guard forces in this status to handle such things as natural disaster relief. When Wyoming calls upon the 153rd AW in its state role, the unit's active duty airmen may also participate but they're still paid by Uncle Sam.

State-run missions traditionally are performed only by a state's own Guard unit. However, the wing's concept of operations included some "operational direction" provisions allowing active duty members to participate in purely



Members of the 153rd Airlift Wing line up a MAFFS unit for loading on one of their C-130s.

state-directed missions such as fire fighting, which would be under the direction of Gov. David D. Freudenthal.

"If Governor Freudenthal wants the Guard to deliver hay, the active duty airmen could join [in]," Hopkins said.

AMC, and not the Guard, pays any extra costs incurred by the 30th AS. This could include building more practice airdrop loads for training or laying on additional flying hours.

For office supplies and computers, "we have developed a fair share system" by splitting the cost, Hopkins remarked. The 153rd AW is responsible for all infrastructure bills needed to operate the C-130s.

Both sides have noted the extra cost of a new squadron.

The main operations building once housed just a few Guardsmen. Now, it is crammed with desks, chairs, computers, filing cabinets, and boxes that fill up not only offices but also hallways.

"We feel bad because we're infringing on their personal space," said MSgt. Larry Barto, an active duty loadmaster.

Plans call for a new operations building with office space totaling 37,000 square feet—14,000 of which were belatedly added to accommodate the new active forces. The completion date has been set at summer 2008.

The project will be jointly funded; ANG will provide \$9 million, and AMC will pony up at least \$3.2 million.

Different Cultures

It is evident that the two sides are striving mightily to get along and make the experiment work. For all that, though, cultural differences remain.

SMSgt. Rick McKean, a 30th AS flight engineer, believes the differences

between Guard and active duty have nothing to do with actually flying the airplane and everything to do with differing procedures on the ground.

"We push the same buttons and do the same things to get the knobs turned and the airplane airborne," McKean explained. "The big difference for us is getting from inside the building to the airplane. There's different steps and different procedures."

As an active duty airman at a Guard base, said McKean, he feels "a bit like a duck out of water, because it's not secondhand nature like it's been for most of our careers."

Procedures differ on everything from checking out a helmet to organizing and cleaning a shop.

Hopkins noted the cleanliness of the Guard's buildings and equipment. This, he said, stemmed partly from pride of ownership and partly from having more time for spruce ups.

Three Guard crew chiefs have watched all eight of the 153rd's airplanes come off the assembly line, and they take excellent care of these airplanes, Hopkins said.

The interaction of older Guardsmen and younger active airmen creates a distinct atmosphere at Cheyenne. "The overall maturity level is higher," said Barto. "It's the big boy program."

The Air Force likes this arrangement. Guardsmen can share experiences, said Barto, and many seem pleased to have the chance to do this.

"We want this to be a success," said Col. Steve Rader, the 153rd's operations group commander. "We want every active person to be a success. ... We want to assimilate the best of both into the dual culture." ■

USAF photo



Lavelle, Nixon, and the White House Tapes

Tape recordings from the Nixon White House shed new light on an old controversy.

By Aloysius Casey and Patrick Casey



President Nixon (l) and Henry A. Kissinger huddle in the Oval Office. On Feb. 3, 1972, they met with Amb. Ellsworth F. Bunker (r), US envoy to Saigon. Nixon told Bunker, "He [Gen. Creighton Abrams, US commander in Vietnam] can hit SAM sites, period. OK? But he is not to do it with a public declaration."

Air Force Gen. John D. Lavelle in July 1971 assumed command of all air operations in Vietnam. He was known in the Air Force as an honest, hard-working, and capable leader. Seven months later, however, Lavelle would be fired as a result of allegations that he had ordered bombing missions into North Vietnam which

were never authorized. Congressional hearings arising from his case raised serious questions of encroachment by the military upon the principle of civil authority. Lavelle denied the allegations until his death in 1979.

The case was complicated, a fact made clear by John T. Correll's expertly told article, "Lavelle," published in the

November 2006 issue of this magazine. However, not all of the facts were known until now.

Hard evidence, from an unimpeachable source, shows that Lavelle had unequivocal authorization from the highest civilian authority—President Richard Nixon—to conduct so-called "preplanned strikes" in North Vietnam in February and March 1972. Equally hard evidence shows that senior military officials had approved earlier strikes of the same nature.

These statements are based on recently released White House audio recordings of Oval Office conversations as well as formerly classified





Gen. John D. Lavelle (r) on July 29, 1971 accepts command of 7th Air Force from Gen. Lucius D. Clay Jr. Lavelle inherited strange rules of engagement.

JCS message traffic. We came across these pieces of evidence while developing material for our book, *Velocity: Speed With Direction*, a biography of Gen. Jerome F. O'Malley, which will be published this summer by Air University Press.

The background of the Lavelle case is generally well-known. However, certain parts of it bear retelling.

The story begins with Lavelle's arrival "in country." At that time, the overall US military commander in South Vietnam was Army Gen. Creighton T. Abrams. Responsibility for the air war in turn was delegated to Lavelle, who commanded 7th Air Force. Lavelle had operational control of USAF aircraft, control which was implemented by Maj. Gen. Alton D. Slay, his operations officer. Slay issued orders to wings, including the 432nd Tactical Reconnaissance Wing, led by Col. Charles A. Gabriel and his vice commander, Col. Jerome F. O'Malley.

Lavelle inherited strange rules of engagement. In 1968, Washington suspended bombing in North Vietnam to induce Hanoi to talk peace. When he came to the White House in 1969, Nixon kept the policy, but USAF continued intensive airborne reconnaissance of the North, and fighter escorts were assigned. The rules of engagement in late 1971 (and early 1972) prohibited US warplanes from firing at targets in North Vietnam unless US aircraft were either (1) fired at or (2) activated against by enemy radar. In those cases, the escorts could carry out so-called "protective reaction" strikes.

In 1968, North Vietnam's surface-to-air missiles were controlled by radar with a high-pulse recurring frequency, which keyed an alarm in the USAF aircraft. By late 1971, however, Hanoi had learned to "net" its long-range search radars with the missile sites. These additional sources of radar data allowed North Vietnam to turn on SAM radar at the last second, giving US crews virtually no warning.

Combat commanders believed it vital to let US aircraft defend themselves by attacking SAM sites and MiG airfields rather than waiting for a SAM site to launch a missile or a MiG to attack. Communiqués from Abrams to the JCS in Washington sought authority to destroy the MiG threat and recommended immediate strikes on Bai Thuong, Quan Lang, and Vinh airfields.

The JCS denied these requests, but urged commanders to make maximum use of authority allowable under existing ROE.

On Nov. 8, 1971, Adm. Thomas H. Moorer, the JCS Chairman, arrived in Vietnam and personally approved a request from Lavelle to attack the MiG airfield at Dong Hoi. Moorer even reviewed the bomb damage assessment results that day, before departing Vietnam. Mission results also went to the Pentagon. Instead of questioning the mission, the JCS only suggested more careful planning.

The situation continued to grow more dire. In a top secret Nov. 12 message to Moorer, Adm. John S. McCain Jr., head of US Pacific Command, warned, "I am

deeply concerned over the mounting threat that the enemy's integrated air defense network has posed against the B-52 force," adding his conviction that "the enemy is more determined than ever to shoot down a B-52."

On Nov. 21, McCain sent another top-secret communiqué to Moorer, redoubling his effort to obtain more authority to bomb North Vietnamese targets. McCain made specific reference to the preplanned strikes previously authorized by Moorer himself. Moorer, in a top secret Nov. 28 response, sounded understanding, but the Pentagon still declined to grant additional authority.

Another top official, Secretary of Defense Melvin R. Laird, visited the theater later in December. Lavelle met privately with the Pentagon chief in Saigon. At this meeting, Lavelle later asserted, Laird "told me I should make a liberal interpretation of the rules of engagement in the field and not come to Washington and ask him, under the political climate, to come out with an interpretation; I should make them in the field and he would back me up."

Lavelle said he conveyed this information to Abrams, and "General Abrams said he agreed with Secretary Laird."

By December 1971, US military forces had strong evidence that North Vietnam was preparing a massive conventional attack on the South. Combat losses heightened Lavelle's concern about the operating rules and the effect on his crews. On Dec. 18, the 432nd lost three aircraft to enemy action, two to ground fire and one to MiG attack.

Early in 1972, a strike into North Vietnam raised anew the issue of authority for preplanned protective reaction strikes. A ground control intercept radar at Moc Chau, used to control MiGs, was a major threat as it provided current information on slow-moving US gunships. Abrams personally authorized a preplanned strike. US aircraft on Jan. 5 hit and disabled the Moc Chau site.

When informed, the JCS took a dim view of the Moc Chau raid. The Chiefs, in a message to US commanders, conceded "the logic" of the attack. "However," they continued, "we are constrained by the specific operating authorities as written."

US aircraft losses continued to mount. On Jan. 17, 1972, the enemy hit two AC-130 gunships, with much loss of life. Three days later, the 432nd TRW lost an RF-4C fighter. Accordingly, Lavelle on Jan. 23 ordered another preplanned

protective reaction strike, this one against Dong Hoi airfield.

The strike was successful, but a miscue within the 7th Air Force headquarters command post caused a major misunderstanding. On his return flight, the USAF pilot radioed a report: "Expended all ordnance, the mission was successful, no enemy reaction."

Lavelle, knowing enemy "reaction" was needed to justify every strike against targets in the North, snapped at his director of operations, Slay: "We can't report 'no reaction.'" The attacking pilot, Lavelle told Slay, "must report reaction."

Lavelle later contended he meant that a pilot should report "hostile radar" as the enemy reaction, and that he earnestly believed that recording "hostile radar" complied with the ROE, since the netted enemy radar constituted an automatic "activation against" US aircraft. However, Lavelle went on to say that he did not take care to explain this to Slay.

Nor did Lavelle realize that the format of the official operations report for a mission would not permit the simple entry of the term "hostile radar" or "hostile reaction" without supporting details.

Slay told Gabriel and O'Malley, "You must assume by General Lavelle's direction that you have reaction." At subsequent preflight briefings, crews were told to record enemy "reaction," whether or not it happened. While most of the missions caused real reaction—SAM, triple-A, or MiG fire—a few did not. On those occasions, crews reported "hostile enemy fire" anyway.

Eventually, this caused trouble. On Jan. 25, 1972, Sgt. Lonnie D. Franks, an airman in the intelligence division of the 432nd TRW, was tasked to debrief crew members returning from a mission. He routinely asked whether they had received hostile fire. The crew responded, "No, we didn't, but we have to report that we did." Franks objected, but two superiors told him he was under orders to report enemy reaction.

Franks, troubled by this, reported the incident to Sen. Harold E. Hughes (D-Iowa). This would produce military inquiries, Congressional hearings, and the sacking of Lavelle. In time, everything would become public.

Unbeknownst at the time, however, the issue of granting additional strike authority was being discussed at the highest levels of the US government.

The first such discussion began promptly at 10:53 on the morning of Feb. 3, 1972, in the White House. President

Nixon and Henry A. Kissinger, his national security advisor, sat down in the Oval Office with Ambassador Ellsworth F. Bunker, the US envoy to Saigon. By virtue of the setup of the military assistance command in Vietnam, Bunker was in overall charge of all American operations in Vietnam.

Bunker was in Washington for a hearing on his renomination as ambassador. At this particular meeting, though, he spoke on behalf of Abrams, who was seeking greater air strike authority.

Bunker began, "If we could get authority to, to bomb these SAM sites ... Now the authority is for bombing when, when they fire at aircraft," or "when the radars locked on. The problem is, that that's, that's late to start attacking."

Kissinger chimed in, evidently supporting a more aggressive stance. He suggested that Nixon authorize US forces to strike any North Vietnamese SAM that had ever targeted a US aircraft.

He urged Nixon to "say Abrams can hit any SAM site that has locked on, even if it is no longer locked on."

A lengthy discussion ensued. Finally, Nixon instructed Bunker to deliver to Abrams the following order:

"He [Abrams] is to call all of these things 'protective reaction.' Just call it protective reaction. All right? ... I am simply saying that we expand the definition of protective reaction to mean preventive reaction, to mean preventive reaction where a SAM site is concerned. ... Just call it ordinary protective reaction." Then the President added, "Who

knows or would say they didn't fire?"

Kissinger, no doubt aware that any leak of such an ROE change could cause an uproar in Congress and the public at large, wanted to keep it a secret. He asked Bunker, "Now, could they stop from blabbing it at every bloody briefing?"

Nixon also wanted secrecy, for a specific reason. He was only weeks away from his historic Feb. 21-28 visit to China, and he didn't want a last-minute flare-up snarling his plan. This was clear from the context of his next comment.

Nixon told Bunker: "I want you to tell Abrams when you get back that he is to tell the military not to put out extensive briefings with regard to our military activities from now on—until we get back from China."

Then Nixon went to some length to describe the new military dispensation.

"You've worked out the authority," Nixon said to Bunker. "He [Abrams] can hit SAM sites, period. OK? But he is not to do it with a public declaration. All right? And, if it does get out, to the extent it does, he says it's a protective reaction strike. He is to describe it as protective reaction. And he doesn't have to spell it out. They struck, that's all he needs, a SAM site. A protective reaction strike against a SAM site."

As a result of the President's words, the US military now had authorization from the highest level to attack certain North Vietnamese targets without the

According to Lavelle, Pentagon chief Melvin R. Laird (l) urged "a liberal interpretation of the rules." Adm. Thomas H. Moorer (r), the JCS Chairman, met Lavelle in Vietnam and personally approved a Nov. 8, 1971 preplanned attack on Dong Hoi airfield.





Alexander M. Haig Jr., when asked by Nixon on Sept. 15, 1972 whether the White House could do something to save Lavelle, said only, "I don't think so, sir. I've been watchin' it."

preceding condition of an enemy threat to aircraft. One would assume that Bunker, given his position, immediately would have forwarded the President's instruction to US military authorities. However, the public record contains no direct evidence that this did or did not happen.

Operating forces were not permitted to make public disclosure of the change. Indeed, the details of this Feb. 3, 1972 Nixon directive never became public—ever.

Moorer confirmed this order with a top secret Feb. 7 communication to commanders in Vietnam. The admiral wrote:

"To help minimize the possibility that the North Vietnamese build a military capability within the DMZ [demilitarized zone] for sudden strikes across the PMDL [provisional military demarcation line], you are authorized to conduct tactical air strikes into the northern portion of the DMZ whenever COMUSMACV [Abrams] determines the North Vietnamese are using the area in preparation for an attack southward. Public affairs guidance. No public announcement of any kind will be made with regard to these actions."

Thus did the White House and the Joint Chiefs work in sync to conceal Nixon's directive from the public.

Soon, the Pentagon decided to mount another campaign of "limited duration" strikes and on Feb. 16 announced orders suspending any prestrike need for enemy reaction. On that day, a reconnaissance aircraft and 14 escorting fighter-bombers

went north. A first wave of US aircraft struck the defending SAM sites and another struck heavy gun emplacements north of the DMZ.

The US command officials portrayed these as "protective reaction" strikes. They announced that the sole objective was to strike positions in North Vietnam that had previously fired on American airplanes.

On Feb. 25, USAF flew three more preplanned protective reaction missions using 17 escort aircraft. These types of raids went on unabated for another week or so. The preplanned missions were flown on March 1, 3, 4, 6, 7, and 8.

It was on March 8 that the letter from Franks finally reached the office of Hughes. After ricocheting around Capitol Hill and the Pentagon, it finally landed with a thud on the desk of Gen. John D. Ryan, the Air Force Chief of Staff. The Air Force inspector general was on an airplane to South Vietnam the next day.

Lavelle met right away with the inspector general. He withheld nothing. "You never go over North Vietnam that that system isn't activated against you," said Lavelle, because the North Vietnamese radar system was totally netted. The discovery of false reports surprised him. However, as the person who gave the order "not to report 'no reaction'" he assumed full responsibility for the miscommunication.

This statement by Lavelle provided significant protection for all those officers below him in the chain of command.

On March 21, Moorer dispatched an odd top secret message to 7th Air Force, warning that "the increased number of protective reaction strikes since Jan. 1, 1972 has attracted a considerable amount of high-level interest here and is receiving increasing attention from the press."

Moorer went on to underscore the "extreme sensitivity" of this subject and requested that all crews be "thoroughly briefed that current authority permits protective reaction to be taken only—repeat only—when enemy air defenses either fire at or activated against friendly forces."

On March 23, the Inspector General report found that "some missions had not been flown in accordance with the Rules of Engagement and that there were irregularities in the operational reports." Lavelle, summoned to Washington, was instructed to go immediately to Ryan's quarters. There, on March 26, the Chief of Staff told Lavelle he could retire as a lieutenant general or take a new assignment in the grade of major general.

Lavelle indicated he wished to speak directly with either Laird or Secretary of the Air Force Robert C. Seamans Jr. The meeting concluded with an understanding that Lavelle would meet with one of the two. Lavelle spent the following week at the Pentagon waiting in vain for an audience. Realizing he would not succeed in overturning the decision, Lavelle agreed to retirement.

On March 30, North Vietnamese forces stormed across the DMZ, putting all of their weight behind a massive conventional invasion intended to be a knockout blow. Predictably, the US promptly abandoned the niceties of "protective reaction." On April 7, American forces received unrestricted authority to bomb targets in the North, and B-52s over the next month flew more than 700 missions over communist territory.

Back in Washington, Ryan on April 7, 1972 released an Air Force statement saying Lavelle was retiring for "personal and health reasons." Inevitably, however, the Lavelle matter leaked. On June 10, 1972, the *New York Times* reported that Lavelle was "demoted after ordering repeated and unauthorized bombing attacks of military targets in North Vietnam."

The House Armed Services Committee called Lavelle and Ryan to testify on June 12. Instead of ending the controversy, however, the House hearing sparked calls for a Senate inquiry. Sen.

William Proxmire (D-Wis.) called for courts-martial. Hughes announced that he was planning to seek a full hearing on the matter before the Senate Armed Services Committee.

At the White House, the issue of Lavelle's authority had become a point of heated, behind-the-scenes discussion. On Wednesday, June 14, in a nearly 29-minute Oval Office meeting between Nixon and Kissinger, the issue of Lavelle came up repeatedly.

The President began: "Let me ask you about Lavelle. I was, I had it on my list this morning. I just don't want him to be made a goat. We all know what protective reaction is. This damn Laird." [Nixon evidently was responding in line with the views of Kissinger, who blamed Laird for the removal of Lavelle.]

Then Kissinger said: "And he had him already removed by the time I even learned about it."

Nixon asked, "Why did he even remove him? You, you destroy a man's career."

Kissinger did not answer the question, but rather took up a different topic. Nixon, however, interrupted: "Come back to Lavelle. I don't want a man persecuted for doing what he thought was right. I just don't want it done."

Still, Nixon does not receive a satisfactory answer from his national security advisor. The President continued:

"Can we do anything now to stop this damn thing or ... Why'd he even remove him?"

"Lavelle was removed at the end of March," Kissinger noted.

"Because of this?" asked Nixon.

"Yeh," said Kissinger.

Nixon was furious: "Why the hell did this happen? A decision of that magnitude, without— I should have known about it, Henry. Because this is something we told— You remember: We, we, we told Laird, 'Keep pressure on there in March.'"

Nixon concludes: "Laird knows G---- well, that ah, I told him, I said, 'It's protective reaction.' He winks, he says, 'Oh, I understand.'"

At 8:57 a.m. on June 26, 1972, Nixon and Kissinger once again took up the Lavelle problem in the Oval Office. Nixon was recoiling from advice that he steer clear of any involvement in the forthcoming Senate inquiry into Lavelle's actions.

"Frankly, Henry, I don't feel right about our pushing him into this thing and then, and then giving him a bad

rap," Nixon declared. "You see what I mean?"

The discussion eventually concludes with Nixon expressing anxiety about the Senate hearing. "I want to keep it away if I can," the President says, "but I don't want to hurt an innocent man."

Three days later, on June 29, Nixon squirmed at a televised news conference. Asked about Lavelle's preplanned bombing, Nixon said, "It wasn't authorized," and thus "it was proper for him to be relieved and retired." Yet he also said Lavelle attacked "only those military targets ... being used for firing on American planes."

In the period Sept. 11-28, 1972, the Senate Armed Services Committee conducted hearings. At issue were Lavelle's planned retirement at the grade of lieutenant general, matters relating to authority for certain bombing missions, Abrams' nomination to become Army Chief of Staff, McCain's planned retirement, and Moorer's nomination for a second term as Chairman.

Lavelle himself led off the testimony on Sept. 11, 1972, asserting unreservedly that all of his actions were authorized and taken to protect the lives of airmen in his command. He rejected assertions that he had exceeded his authority and said that he had applied the rules of engagement as he had been urged to by the JCS. He described his understanding that the enemy's netted radar system automatically produced "reaction," which authorized use of force.

He said that a commander is always ultimately responsible for the consequences his orders. "I have never suggested that the responsibility was other than my own," he said. Lavelle concluded: "Mr. Chairman, it is not pleasant to contemplate ending a long and distinguished military career with a catastrophic blemish on my record—a blemish for conscientiously doing the job I was expected to do, and doing it with a minimum loss of American lives."

On Sept. 13, 1972, Abrams testified that Lavelle "acted against the rules" of engagement. Lavelle and Abrams, who always had worked well together in Vietnam, were now at odds on the crucial issue of Lavelle's "authority to strike."

Two days later, on Sept. 15, 1972, Nixon met in the Oval Office with Haig,

his deputy national security advisor. Nixon, running for re-election, apparently felt frustration at his inability to correct the injustice he thought he was witnessing in the daily Senate testimony on the Lavelle issue.

The President told Haig, "We've got to be able to do something on this ah, this Lavelle."

Haig responded: "I don't think so, sir. I've been watchin' it."

The President said, "We told Laird that, 'If your guy Moorer isn't sure if it is protective reaction, that to protect yourselves, we would back you to the hilt.' [That's] the way I look at it."

For all that, the White House remained silent as the Senate hearings progressed.

The Senate Armed Services Committee on Oct. 6, 1972 turned down Lavelle's nomination for retirement as a lieutenant general. The vote was 14 to two. Instead, Lavelle was retired at his permanent rank of major general.

More than two weeks later, Nixon was still upset about the Lavelle incident. In an Oct. 23, 1972 meeting with Haig in the Old Executive Office Building, Nixon unleashed a torrent of anger.

"All of this G----- crap about Lavelle," said Nixon. "And I feel sorry for the fellow, because you and I know we did tell him about protective reaction being, very generally—"

"Very liberal," Haig helpfully suggested.

"Yeh, very liberally, very liberally," said Nixon. "Remember, I said it was, if they, if they hit there, go back and hit it again. Go back and do it right. You don't have to wait till they fire before you fire back. Remember I told Laird that. And I meant it. Now Lavelle apparently knew that, and received that at some time."

Six years after these events, Lavelle spoke at some length for an oral history project. "I did what was right," he insisted. "I did what was authorized."

Between Nov. 7, 1971 and March 9, 1972, US aircraft flew scores of strike sorties. Of these, a total of just 28 documented missions, entailing about 147 sorties, were identified as the unauthorized "Lavelle Raids."

Now, it seems clear enough that even that tiny handful of flights also were authorized. ■

Lt. Gen. Aloysius G. Casey, USAF (Ret.), retired as the commander of Space Division, Air Force Systems Command, in 1988. His son, Patrick A. Casey, is a trial attorney with the firm Myers, Brier & Kelly, LLP, in Scranton, Pa. This is their first article for Air Force Magazine.



NATIONAL OFFICERS



BOARD CHAIRMAN

Robert E. "Bob" Largent
Harrison, Ark.



VICE CHAIRMAN, FIELD OPERATIONS

Joseph E. Sutter
Knoxville, Tenn.



VICE CHAIRMAN, AERO-SPACE EDUCATION

L. Boyd Anderson
Ogden, Utah



SECRETARY

Judy K. Church
Lenexa, Kan.



TREASURER

Steven R. Lundgren
Fairbanks, Alaska

NATIONAL DIRECTORS

Craig E. Allen
Hooper, Utah

Robert C. Bienvenue
East Amherst, N.Y.

Michael J. Bolton
Savannah, Ga.

David T. Buckwalter
Portsmouth, F.I.

David R. Cummock
Port Orange, Fla.

Dennis R. Davoren
Woodland, Calif.

Angela Dupont
Billerica, Mass.

James Hannam
Burke, Va.

O. Thomas Hansen
Steilacoom, Wash.

Peter J. Hennessey
Columbus, Ohio

Buster Horlen
San Antonio

John P. Jumper
Burke, Va.

Jay W. Kelley
Colorado Springs, Colo.

James R. Lauducci
Alexandria, Va.

J. Ray Lesniok
Concord Township, Ohio

Jodi Lunt
Pleasant View, Utah

Lester L. Lyles
Vienna, Va.

Bruce E. Marshall
Shalimar, Fla.

Elizabeth McLaughlin
Bonaire, Ga.

George K. Muelner
Long Beach, Calif.

Gerald R. Murray
Marietta, Ga.

Richard B. Myers
Arlington, Va.

Charles A. Nelson
Sioux Falls, S.D.

Lloyd W. Newton
Lithia, Fla.

David B. Poythress
Atlanta

Joseph Price
Newport News, Va.

Michelle Ryan
Alexandria, Va.

Keith N. Sawyer
O'Fallon, Ill.

Sanford Schlitt
Sarasota, Fla.

Paul W. Schowalter
Hickory, N.C.

Cliff Stearns
Washington, D.C.

Charles G. Thomas
Albuquerque, N.M.

Mary Anne Thompson
Oakton, Va.

Raymond Turczynski Jr.
Fort Walton Beach, Fla.

Jerry E. White
Colorado Springs, Colo.

Jackson A. Winsett
Warner Robins, Ga.

Charles P. Zimkas Jr.
Colorado Springs, Colo.

DIRECTORS EMERITUS

John R. Alison
Washington, D.C.

R. Donald Anderson
Poquoson, Va.

Joseph E. Assaf
Sandwich, Mass.

David L. Blankenship
Tulsa, Okla.

John G. Brosky
Carnegie, Pa.

Bonnie B. Callahan
Winter Garden, Fla.

Dan Callahan
Centerville, Ga.

George H. Chabbott
Dover, Del.

O.R. "Ollie" Crawford
San Antonio

Jon R. Donnelly
Richmond, Va.

Russell E. Dougherty*
Potomac Falls, Va.

George M. Douglas
Colorado Springs, Colo.

Michael J. Dugan
Dillon, Colo.

Charles G. Durazo
Yuma, Ariz.

Joseph R. Falcone
Charlottesville, Va.

Samuel M. Gardner
Garden City, Kan.

Don C. Garrison
Pendleton, S.C.

Richard B. Goetze Jr.
Arlington, Va.

John O. Gray*
Arlington, Va.

Emlyn I. Griffith
Rome, N.Y.

Martin H. Harris
Montverde, Fla.

Gerald V. Hasler
Encinitas, Calif.

Monroe W. Hatch Jr.*
Clifton, Va.

H.B. Henderson
Newport News, Va.

John P. Henebry
Winnetka, Ill.

Harold F. Henneke
Nashville, Ind.

Victoria W. Hunnicutt
Gray, Ga.

Leonard W. Isabelle
Lakeport, Calif.

David C. Jones
Potomac Falls, Va.

James M. Keck
San Antonio

Victor R. Kregel
Colorado Springs, Colo.

Jan M. Laitos
Rapid City, S.D.

Doyle E. Larson
Burnsville, Minn.

Hans Mark
Austin, Tex.

Robert T. Marsh
Falls Church, Va.

William V. McBride
San Antonio

James M. McCoy
Bellevue, Neb.

Thomas J. McKee
Arlington, Va.

Bryan L. Murphy Jr.
Fort Worth, Tex.

Ellis T. Nottingham
Arlington, Va.

John J. Politi
Fair Oaks Ranch, Tex.

Jack C. Price
Pleasant View, Utah

William C. Rapp
Williamsville, N.Y.

Mary Ann Seibel-Porto
Arlington, Va.

John A. Shaud*
Springfield, Va.

E. Robert Skloss
Park City, Utah

James E. "Red" Smith
Princeton, N.C.

R.E. "Gene" Smith
West Point, Miss.

Loren J. Spencer
Arlington, Va.

William W. Spruance
Las Vegas

Jack H. Steed
Warner Robins, Ga.

Harold C. Stuart
Jensen Beach, Fla.

Walter G. Vartan
Chicago

A.A. West
Williamsburg, Va.

Mark J. Worrick
Denver

Joseph A. Zaranka
Bloomfield, Conn.

Stephen P. "Pat" Condon
Ogden, Utah

Donald L. Peterson
President
Air Force Association
Arlington, Va.

Donald J. Harlin
National Chaplain
LaGrange, Ga.

Dan Hixon
National Commander
Arnold Air Society
Clemson, S.C.

EX OFFICIO

*Executive Director (President) Emeritus

By Frances McKenney, Assistant Managing Editor

Los Angeles Ball

At the 35th annual Air Force Ball in Los Angeles, Lt. Gen. Frank G. Klotz, vice commander of Air Force Space Command, received the Gen. Thomas D. White USAF Space Award, given for outstanding progress in the field of aerospace.

Sponsored by the Air Force Association's **Gen. B.A. Schriever Los Angeles Chapter**, with the aid of the **General Doolittle Los Angeles Area Chapter** and the **Orange County/Gen. Curtis E. LeMay Chapter**, the ball took place in November in conjunction with the AFA Los Angeles National Space Symposium.

The AFA national-level White award is named for USAF's fourth Chief of Staff, who served from 1957 to 1961. The Air Force selects the recipient, this year honoring Klotz. The general "provided succinct direction for the daily operations of Air Force Space Command's nearly 40,000 personnel and 28 space weapon systems—vital to providing space and missile capabilities to joint warfighters around the globe," noted the award citation.

In other presentations at the ball, retired Maj. Gen. Craig R. Cooning, now a Boeing vice president, and William Maikisch, executive director of Space and Missile Systems Center at Los Angeles AFB, Calif., were named AFA Gen. Bernard A. Schriever Fellows.

The Los Angeles black-tie gala raised \$40,000 for AFA and the Schriever Chapter's education foundation.

More Headlines

A guest speaker first booked by the **Central Indiana Chapter** for their August meeting made more headlines when the **Southern Indiana Chapter** invited him to address their November gathering.

James E. O'Donnell, a petty officer on USS *Indianapolis* in the Pacific Theater in World War II, was among the 317 sailors and marines—out of 1,196 on board—who survived after a Japanese submarine torpedoed the heavy cruiser on July 30, 1945. His memories of spending four days in the Philippine Sea, waiting for rescue, fending off shark attacks, and enduring thirst, hunger, and exposure, were so moving to the



USAF photo by Ron Hall

At the Air Force Ball in Los Angeles in November, Air Force Association Chairman of the Board Bob Largent (left) presents the Gen. Thomas White Space Award to Lt. Gen. Frank Klotz, vice commander of Air Force Space Command. Brian Arnold (at right), the Schriever Chapter's board chairman, joined in the ceremony.

Central Indiana Chapter last summer that other Hoosier State chapters invited O'Donnell to share with their members his account of the ordeal.

Southern Indiana Chapter President Marcus R. Olphant invited a reporter from a new local weekly newspaper to this meeting and received feature-story coverage as a result. The article noted that O'Donnell is today a retired Indianapolis firefighter.

Defense, Surveillance, Remembrance

Canadian Forces Brig. Gen. Marcel Duval addressed the November meeting of the **Col. H.M. "Bud" West Chapter** in Tallahassee, Fla. He has been the deputy commander of Continental US North American Aerospace Defense Command Region (CCNR) at Tyndall AFB, Fla., since 2004. He explained 1st Air Force's defense and surveillance missions and how the US and Canada work together on these efforts.

Among the more than 50 people in the audience were AFROTC and AFJROTC cadets from Florida State University and Amos P. Godby High School, who were honored at the chapter meeting for their leadership.

Three weeks later, on Dec. 7, several **Bud West Chapter** members visited FSU to help the cadets of Det. 145 observe the 65th anniversary of the attack on Pearl Harbor.

Chapter President John E. Schmidt Jr. and members William B. Webb, Gary B. Sharpe, and Wayne Coloney were invited to the campus by Daniel Trueblood, the detachment's Arnold Air Society commander, who had attended the November chapter meeting.

The chapter speakers shared their military-service memories, discussed the importance of a military career, and the value of ROTC. Schmidt served for 30 years in training and education. Webb was a pilot and intelligence officer. He also served as the air and defense attaché to China, retiring from USAF in 1986 as deputy director of the Defense Mapping Agency. Sharpe was a communications and computer manager. Coloney was a World War II tank commander.

Advice for Future Leaders

The **Newport Blue & Gold Chapter**, based at the Naval War College in Rhode Island, sponsored a leadership seminar in October. Lt. Col. Mark

Harysch, chapter president, said it had a straightforward purpose: "To mentor future squadron commanders."

The seminar gave five former USAF squadron leaders from the senior class at the NWC—among them chapter member Lt. Col. Marilyn H. Jenkins—a chance to pass on advice.

A former intelligence squadron commander, for example, reminded the audience that they must be prepared for emergencies, mistakes, accidents, and difficult situations such as informing families about the death of a loved one. A former head of an operations support squadron spoke on the importance of building working relationships with other unit commanders.

Harysch said that when Chapter Treasurer Lt. Col. Thomas M. Bailey was recruiting for seminar presenters, so many USAF personnel volunteered from the group attending the NWC that the chapter had to schedule a second leadership seminar. It will be held this month.



When Canadian Brig. Gen. Marcel Duval (center) addressed the Col. H.M. "Bud" West Chapter, the audience included AFROTC cadets from Florida State University and AFJROTC cadets from Amos Godby High School in Tallahassee. At right is Chapter President John Schmidt Jr. See "Defense, Surveillance, Remembrance."

More AFA News

■ Retired Maj. Gen. J. Stanley Holtner spoke to the **Iron Gate Chapter** in New York City on Dec. 7, recalling both the response to the attack on Pearl Harbor and other highlights of

a 35-year military career in flight testing and research and development. Holtner commanded fighter groups in Iceland and Italy during World War II. At Edwards AFB, Calif., in the 1950s, he set a 100-kilometer speed record

and flew every test aircraft at the Air Force Flight Test Center, as well as fighter aircraft ranging from the P-1 to the entire "century" series, bombers, and helicopters. Before his retirement from USAF in 1967, he was assigned to the Office of the Director of Defense Research and Development. The Iron Gate meeting ended with a musical performance by composer Hank Fellows and singer Michael Hunsaker.

■ The **Tarheel Chapter** in North Carolina set up a membership table on the grounds of the State Capitol in Raleigh for Veterans Day. Joyce W. Feuerstein, state president; Gilbert M. Slack, chapter president; George Medina, membership VP; and Lewis E. Feuerstein manned the table. They passed out goodie bags filled with items donated by local businesses, as well as cookies, candy, AFA brochures, and copies of *Air Force Magazine*. Joyce Feuerstein noted that these give-aways attracted attention, and the chapter collected names on a sign-up sheet. They followed up with letters and phone calls to those prospective members.

■ For the All-Services Military Ball on Nov. 10 in Grand Junction, Colo., the **Gen. Robert E. Huyser Chapter** set up a display table of Air Force memorabilia. Chapter President Michael E. Peterson provided some missile crew items. Chapter members Chuck Wanebo, Donald K. Schneider, and Ray Carlson offered flight helmets, flight suits, maps, and photographs from their days as fighter pilots—Wanebo in Iceland among other locations and the other two in the Vietnam

Original Items from AFA!





AFA Golf Balls by Pinnacle
3 pk. full color AFA logo with 6 tees.
M0070 3 pk. **\$15**
M0070B dozen **\$30**



Microfiber Wind Shirt
Casual, water repellent, wind resistant, fully lined with side-seam pockets and matching rib-knit collar and waist band. Available in tan or dark blue. Sizes M, LG, XL, XXL
M0143 **\$35**



Lightweight Jacket
100% poly blend, machine washable, lightweight. Available in dark blue or tan. Sizes M, LG, XL, XXL
M0126 **\$45**



Jacquard Collar Polo
100% combed Peruvian cotton by Devon Jones. Embroidered AFA letters. Available in stone or dill. Sizes M, LG, XL, XXL
M0130 **\$35**

Order TOLL FREE!
1-800-727-3337

Add \$3.95 per order for shipping and handling OR shop online at www.afa.org/benefits

AFA National Nominating Committee Seeks Qualified AFA Members for National Office

The AFA national nominating committee will meet at the end of April to select candidates for national officer and national board of director positions to be presented to the delegates to the AFA National Convention in September for election. Any candidate should have a good understanding of AFA and its mission, as well a demonstrated leadership capability with broad perspective on the challenges facing the nation and the Air Force in the near and long term.

All officer positions are for one-year terms and open to any member. The incumbent Chairman of the Board, Vice Chairman of the Board for Field Operations, Secretary, and Treasurer are eligible to run again. AFA is seeking a new Vice Chairman of the Board for Aerospace Education.

Board positions are for three years. One position is limited to candidates from the central geographic area of AFA. That area includes the following states: Alabama, Arkansas, Louisiana, Mississippi, Tennessee, Indiana, Kentucky, Michigan, Ohio, Minnesota, Montana, North Dakota, South Dakota, Wisconsin, Illinois, Iowa, Kansas, Missouri, Nebraska, Oklahoma, and Texas. In addition to being from this geographic area, candidates must have demonstrated field leadership experience. Those interested are advised to consult with the appropriate state and region president. Contacts are available on the Web at <http://www.afa.org/members/rgnstlst.asp>.

There are two positions open to be elected on an "at-large" basis. These are open to any member. In evaluating potential candidates, the nominating committee will consider field leadership experience and geographic dispersal.

A snapshot of AFA's mission and current leadership team is available on the Web at <http://www.afa.org/AboutUs/default.asp>. Descriptions of the duties and responsibilities of these offices are in AFA's Operations and Procedures Manual at <http://www.afa.org/members/OPM.pdf>. Recommendations for candidates for these positions should be sent to the nominating committee through the staff and be received by March 23. Staff contact for questions or recommendations is Jim Simpson at jsimpson@afa.org or 1-800-727-3337, extension 5856.

Fox Chapter (S.C.) presented Gregory A. Bricker, the state VP and a **Dobbins Chapter (Ga.)** member, with an AFA national-level Medal of Merit for his outstanding work.

■ Mission briefings on 12th Air Force and the 355th Wing, the host unit at Davis-Monthan AFB, Ariz., were among the information sessions held during the Arizona state meeting, hosted on the base by the **Tucson Chapter** in November. Attendees included Robert J. Herculson Jr., Southwest Region president; James I. Wheeler, Arizona state president; Harry Bailey, **Frank Luke Chapter** president; Karen Halstead, Tucson Chapter president; Ross B. Lampert, **Cochise Chapter**; and Thomas E. Rowney, **Prescott/Goldwater Chapter**. Herculson and Wheeler presented AFA national-level Exceptional Service awards to Halstead, Lampert, and James M. Fitzsimmons, the Tucson Chapter's aerospace education VP. ■

Have AFA News?

Contributions to "AFA National Report" should be sent to *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: natrep@afa.org. Digital images submitted for consideration should have a minimum pixel count of 900 by 1,500 pixels.

War. Peterson said the display caught the eye of many visitors, so the chapter plans to set up similar displays at future Veterans Day balls.

■ **The Central Oklahoma (Gerrity) Chapter** joined with the Company Grade Officers Council at Tinker AFB, Okla., in sponsoring Chapter President James F. Diehl's entry in the Mother Road 100, a hundred-mile foot race from Arcadia to Sapulpa. Diehl, 53, finished 38th overall in the Nov. 11 run, completing the course along historic Route 66 in 23 hours, 26 minutes. Pledges from his backers raised more than \$2,000, donated to a Tinker holiday program for foster children. The base newspaper reported that the chapter's donation funded more than half the entire program this year. The Mother Road 100 was organized to celebrate the 80th anniversary of Route 66's commissioning.

■ In Columbia, S.C., a Southeast Region meeting—hosted by the **Columbia Palmetto Chapter**—brought together representatives from 10 area chapters. They received instructions on chapter operations, information on awards programs, and updates on legislation of interest to AFA. One high point of the meeting came when Region President David T. "Bush" Hanson of the **Swamp**

A good résumé stands out...
even when an interviewer
receives hundreds!

The Air Force Association's Résumé Assistance Service For AFA Members Only!

We'll make your résumé stand out.
We know the Air Force.
We know how to emphasize your Air Force experience.

AFA Full Résumé Preparation	\$160
AFA Résumé Review and Critique Service.....	\$50

Plus you get a copy of
*Job Search: Marketing Your
Military Experience*



For more information:
Call 1-800-727-3337
E-mail service@afa.org
Visit www.afa.org

Reunions

4th FG Assn. Oct. 25-28 at the Christiana Hilton in Wilmington, DE. **Contact:** Jan Churchill, PO Box 32, New Castle, DE 19720 (302-325-2718) (janflyo2@aol.com).

7a Caribou Annual Reunion. Sept. 6-9 in San Antonio. **Contact:** Bill Buesking (210-403-2635) (wbuesking@satx.rr.com).

20th Air Police Sq, RAF Wethersfield,

England (1953-59). June 11-13 in Minneapolis. **Contact:** Earl Czech (763-784-8975) (cearlretired@aol.com).

406th FG (WWII). April 26-29 in Tucson, AZ. **Contact:** Bill Peters, PO Box 1621, Sandwich, MA 02563.

794th AC&WS, Cape Newenham AFS, AK. May 9-13 in Nashville, TN. **Contact:** Joel

Cooper (plasterman2@hotmail.com).

AF Public Affairs Alumni Assn. May 3-5 at the Antlers Hilton Hotel in Colorado Springs, CO. **Contact:** John Terino (730-239-2704) (ternio@afpaaa.org).

BAD2-Warton (WWII). Sept. 5-9 in Dayton, OH. **Contact:** Dick McClune (759-877-3826) (bad2trsr@cox.net).

P-40 Warhawk Pilots Assn. May 3-7 aboard the cruise ship *Holiday*. **Contacts:** Walt Stueck (wstueck@aol.com) or Jerry Hammond (loadmaster1@juno.com).

Pilot Class 54-G. April 11-15 in Scottsdale, AZ. **Contact:** John Schaefer, 18894 N. 69th Ave., Glendale, AZ 85308 (623-561-5000) (john@johntomoko.com).

Pilot Class 57-M, all bases. May 28-31 at the Sheraton Gunter in San Antonio. **Contact:** Dan Barry (360-698-0602) (danbarry@wavecable.com).

Society of CSAR. May 16-20 at Kirtland AFB, NM. **Contact:** Jim Beggerly (903-939-3969) (jandbb2@att.net).

USAF Pilot Training Class 55-D. Oct. 3-7 at the Staybridge Hotel, 7130 Commerce Ctr. Dr., Colorado Springs, CO 80919. **Contact:** Lars Larsen (239-334-7386) (roland22@ix.netcom.com).

Veterans of USS *Philippine Sea*. Oct. 3-8 in Washington, DC. **Contact:** Chuck Davis, USS *Philippine Sea* Assoc, Inc., PO Box 496412, Port Charlotte, FL 33949 (941-743-5460) (philsea@earthlink.net).

The Vietnam Era Veterans ABCCC Reunion. Oct. 17-21 at the Riviera Hotel in Las Vegas. **Contact:** Ken Witkin (abccc reunion@verizon.net).

WWII Bombardiers, all units. May 2-6 at the Academy Hotel in Colorado Springs, CO. **Contact:** Bob Thompson, 280 Sharon Dr., Pittsburgh, PA 15221 (412-351-0483).

Seeking members of the **305th BW** and **45th MMS**, Grissom AFB, formerly Bunker Hill AFB, IN, for a reunion. **Contact:** Richard Hoffman, 12311 Alexander St., Cedar Lake, IN 46303 (219-374-9264) (hoff@xvi.net). ■



How many gifts to the Annual Fund does it take to make a difference? Just one—yours. When you combine your gift with thousands of others, you'll **INSPIRE** the future leaders of our United States Air Force.

The **ANNUAL FUND** at the Air Force Association provides for the Educational activities relating to aerospace power, Advocacy for a strong national defense, and Support for our United States Air Force with professional education, scholarships, grants and awards.

*Every gift can make a difference.
Make yours today.*

FOR MORE INFORMATION CONTACT:
Lois S. C'Connor, Director of Development
1.800.727.3337 • 703.247.5800
loconnor@afa.org

OR VISIT US ONLINE AT:
www.afa.org/contributions



The Force Behind THE FORCE.

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Unit Reunions," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

Airpower Classics

Artwork by Zaur Eylanbekov

C-124 Globemaster II



They called it "Old Shaky," but the Globemaster II could also be thought of as an aerial conveyor belt, carrying massive loads across vast distances—day in, day out. Globemaster II was America's largest prop-driven strategic airlifter. The maestro of the Berlin Airlift, Lt. Gen. William H. Tunner, always maintained that bigger airlifters were better, and the C-124, with its enormous cargo capacity, proved him correct once again.

The C-124 actually was based, in part, on lessons learned from the 1948-49 Berlin Airlift. It was a major redesign of the C-74 Globemaster I. With its greater capacity, the C-124 filled a dawning need for a global heavy, long-range cargo transport. The enormous double-deck fuselage had huge clamshell loading doors. That and the built-in ramp made it easy to drive vehicles into or out of the airplane, cutting on-off loading times. For

fast cargo handling, two overhead cranes could move the length of the cargo compartment. It had an electrically controlled hoist mid-ship.

The C-124 first saw action in the Korean War. At that time, it was the only aircraft able to transport, intact, heavy US Army equipment. It could load tanks, field artillery, bulldozers, and trucks and as such provided a needed boost to US ground forces in Korea. The C-124, despite obsolescence, was also a major player in the Vietnam War, making regular flights to Southeast Asia during the 1960s US buildup.

USAF phased out the last C-124 in 1974, but, by that time, it had been in military service for nearly 25 years. The aircraft put in a long and useful service life, and was followed by faster, higher-technology jet transports.

—Walter J. Boyne

This aircraft: A USAF Military Airlift Command C-124C—# 52-1045—as it looked in October 1967 while at RAF Mildenhall, Britain.



The clamshell doors made loading a snap.

In Brief

Designed, built by Douglas ★ first flight Nov. 27, 1949 ★ crew of 6 (pilot, copilot, loadmaster, navigator, flight engineer, radio operator) ★ armament none ★ four 28-cylinder piston radial engines ★ number built 448 ★ **Specific to C-124C:** max load 34 tons cargo or 200 troops ★ max speed 271 mph ★ cruise speed 230 mph ★ max range 4,030 mi ★ weight (loaded) 194,500 lb ★ span 174 ft 2 in ★ length 130 ft ★ height 48 ft 4 in.

Famous Fliers

Dick Rutan (1,800 hrs as C-124 nav), former Misty FAC and co-pilot of first round-the-world, nonstop flight ★ Maj. Gen. Sloan R. Gill, former chief of Air Force Reserve.

Interesting Facts

USAF's last piston-prop strategic transport ★ used same wings, engines, tail as earlier C-74 ★ suffered 60 major accidents, 515 fatalities ★ round trip California-Vietnam flight took 97 hours ★ flown by SAC, TAC, MAC, MATS, FFAF, Air Materiel Command, Air Force Logistics Command ★ carried French troops to battle of Dien Bien Phu in 1954.

NORTHROP GRUMMAN

DEFINING THE FUTURE™

© 2008 Northrop Grumman Corporation



KC-30
More modern
More capable

FUEL. CARGO. TROOPS. MEDEVAC. The KC-30 is the total air mobility solution. Based on an advanced, commercially proven aircraft platform, the KC-30 incorporates the latest in aerial refueling technology with the flexibility of a multi-role transport to meet the demanding requirements of evolving Air Force missions. All the capability of the next-generation aerial refueling tanker — and more: the Northrop Grumman KC-30.

www.northropgrumman.com



NOW IN FLIGHT, A NEW ERA OF REFUELING TECHNOLOGY.

To ensure warfighters operate the world's most capable aerial refueling system, Boeing is now flight testing its fifth-generation boom on the Italian Air Force KC-767A. This advanced, fly-by-wire design delivers superior control and reliability. To minimize risk and maximize performance for a new era of tanker aircraft.

 **BOEING**
Forever New Frontiers