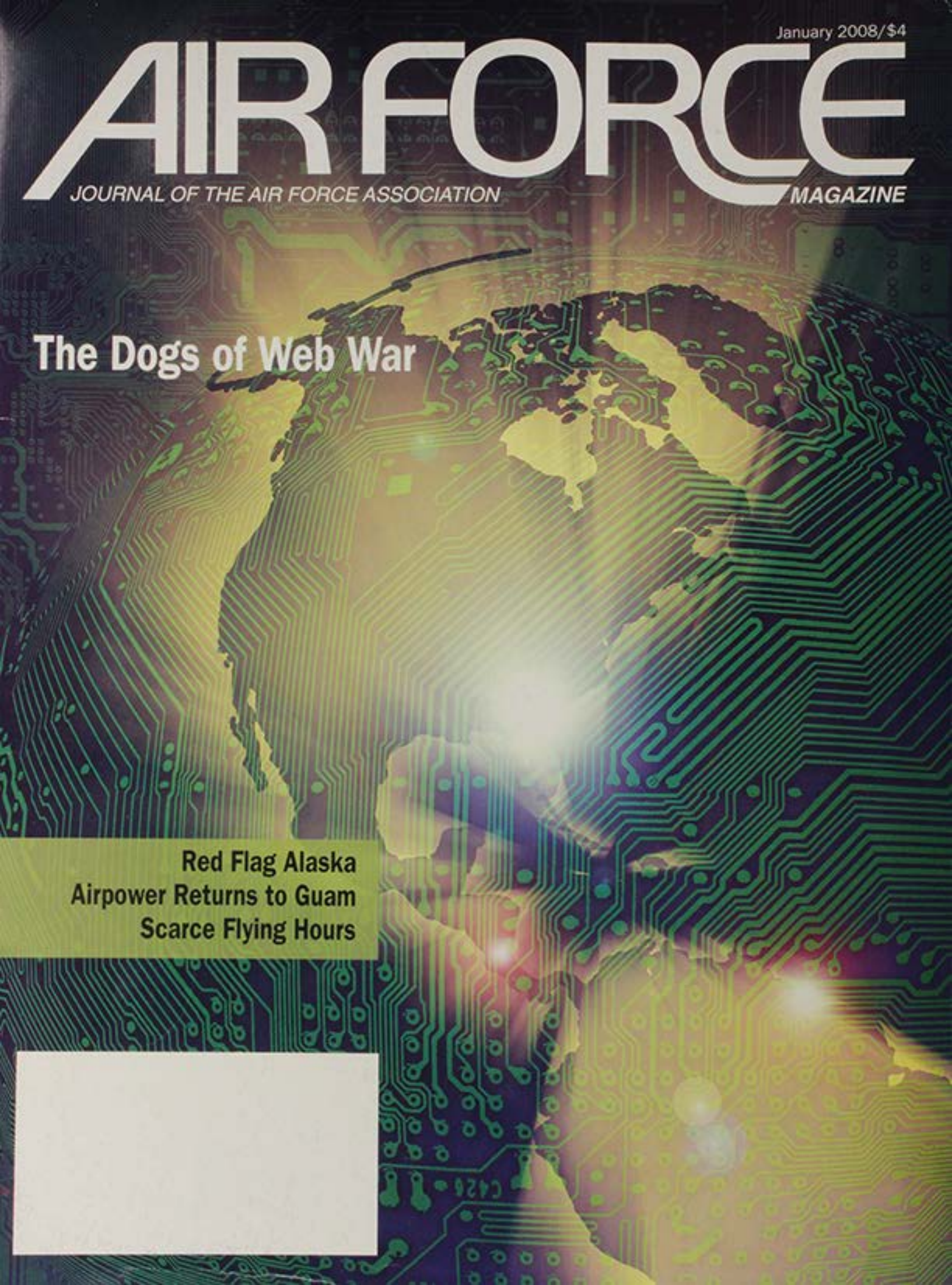
January 2008/$4

AIR FORCE MAGAZINE

JOURNAL OF THE AIR FORCE ASSOCIATION



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About the cover: Staff illustration by Zaur Eylanbekov. See "The Dogs of Web War," p. 22.

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AIR FORCE Magazine (ISSN 0730-6784) January 2008 (Vol. 91, No. 1) 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.

Editorial

By Robert S. Dudney, Editor in Chief

Catastrophic Failure

IT WAS a chilling event. The aged F-15C, flying a peacetime mission, broke up without warning, even though the aircraft had not been violently maneuvering. The pilot was forced to eject at high speed.

These words do not refer to the recent F-15 crackup above Missouri (see "Washington Watch: The F-15 Incident," p. 8). No, the mishap spoken of here occurred in 2002 over the Gulf of Mexico. The doomed F-15C was flying at 24,000 feet when part of its tail broke off. Maj. James A. Duricy punched out at 900 mph and was killed. Investigators said the tail had corroded over the years. The fighter had gotten old.

That, please note, was six years ago. The Nov. 2 mishap in Missouri might be sobering—USAF cited a "catastrophic structural failure" and grounded many F-15s—but it certainly was not new. USAF has been warning about aging aircraft for many years.

Evidently, the warnings haven't registered. National leaders—be they in the White House, Defense Department, or Congress—have failed to address the issue in any truly definitive way. Indeed, Washington's apathy toward USAF's geriatric fleet comes close to outright negligence.

The Secretary of the Air Force, Michael W. Wynne, reports the average age of an Air Force aircraft in 1973 was eight years but today is 24 years and headed toward 26.5 years in 2012. The problem goes well beyond the F-15 to include most of the major aircraft types—bombers, tankers, and transports no less than fighters.

USAF's 505 KC-135 refueling tankers average more than 46 years of age. Many C-130 transports are grounded due to poor reliability and concern for their in-flight safety. C-5A cargo aircraft have low availability because of frequent maintenance.

The roots of the problem are many and tangled, but no one doubts that things began to go off the rails during the so-called "procurement holiday" of the 1990s.

Problems first emerged in the 1989-93 presidency of George H. W. Bush. In his four years as Pentagon chief, Dick Cheney—now Vice President Cheney—curtailed USAF's F-15 program, postponed the F-22 fighter, terminated the B-2 bomber at only 20 aircraft, and cut the C-17 airlifter.

A get-well aircraft modernization was supposed to begin in the late 1990s, but it was again delayed by a widespread post-Cold War desire to reap a "peace dividend" by cutting defense spending. The Clinton Administration bought a few F-15s and F-16s for attrition reserve, but it also reduced the planned F-22 program from 648 to 339 aircraft and further delayed it.

When President George W. Bush arrived in 2001, USAF was poised for a long-deferred fleet recapitalization. Then, Bush's Defense Secretary Donald H. Rumsfeld, enamored of military transformation, restrained aircraft modernization once more. After the Sept. 11, 2001 attacks, wars in Afghanistan and Iraq began to soak up defense dollars.

Washington's apathy toward USAF's geriatric fleet comes close to outright negligence.

Today, more than 800 aircraft—14 percent of the USAF fleet—are grounded or operating under various flight restrictions. Older fighters in the near future won't be up to fighting modern air defenses or modern fighters.

The Air Force is "going out of business," said Wynne. He added, "At some time in the future, [aircraft] will simply rust out, age out, fall out of the sky." Indeed, it is already happening.

No one can claim there was not fair warning of the danger. As far back as 1996, Gen. Ronald R. Fogleman, USAF Chief of Staff, noted "the term 'aging aircraft' takes on a new significance when [you are] keeping fighters in the inventory 25 to 30 years."

In 1999, Gen. Richard E. Hawley, head of Air Combat Command, observed that, "We are flying the oldest fleet of airplanes that the Air Force has ever operated. ... Old airplanes break in new ways. ... The older it gets, the less predictable it gets."

Fogleman's successor, Gen. Michael E. Ryan, in 2000 expressed deep concern about fleet age and the high cost of finding the proper kinds of spare parts in sufficient numbers to support readiness.

In 2005, near the end of his tour as Chief of Staff, Gen. John P. Jumper warned, "The thing that ... worries me the most is the [stunted] recapitalization of our force. ... We are now facing problems with airplanes that we have never seen before."

What is to be done? Some Air Force officials suggest that, at this late stage, the service cannot truly solve the problem but rather engage in damage limitation. This would entail two basic moves, both of which are simple but not easy. They are:

- Expand procurement. Top Air Force officials have declared that, to properly fund the hardware accounts, service spending must rise by at least $20 billion per year for at least the next six years—and probably for longer than that. New aircraft would enter the inventory at an accelerated pace.

Gen. T. Michael Moseley, USAF Chief of Staff, has made replacing the aged KC-135 tanker his highest priority. USAF seeks 381 F-22s—not the 183 that has been allowed by the Pentagon—and 1,763 F-35s. These fighters would replace many old F-15s, F-16s, F-117s, and A-10s.

- Dump old airplanes. Keeping the old, flying clunkers is a money-burner, given their high maintenance and upgrade costs. The Air Force wants to mothball more of the old B-52 bombers, KC-135E tankers, and C-130E lifters.

This will require the cooperation of Congress which, mostly for parochial reasons, barred many such retirements from local bases. Moseley said such restrictions force him to retain airplanes that can neither fly nor fight but which nevertheless require regular and expensive upkeep.

In both areas, the Air Force will have to do some high-stepping. There is no assurance of success even then.

Without some dramatic change in Washington, USAF may have no choice but to retrench, lower its expectations, and accept higher risk in meeting its obligations. Then, the Air Force really would be going out of business, at least in the sense to which we all have become accustomed. ■

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Letters

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That Nuclear Safety Stand-down

Regarding the foul-up at Minot *["Washington Watch: Nuclear Safety Stand-Down," November, p. 13]:* Could it have happened in Strategic Air Command? Nuke safety and procedures were part of everything we did. One thing you were on constant guard against was a lackadaisical attitude. I was a crew commander in Minuteman and Titan and I know. It was said that we couldn't blow our nose without a checklist. OK.

Is this what we get when we let Air Combat Command and the fighter pilot mentalities take over strategic matters? Had warheads been downloaded the birds could ship via our friends in the mobility business or commercially [by] road or rail.

We ground pounders—and underground-in-the-silo pounders—had a thing. "Fighter pilots do it better." Be more specific. Do what better? Better than what? A dog, perhaps?

[Regarding "Airpower Classics: P-39 Airacobra," November 2007, p. 104] that last page is a great reprise on warbirds! I sent copies of the ["Airpower Classics" on the] Corsair and Bearcat to my naval aviator uncle.

Dan Breidenbach
Evansville, Ind.

The article "Nuclear Safety Stand-Down" in the November issue of *Air Force* Magazine regarding a B-52 loaded with nuclear warheads flying from Minot AFB, N.D., to Barksdale AFB, La., reminded me of a classified project called Operation Birdcage. A wire birdcage image was intended to be analogous to a nuclear reaction diagram. The project included trucking a nuclear bomb/s from Oakridge, Tenn., to Ft. Campbell, Ky., where it was to be picked up by the Air Force. I was a C-46 flight engineer with the 434th Troop Carrier Wing in 1952 on TDY to Campbell to drop the 11th Airborne. Our regular job was flying jump school at Ft. Benning's Lawson AFB. The airborne planners had made drastic changes in tactical operations after a joint Air Force-Airborne operation called Operation Longhorn that was anything but successful.

Based at Mathis Field in San Angelo, Tex., we dropped troops in the last big formation. Approximately 200 C-46s dodged sandstorms in a wind that had airborne field-grade officers requesting that planners abort the mission. The results put a lot of troopers in local hospitals. As a result of this foul-up and the advent of tactical nuclear weapons, the new "Vertical Envelopment" concept was small formations with precision time and track over the IP and DZ, later to be optimized by [Tactical Air Command] wings, flying C-119s and named Computed Air Release Point or "CARP" missions.

Back at Ft. Campbell, Operation Birdcage caused all flight operations to stand down and the ramp to be clear of all unauthorized personnel during the night. From transient barracks near the line, we heard the unmistakable rumble of B-29 R3350 engines as they touched down, accompanied by the sounds of P-51 Merlins. Morning light revealed a B-29 painted flat black parked in front of the hangar, and next to it three P-51s also painted flat black. The bomb was loaded from the hangar into the B-29 bomb racks, with airborne providing security. After sundown, the B-29, escorted by the fighters, took to the total dark sky westbound without incident. My thoughts about

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JOURNAL OF THE AIR FORCE ASSOCIATION

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BPA Circulation audited by Business Publication Audit

the B-52 mission are to advise the Air Force to cut these guys a little slack. I believe the B-52 incident does not warrant a career-threatening disciplinary action.

Donald B. Mills
Evansville, Ind.

When Bombers Will Be Decisive

Ms. Grant writes an excellent article *["When Bombers Will Be Decisive," November, p. 42].* My hat's off to her. In her ... "In Defense of Fighters" days *[July 2002, p. 40],* I was highly critical, and suggested to her that range and payload do matter. Now, she mentions these requirements as an important part of USAF force structure. That is encouraging. However, I would like to point out a few things I think she missed.

First, Ms. Grant glosses over most of Air Force Cold War history. She neglects to mention that after World War II, the primary argument for a separate Air Force was its contribution to victory in that conflict through strategic bombardment, and that the primary adversaries of the time were the USSR and Red China. The only combat force the USAF had to deter or attack these vast countries was Strategic Air Command (SAC) and its bomber force (later partnered with tankers, intercontinental ballistic missiles, and submarine launched ballistic missiles). The tactical air forces and their small airplanes existed solely to support the US Army—as they did in World War II, Korea, and Vietnam. No one could seriously suggest that the F-15 or its predecessors ever held Moscow at risk or even contributed to deterrence of nuclear war. In fact, at one point in the late '50s or early '60s, it was suggested to the Air Force Chief of Staff that he give the tactical air forces back to the Army. (Gen. Curtis LeMay did not think it a good idea.) Second, I hope Ms. Grant does not confuse the requirements of range and payload, which equals the ability to reach the target with the right weapons mix, with elements of survivability, which equals the ability to stay alive while reaching the target—and to live to fly another sortie. They are not the same. However, Ms. Grant seems to imply that speed was consciously traded away in the design of strategic bombers, and for that reason aircrews died. On the contrary, increased altitude and speed were primary survivability factors sought by every bomber design. Those World War II aircrews mentioned in Ms. Grant's article did not die because of some conscious desire to build slow aircraft—they died flying the best high-flying, long-range aircraft we could make at the time that could reach the target with the right weapons. Yes, they were slow compared to fighters of that era, but that was why the bombers had active and passive defenses to enhance their survivability. A combination of tactics, chaff, ECM, fighter support, and 10 or more .50-cal machine guns won that bomber offensive over Germany—not just the introduction of the P-51, as many want us to think. I believe the record shows that Eighth Air Force bombers shot down as many enemy fighters as did the Eighth Air Force fighters.

Finally, after years in the wilderness, the idea that the primary combat mission of the USAF is to "find, watch, and destroy anything on the surface of the Earth" has been spoken again. In the end, it doesn't matter if the job is done by big airplanes, small airplanes, UAVs, missiles, or spacecraft—but if you cannot even reach the enemy's homeland, there won't be any bombs on target.

Lt. Col. Tim Trusk,
USAF (Ret.)
Kansas City, Mo.

Not the C-295

Thank you for another great edition of *Air Force* Magazine; however, I would like to note the November 2007 issue incorrectly identified an aircraft model in the EADS North America booth at the Air Force Association Technology Exposition as a C-295 light cargo aircraft *[p. 76].* In fact, the aircraft on display was the A400M, known as "The Loadmaster." The A400M is a modern, multirole airlifter which is designed to replace the aging fleets of tactical aircraft in service with air forces around the world.

Col. Dennis M. Kaan,
USAF (Ret.)
Arlington, Va.

On the Money

The Air Force Association's 2008 Statement of Policy published in the November issue of *Air Force* Magazine is one of the best written and thought-out defense documents I have read in years *[Air Force Airpower: The Indispensable Instrument, p. 80].* In the past, I have criticized some editorials and articles in various organizations' publications, including yours, because I perceived them to be attacks on the other services. The Air Force Association's 2008 Statement of Policy is right on the money in every regard, including mission, doctrine, families, etc. It has clearly identified the Air Force's total requirements that need to be filled in order to be a credible deterrent, a military power that is "balanced and precise," and one that can fulfill its responsibilities to our nation.

I hope the Air Force uses it as a document that can be used when testifying before Congress, when preparing the Air Force budget (ask for what you need, not what you think you'll get), and developing Air Force doctrine.

In addition, I also suggest that the organizations representing the other services would follow its model and remain positive, refrain from bashing other services, and ask for what they need in a clear and precise manner.

One last attaboy: It's nice to see someone taking a firm lead in asking for what we need to spend as a percent of the Gross Domestic Product. If we don't start pushing for six percent now, I predict a return to less than three percent of the GDP being spent on defense when things wind down in Iraq.

Richard H. Loney
Fort Wayne, Ind.

Vanished Arts and Enlisted Pilots

Having been an aviation student (Class 42-E, Ellington Field, Tex.) during World War II, I was pleased to see that Bruce Callander mentioned the enlisted pilots in his article titled, "Vanished Arts" in the October 2007 issue of *Air Force* Magazine *[p. 76].*

In previous issues, the exploits of enlisted pilots have been "catch as catch can," but their accomplishments have never really been defined for the benefit of your reading audience and/or preserved for their rightful place in the history of the United States Air Corps/Air Force.

Therefore allow me to quote to you some of the salient points about their accomplishments as presented by Lee Arbon in his book titled, *They Also Flew,* published by the Smithsonian Institution Press in 1992.

On Aug. 1, 1941, War Department Regulation 615-150 created the "Aviation Student Training" program whereby a select number of high school graduates between the ages of 18 and 22 years, and with grades acceptable to an accredited institution, could apply for pilot training.

As the nation geared up for war in Europe and in the Pacific, the production of aircraft soon exceeded the number of pilots to fly them. Army Regulation 95-60 provided for the granting of aeronautical ratings to former staff sergeants.

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Under Public Law 99, enacted on June 3, 1941, 2,574 enlisted men were trained as pilots and upon graduation from advanced flying schools in 1942, were warranted as staff sergeant pilots.

Staff sergeant pilots were widely dispersed in war zones around the world, primarily in Europe and in the Pacific. Some became aces. One became a pilot for Field Marshal Montgomery, another for General Eisenhower, 760 retired as field grade officers (major through colonel), and 11 became generals.

The sergeant pilot program ended in November 1942, a year-and-a-half from its beginning. From the outset, the program was controversial and not without minor complications, but in the end it was overwhelmingly considered to be one of the best investments Uncle Sam ever made.

Reportedly, there are fewer than 400 of the original 2,574 Staff Sergeant Pilots still alive today. It would be a tragic loss to the nation if the exploits of their heroic service were not chronicled for the benefit of succeeding generations of Americans interested in military aviation history.

Maj. Gilbert W. Zieman, USAFR
Green Bay, Wis.

Reader to Reader

Regarding "Letters: Chopper Requirements 101," November, p. 7: As a retired Air Force senior NCO with more than 18 years of Air Force helicopter rescue experience, 10 years in combat rescue, I must take exception to Lt. Col. Charles Jarnot's (USA) comments in support of the HH-47 as the new Air Force rescue helicopter. I'm sure that Colonel Jarnot's comments are based on his partiality for the CH-47 and his experience in Army aviation. However, he does not have the experience in Air Force combat SAR operations to determine what helicopter is best suited for Air Force combat rescue.

First off, the CH-47 is not a medium lift helicopter. It entered the service inventory as a heavy lift helicopter in the '60s. To now designate it as a medium lift helicopter to meet CSAR-X requirements is being disingenuous. Using the same standard, we could call the HH-53 and the CH-53E medium lift helicopters and consider these aircraft in the CSAR-X competition as well. If that's the case, the Air Force would be better off getting an updated version of the HH-53 since they already have experienced aircrew, maintainers, training, and support equipment available.

Although the Air Force rescued Army Special Forces in Southeast Asia on numerous occasions, the "primary mission" of Air Force combat rescue is to recover aircrew members downed behind enemy lines, not Army ground units that are in need of extraction. The CH-47 may well be a proven combat helicopter for Army missions, but it is not a proven helicopter for Air Force combat SAR missions.

The HH-47 has several shortcomings for combat SAR missions.

Rapid weight reduction: HH-47's inability to jettison fuel quickly in the event of an engine failure under marginal power conditions could prove to be catastrophic. Numerous times on combat rescue missions in SEA, auxiliary fuel tanks had to be instantly jettisoned in a hover after experiencing engine failure or loss of power. By jettisoning both aux fuel tanks, the HH-53 had the ability to immediately shed up to 6,000 pounds in mere seconds, allowing it to maintain a hover. How quickly can that much weight be shed from the HH-47?

Drive shaft integrity: main rotor versus tail rotor loss of drive shaft. Major battle damage to the drive shaft on the HH-47 could be catastrophic due to loss of drive to the forward rotor. Again in SEA, HH-53s came back with badly shot up tail rotor drive shafts. I saw one section of a tail rotor drive shaft with a four-inch hole in it. If the forward drive shaft on the CH-47 received similar damage would it hold together under the torque load conditions required to drive the forward gearbox? Loss of tail rotor drive on a single rotor helicopter will not bring the aircraft down unless it is in a hover. However, loss of forward rotor drive, either in a hover or forward flight, will bring a tandem rotor helicopter down.

Maneuverability: I have yet to see a tandem rotor helicopter with the ability to loop or roll. That's not to say that combat rescue helicopters are required to roll and loop. However, that kind of rotor control speaks volumes for helicopters that have that degree of maneuverability, especially under combat rescue conditions.

Sikorsky helicopters has been the forerunner in the design, manufacture, and production of Air Force combat SAR helicopters, from the R-4 of World War II, the H-5 and H-19 of the Korean War, to the HH-3 and HH-53 of Vietnam. Many HH-3s and HH-53s in SEA returned after taking multiple hits from 30-cal. small arms, 14 mm and 23 mm anti-aircraft weapons. One HH-53 returned after taking a direct hit from a 37 mm AAA in the belly, blowing a gaping hole up through the midcabin floor. Sikorsky helicopters have long been combat proven in the recovery of aircrew members downed behind

enemy lines. Why trade a winner for something that has not been proven in Air Force combat SAR operations?

SMSgt. Stan Nelson,
USAF (Ret.)
Matthews, N.C.

In the "Letters" section of the November *Air Force* Magazine *[p. 6],* retired Brig. Gen. Edwin F. Wenglar states that General Patton lost a bet to British General Montgomery and was forced to provide him with a C-47 and a personal pilot. In *Ike, An American Hero,* Michael Korda says that Gen. Walter Bedell Smith, chief of staff, lost a bet to Montgomery and had to provide him with a B-17 with an American crew as "his personal property until the war ended." How many airplanes did we lose to Montgomery during World War II?

Lt. Col. William P. Wideman,
USAF (Ret.)
Evergreen, Colo.

I read the article by Major General Lewis, USAF (Ret.), as published in your July 2007 issue, with some surprise. As an operational test pilot in the Army Air Corps for two-and-one-half years preceding Pearl Harbor and the first year and a half thereafter, I participated in the testing of all combat aircraft and their armaments that were produced for the Army Air Corps. We also evaluated the RAF Spitfire and Landcaster bomber. After Wright Field received the first two aircraft off the production line of a new type of aircraft, we received the next three and often more later.

I don't recall any configuration of the B-25 as a strafing aircraft with the exception of the 75 MM cannon that we tested as an antishipping weapon. I was the first pilot to fire this weapon while airborne and flew many missions at minimum altitude both day and night against ship silhouettes in the bays near Eglin Field as it was then known. The B-25 did, of course, have its defensive machine gun turrets. The 75 MM version was not utilized in B-25 units operating out of England and I didn't know that it was used in the Pacific although I know that early on there was a plan to equip a B-24 unit for this mission in the Pacific as I was offered command of it. Being a fighter pilot, I declined in favor of a fighter command in Europe.

We did test all fighter aircraft (P-36s, P-37s, P-38s, P-39s, P-40s, P-47s, and P-51s) in all roles with emphasis on air-to-air combat, strafing, dive bombing, skip bombing and day and night aerial gunnery. The P-38s, P-47s and P-51s all excelled in these roles with the P-38, in my estimation, being the best gun platform as its four 50-caliber machine guns and its 20 MM cannon were all mounted in the nose and provided a concentrated field of fire at all possible ranges, as compared to the single engine aircraft whose wing mounted guns had to be "bore-sighted" at a given range. At the given range the fire was very concentrated, but short or long of that range, the lethality of fire was greatly diminished.

A little later as Deputy Commander and then Commander of a P-38 Group assigned to the 9th Tactical Command of the Ninth Air Force, I flew 69 combat missions in the European theatre and I think about 90 percent of them were flown on the deck either dive bombing, ship bombing, strafing or dropping napalm. Before D-Day we spent our time attacking airfields, railway marshalling yards, surface traffic, flack towers, etc. The P-38 was an excellent aircraft for this role, but as the author of the referenced article indicated, loss rates were high as literally thousands of guns of all calibers were firing at us on practically every mission, and it was like trying to fly through a rain storm without getting wet. My aircraft was hit on approximately half of my missions with a few shots and on occasion by 50-plus hits. I remember returning to base five missions in a row with one engine shot out. Many of my pilots were less fortunate and I also lost several squadron commanders. However, in the Army's breakouts and march to final victory, we and others of the Ninth Air Force were there to knock out hard points that were delaying Patton's forces and those of the 1st and 9th Armies.

In summary, I probably have 200 or more hours in the B-25 and while it was a reasonably good, light bomber for its era, it did not have the agility to survive as a strafing aircraft in Europe during WWII. Much of the air war in Europe was conducted at treetop level with thousands of strafing missions, all flown by fighters, primarily of the Ninth Air Force although fighters of the Eighth Air Force occasionally dropped down to strafe on their way home from escort missions if they had sufficient remaining fuel.

Gen. Seth J. McKee,
USAF (Ret.)
Phoenix, AZ

Washington Watch

By John A. Tirpak, Executive Editor

Fighter worries; McCaffrey's conversion; Back to 381 ....

The F-15 Incident

December 18, 2007

The debate in Washington over the future of USAF fighter forces took on an urgent tone in late fall, when the service grounded its F-15 force "indefinitely" after the discovery of stress cracks in many of the fighters. The cracks were discovered during precautionary inspections after an F-15 disintegrated during a training flight.

The accident served as a chilling reminder, if one was needed, that the bulk of USAF's front-line fighters are aged and desperately in need of replacement. Some in the capital, however, apparently saw the grounding as a theatrical service ploy meant to cadge more new fighters from Congress.

The accident occurred on Nov. 2. A 27-year-old Missouri Air National Guard F-15C of the 131st Fighter Wing broke up during a mild maneuver in a dogfight sortie about 125 miles south of St. Louis. The pilot ejected but sustained injuries. All 668 F-15s—A, B, C, D, and E models—were grounded the next day. Air Combat Command said "catastrophic structural failure" caused the loss, and investigators focused on longerons just aft of the cockpit. A full report on the accident's cause is expected in January. Three USAF F-15s had crashed previously during 2007.

Gen. John D.W. Corley, ACC commander, lifted the grounding order in early December, saying that the Air Force had no choice because the "workhorse" F-15 is needed to make good on USAF's duty to "provide unrivaled combat airpower" for the nation. In doing so, he acknowledged accepting "a degree of risk." The grounding was "the right thing to do," Corley said, adding that the decision was "not made lightly."

However, Corley reinstated the grounding for the A to D models as more analysis of the crash aircraft—as well as inspections of grounded Eagles—turned up more cracks. The E models were allowed to continue operations.

By mid-December, eight aircraft had been determined "hard broke," meaning they could not fly without extensive reconstruction, and USAF leaders were scrambling to figure out what to do if the fleet couldn't be restored to flight status.

The capabilities of the F-15, the first of which went operational in 1975, have begun to degrade in recent years. Age-related problems have barred the Air Force from flying the fighter to its maximum design performance level. After decades of hard maneuvering—much of it in combat—the Eagle's structure has become fatigued. Grounding is a standard action in cases where the causes of a catastrophic failure are unknown.

However, some F-15s—notably those deployed to war operations in the Middle East—remained on alert, ready to fly, because their mission couldn't easily be handed off to other types of fighters. In some cases, Air Force F-16s and Navy F/A-18E/F Super Hornets covered for the Eagles while they were out of action.

Gen. T. Michael Moseley, the USAF Chief of Staff, told reporters on Nov. 16 that he had been "accused by some people of parking these airplanes to make [the] case" that the Air Force needs to buy more than just 183 F-22 Raptors to replace F-15s. The Air Force has long said it needs a minimum of 381 F-22s, but it has been directed to buy the smaller number as a budgetary consideration.

According to *Defense Daily,* Moseley said it would have been "unconscionable" to keep the Eagles flying if there was a chance that some fleetwide problem could put more pilots' lives at risk. Moseley did not identify who had made such accusations, but a service official said his remark stemmed from private conversations with members of Congress and the Pentagon leadership.

USAF photo by SSgt. Samuel Rogers

The F-15s: Will they fly again?

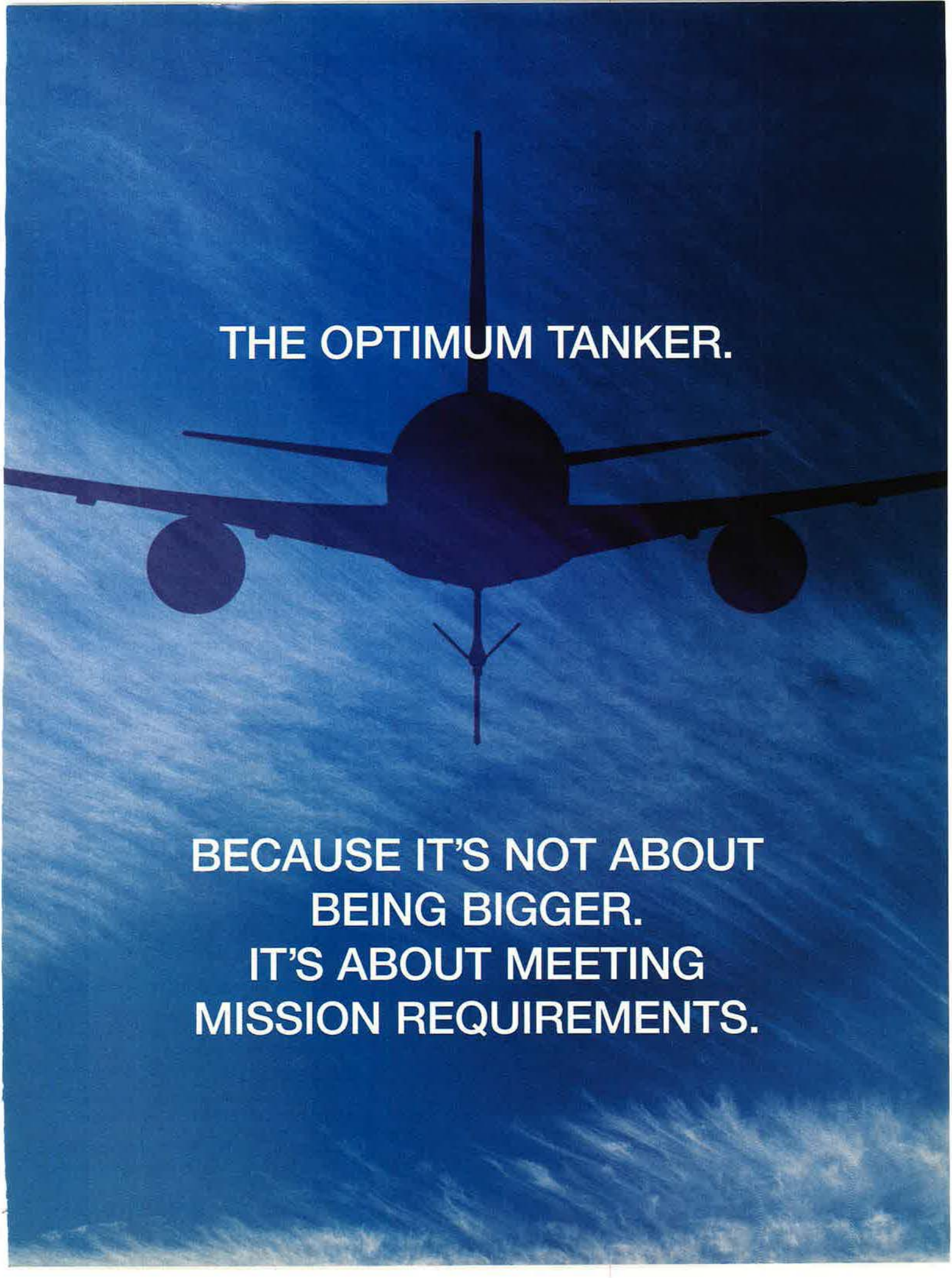
Moseley said Corley told him that "we are in uncharted territory with this fleet," and that it is becoming increasingly hard to predict, in Moseley's words, "what is going to break next." Corley noted a lack of "decent predictive or forensic tools" that can predict catastrophic failures in a fleet that has long outlived its planned operational life, Moseley reported. Israel, Japan, and Saudi Arabia all grounded their own F-15 fleets pending the outcome of USAF's investigations. South Korea and Singapore, whose F-15Ks are brand-new, did not.

Top Air Force officials said it would take more than six months to get most F-15 pilots back up to speed, since they were beginning to lose their certifications in the type.

Zeal of the Converted

Retired Army Gen. Barry R. McCaffrey, a foremost advocate of "boots on the ground," has determined that the Air Force is the key to national security in the coming decades. He has delivered a blunt warning that, if the service continues its downward slide, the nation will be in deep trouble.

McCaffrey is a former Gulf War division commander and national drug policy "czar" and currently a military pundit. He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maintains that the Air Force over the next 20 years must be the principal instrument for deterring and containing the power of a rising China and resurgent Russia.

For all that, he adds, the Air Force is in a state of decay because of prolonged neglect by Pentagon leaders.

"The US Air Force is badly underfunded, its manpower is being drastically cut and diverted to support of counterinsurgency operations, its modernization program of paradigm-shifting technology is anemic, and its aging strike, lift, and tanker fleets are being ground down by nonstop global operations with an inadequate air fleet and maintenance capabilities," McCaffrey wrote.

He added that today's USAF is too small, "has been marginalized in the current strategic debate," and has "mortgaged its modernization program to allow the diversion of funds" to prosecute a war—in Iraq—with inadequate support in Congress.

The next Administration, McCaffrey said, must fix the Air Force's condition "or we will place the American people in enormous peril."

McCaffrey's epiphany came after extensive tours of Air Force facilities last summer. His findings were contained in an after-action report to the staff of the US Military Academy at West Point, where he is an adjunct professor.

Over the last few years, McCaffrey has promoted increasing the size of the Army, and in this latest report calls for a level of 800,000 Army troops—nearly twice its level of recent years—but the comment seemed an afterthought compared to his emphasis on the Air Force and the Navy. Those two services, he said, are most critical in deterring China and Russia in the Pacific, especially given the Bush Administration's pullback from overseas bases—a move McCaffrey derides as one never challenged in Congress and fatally flawed.

Absent the rehabilitation of the Air Force and Navy, both China and Russia will soon pose "a national survival threat" to the US, McCaffrey asserted.

He listed seven procurement priorities for the Air Force, that don't directly match the Air Force's own ranked list.

The F-22 will guarantee American air dominance for at least 25 years, McCaffrey said, but has been shortchanged because it has "minimal value" in fighting insurgencies. USAF should get at least 350 Raptors and the fighter should "never" be made available for sale overseas.

The Air Force needs "600 plus" C-17s, McCaffrey said. The C-5 Galaxy "must be retired—these planes are shot." Absent forward bases, the C-17 is crucial to being able to deploy US forces worldwide.

Unmanned aerial vehicles and intelligence-surveillance-reconnaissance assets should be under the control of the joint air component commander in any theater, McCaffrey said. He called UAVs a "100-year warfighting leap-ahead" that has fundamentally changed warfare.

If USAF were to lose its space supremacy, McCaffrey warned that the whole military enterprise would revert to "WWII era capabilities." He said Air Force space assets are underfunded and inadequately defended.

Cyber weapons are "the poor man's weapon of mass destruction," and this area needs strong joint attention that should be led by the Air Force, McCaffrey said.

The bomber fleet isn't big or modern enough, McCaffrey said. The B-52 should be retired in the next three years, but restarting the B-2 line is too expensive. A new bomber is the right solution, he argued.

Lastly, he voiced support for the Airborne Laser as part of the broader national missile defense.

McCaffrey had high praise for USAF people, calling the service "the most effective, dedicated, and well-trained Air Force we have ever put into combat. Their courage and leadership are simply awesome."

He said he plans to study and speak on Air Force issues for the next two years and will make periodic reports on what he finds.

Real Raptor Numbers

In the wake of the F-15 grounding (above), a group of senators has urged the Pentagon to discard its arbitrary goal of buying just 183 F-22s, and flesh out the Air Force with a full complement of 381 of the stealth superfighters, as the service has long maintained it needs.

The senators also requested, by the middle of this month, a detailed explanation of the Pentagon's tactical aviation plans, and politely insisted on the public release of several long-suppressed studies that validate USAF's Raptor requirements.

The six, all Republicans, were Sen. Orrin Hatch and Sen. Robert Bennett of Utah; Sen. John Thune of South Dakota; Sen. James Inhofe of Oklahoma, and Sen. Saxby Chambliss and Sen. Johnny Isakson of Georgia.

In a Nov. 9 letter to Deputy Defense Secretary Gordon England, the senators expressed worry over recent reports that India and Russia have agreed to partner on developing a fifth generation fighter to rival the F-22, as well as reports of a Chinese stealth fighter being developed, "with almost certain Russian assistance." The news is "especially disconcerting," the senators said, in light of Russia's "propensity ... to sell advanced weapons to our potential adversaries."

Such developments buttress the Air Force's argument that it needs 10 squadrons of 24 operational F-22s as "the minimum number of Raptors required" to offset the rising air-to-air threat, the senators wrote. To field that number, the Air Force has maintained it needs 381 aircraft, a figure it has stuck to for the last five years.

"The recent grounding of our entire F-15 fleet due to concerns over the structural integrity of the aircraft" gives further urgency to a Congressional rethink of tactical aviation, the lawmakers wrote.

The group asked England to provide his own "thoughts and analysis" on the right F-22 procurement number, as well as a detailed briefing by Jan. 15 "on the tacair mix required to execute the national military strategy through 2020."

The senators noted that during the Bush Administration's tenure alone, there have been three separate, taxpayer-funded studies on how many F-22s are needed to fulfill American military strategy, none of which supported the 183 number.

"It is our understanding," the senators wrote, that the studies all concluded that "a far larger number than 183 Raptors will need to be procured." They asked England to provide the full reports to Congress and make public the studies' conclusions. They also asked him to explain in his January briefing "why Raptor procurement should be limited to 183."

England has launched several high-visibility efforts to analyze the Air Force down from its F-22 target, the most notable one being a study he commissioned from Whitney, Bradley & Brown, Inc., in August 2005. The firm had previously supplied England with a blueprint for slashing and consolidating naval aviation assets, and his marching orders were to find similar efficiencies in the F-22 program.

However, the following April, it leaked out that the WBB study had determined there was actually a need for at least 40 to 60 more F-22s than the Bush Administration was planning.

Defense analyst Loren B. Thompson, in a Nov. 14 editorial run on UPI's newswire, said burying the studies supporting a larger F-22 buy is a case of policy-makers "ignoring expert analysis because it doesn't match their personal preferences." He added that "perhaps it is time for Congress to see what the experts found, so that it can come to its own conclusion about how many F-22s the nation really needs."

The F-22 is built in Marietta, Ga. Hill AFB, Utah, is a maintenance facility for the fighter, and its F119 engines are serviced at Tinker Air Force Base in Oklahoma. ■

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Air Force World

By Marc V. Schanz, Associate Editor

OSI Agents Killed In Iraq

Two airmen and one civilian assigned to the Air Force Office of Special Investigations were killed in Iraq on Nov. 1. They died near Balad Air Base from wounds caused by an improvised explosive device.

MSgt. Thomas A. Crowell, 36, of Neosho, Mo.; SSgt. David A. Wieger, 28, of North Huntingdon, Pa.; and Nathan J. Schuldheiss, 27, of Newport, R.I., were special agents for OSI. Crowell was assigned to Det. 301, Scott AFB, Ill., Wieger was assigned to Det. 303, Travis AFB, Calif., and Schuldheiss was assigned to Det. 204 at Offutt AFB, Neb.

All three were engaged in a counterintelligence mission near Balad when they were killed, Air Force officials said.

Aviano Crash Claims Four Airmen

Four airmen were killed Nov. 8 when the Army UH-60 Black Hawk helicopter in which they were flying crashed southwest of Aviano AB, Italy.

Capt. Cartize B. Durham, SSgt. Robert D. Rogers, SSgt. Mark A. Spence, and SrA. Kenneth P. Hauprich Jr. were killed in the accident, the cause of which was still under investigation in late November.

All four were assigned to the 31st Fighter Wing at Aviano. Two soldiers were also killed in the crash, and three other airmen were injured.

The flight was a training mission designed to give the airmen a feel for what Army crew members did on a typical flight.

The aircraft was attached to the 1st Battalion, 214th Aviation Regiment.

Airman Killed in Kuwait Accident

Air Force SSgt. Alejandro Ayala, 26, of Riverside, Calif., died Nov. 18 as a result of a vehicle accident in Kuwait. He was assigned to the 90th Logistics Readiness Squadron at F.E. Warren AFB, Wyo. Further details were not immediately available, and the accident was under investigation in late November.

More ILOs Demanded

The number of airmen performing "in lieu of" assignments in Iraq and Afghanistan in 2008 will rise 20 percent from 2007 levels, according to US Central Command Air Forces officials. Such airmen either spell Army or Marine Corps troops sent home for rest or offer a needed specialty not found in the other services.

In late 2007, there were 5,500 Air Force ILOs in theater, but in 2008, requirements handed down from the Pentagon's Joint Staff will summon 6,600 Air Force troops for ground assignments. Such jobs range from convoy drivers, prisoner guards and logisticians to nation-building activities and explosive ordnance disposal.

The number of ILOs has risen steadily since USAF was first asked to provide replacements for ground billets in 2004, when less than 2,000 airmen were requested. As recently as last summer, the 2008 request was expected to be only 6,000 ILOs.

As of late November, there were about 3,700 ILOs in Iraq, 1,250 in Afghanistan, 450 in Kuwait, and 150 others throughout the CENTAF area of responsibility. Most ILO billets are filled by volunteers, who serve a year.

The CSAR-X Reloaded

The Air Force rebooted the combat search and rescue helicopter program on Nov. 15 by releasing the fifth—and last anticipated—amendment to its request for proposals. The program has been in acquisition limbo for more than a year following a series of legal protests of the original award, which went to Boeing in late 2006.

The CSAR-X offerors—Boeing, a Lockheed Martin-led team, and Sikorsky—have until the middle of this month to respond to the amended RFP. The amendment allows the competitors to update any or all of their proposals, but USAF's performance requirements haven't changed, service acquisition officials said.

A draft RFP amendment was released in October to the contractors to facilitate "face to face meetings" between the competitors and the Air Force to make sure that there were no misunderstandings about the new language.

The Air Force has brought Army, Navy, and DOD representatives into its source selection process in order to add more rotorcraft experience and expertise to the evaluation of the proposals. The proposals were due in early January.

USAF photo by SSgt. Scottie McCord

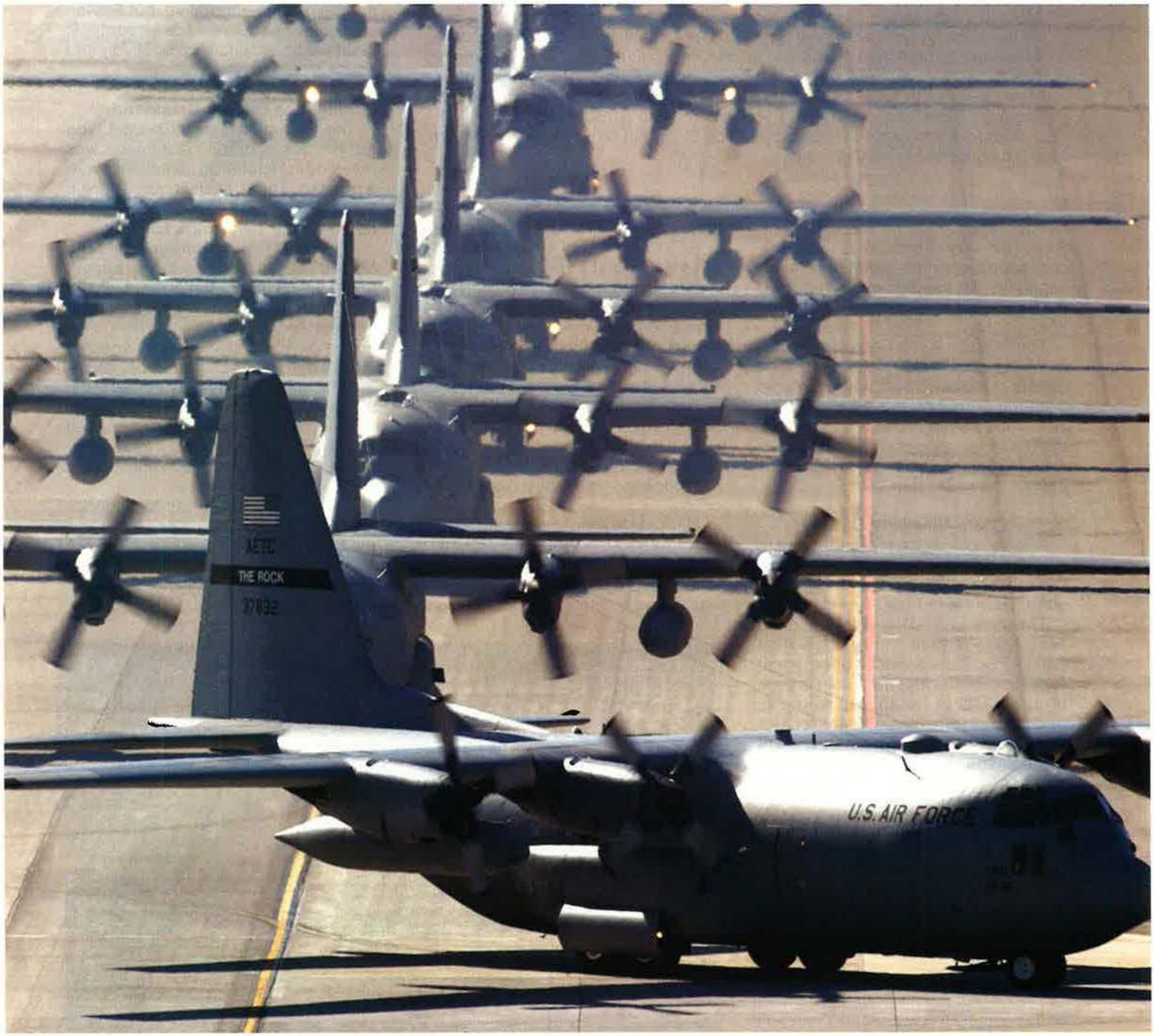
Total Force C-130 Changes

The Air Force is revamping how it performs some functions related to the C-130 aircraft, affecting Air Force Reserve, Air National Guard, and active duty units in Arkansas, Georgia, New York, and Tennessee, the service announced in October. The changes are meant to take advantage of the strengths of each component.

In Tennessee, the Air National Guard's 118th Airlift Wing at Nashville Airport will become a formal training unit, with a peacetime mission of training airmen from partner nations to fly and employ the C-130. The 118th loses its current C-130H aircraft—as decreed under the 2005 BRAC round—but gains WC-130Hs for the new training mission.

Airmen in the New York ANG's 10th Air Refueling Wing will form an associate relationship with the Air Force Reserve's 914th Airlift Wing at Niagara Falls ARS, N.Y., as directed by BRAC. The Reserve-Air National Guard association will be only the second such associate model established. The 914th will continue to have primary responsibility for its C-130H airlifters, but will partner with the 107th, which is losing its KC-135s.

In Georgia, the 94th Airlift Wing at Dobbins ARB, Ga., will convert from a domestic C-130 training unit to a combat-coded unit, and its aircrews



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C-130 airlifters taxi at Nellis AFB, Nev., after an airdrop mission over the Keno Range. The Mobility Air Forces exercise, the first ever held by the 57th Wing, drew in some 15 C-130s and 15 C-17s and two Weapons School squadrons. C-17s simulated dropping tanks, trucks, and howitzers. C-130s dropped mock 64-troop groups. The force used 98th Range Wing assets on the Nevada Test and Training Range, including simulated SAMs and aggressor aircraft trying to "down" the airlifters.

C-17 Packs a Pachyderm

The C-17 has hauled a remarkable range of things, from helicopters and tanks to disaster relief supplies. In November, it added a new type of cargo to its repertoire: a live elephant.

Maggie, a 25-year-old African elephant, was flown from Elmendorf AFB, Alaska, to Travis AFB, Calif., in a specially made 10,000-pound crate stowed in the C-17's cargo bay. The four-ton elephant was being moved from the Alaska Zoo in Anchorage to a retirement home in California run by the Performing Animals Welfare Society. Maggie's quarters in Anchorage were deemed inadequate.

Due to her age and size, the animal could not easily make the trip other than by air, and no commercial lift could handle the unusual load. After months of negotiations, the Air Force agreed to fly Maggie to Travis. The PAWS organization was to reimburse USAF between $215,000 to $300,000 for expenses. The flight crew received unique training in moving sensitive cargo.

The C-17 aircraft used was operated by the 517th Airlift Squadron, which received its first C-17 last June.

will become part of the Air and Space Expeditionary Force rotation. The conversion provides additional airlift capability in theater while reducing the frequency at which other Hercules units deploy.

The Tactical Airlift Center of Excellence at Little Rock AFB, Ark., will absorb the domestic training mission from the 94th AW as well as expand its C-130J training activities to include international partners. The center is slated to gain more aircraft and personnel over the next four years.

Creech Gets New UAV Unit

A new unmanned aerial vehicle detachment has been established at Creech AFB, Nev., the Air Force announced in November.

The new unit—Det. 4 of the 53rd Test Management Group based at Eglin AFB, Fla.—provides operational expertise for development and testing of new sensors, weapons, software, and hardware for the MQ-1 Predator and MQ-9 Reaper. The detachment will manage the development of operational procedures and training for aircrews and maintainers.

The new detachment evolved from the 53rd Test and Evaluation Group Det. 4, which currently operates the MQ-1 Predator at Creech. Program managers, flight test analysts, and engineers make up the new detachment with pilots and sensor operators.

Cost of C-5 RERP Up 54 Percent

The cost of the program to upgrade and re-engine the C-5 Galaxy fleet will be 54 percent higher than budgeted, compelling the Air Force to reconsider whether it will proceed with the project.

The cost of the C-5 Reliability Enhancement and Re-engining Program, or RERP, went from a baseline cost of $11.4 billion to $17.5 billion, according to the Pentagon's quarterly Selected Acquisition Reports released in November. The SARs note changes in the scope or cost of acquisition programs.

Any time a program exceeds cost estimates by more than 25 percent, it incurs what is called a Nunn-McCurdy breach, named for the law that requires the services to either explain whether there are alternatives to poor-performing programs, or certify that they are critical.

Air Force leaders predicted the overrun at AFA's Air & Space Conference in September. Air Force Secretary Michael W. Wynne said he believed the program was going to incur a Nunn-McCurdy breach, but couldn't notify Congress then since he didn't know exactly how much the overrun would be.

The cost jump is related to revised program estimates from prime contractor Lockheed Martin, the Air Force said.

Air Force acquisition chief Sue C. Payton said in November that the Air Force will decide this month whether the RERP is "critical" and must be continued. Service leaders have touted the C-17 as an alternative, but Payton said going to a sole source for strategic airlift would eliminate competition and cause prices to rise.

Intelligence Budget Disclosed

The national intelligence budget, long a tightly held secret in Washington, was revealed in October, in compliance with a new law. The overall amount spent in Fiscal 2007 was $43.5 billion—but no details accompanied the numbers.

Director of National Intelligence John M. McConnell disclosed the budget figure in October, but said it would harm national security to provide further information.

The new law, one of many enacted in the wake of 9/11 Commission recommendations, also requires release of the 2008 national intelligence budget figure, but after that, the President is permitted to waive the reporting requirement if he deems that it reveals too much about US intelligence activities.

The budget covers the intelligence functions of 16 agencies, including the Central Intelligence Agency, those under the Department of Defense, the Department of Homeland Security, and others.

USAF photo by SSgt. Joshua Garcia

Capt. Caroline Jensen connects a communications receiver before taking off from Balad AB, Iraq. The F-16 pilot flew in Iraqi Freedom air operations in October.

F-15 and F-16 Crash Reports Released

An F-15D crashed in May because a jammed cable wouldn't allow the pilot to recover his tumbling fighter, according to an Air Combat Command accident report released in October.

The pilot of the F-15, assigned to the Missouri ANG's 131st Fighter Wing at Lambert-St. Louis Arpt., Mo., reported that the aircraft's controls became unresponsive about 20 minutes into the mission. Given the altitude and attitude of the aircraft, it was unrecoverable, ACC said. The pilot ejected, receiving minor injuries. The aircraft crashed in an unpopulated area of Indiana near the Illinois border. (A second Missouri ANG crash on November 2 led to fleetwide grounding. Results of that investigation had not been released by press time.)

The aileron rudder crossover cable was the culprit, investigators said, but they noted it was properly installed, inspected, and maintained. Neither USAF nor F-15 contractor Boeing could determine why the cable malfunctioned.

In a separate report, an ACC investigation board attributed the January 2007 crash of an Air National Guard F-16C to fuel starvation caused by a loose fuel line. The F-16C belonged to the 144th FW of the California Air National Guard, Fresno-Yosemite Arpt., Calif. According to the report, the pilot experienced a loss of engine power shortly after takeoff on a training mission.

After several unsuccessful attempts to restart the engine, the pilot ejected over a dry lake bed about 85 miles east of Fresno. Investigators determined that bolts connecting the fuel line to the main fuel control unit were not properly torqued during routine maintenance.

The last time the CIA voluntarily disclosed intelligence spending was in 1997 and 1998, in response to a Freedom of Information Act lawsuit brought by the Federation of American Scientists. In 1997, the US spent $26.6 billion on intel, followed by $26.7 billion in 1998.

Had the intelligence budget simply risen with inflation since the earlier disclosures, it would now be about $34 billion, but the Global War on Terrorism has demanded a much heftier annual increase.

About 80 percent of the intelligence budget is consumed by military intelligence agencies such as the National Security Agency, the Defense Intelligence Agency, and the National Reconnaissance Office.

Wurster Goes to AFSOC

Lt. Gen. Donald C. Wurster took charge of Air Force Special Operations Command, headquartered at Hurlburt Field, Fla., on Nov. 27.

Wurster relieved Lt. Gen. Michael W. Wooley, who retired Jan. 1 after 35 years of service. Air Force Vice Chief of Staff Gen. Duncan J. McNabb presided over the change of command ceremony.

Wooley received the Distinguished Service Medal during the change of command ceremony.

JEFX Morphs, Pushes Automation

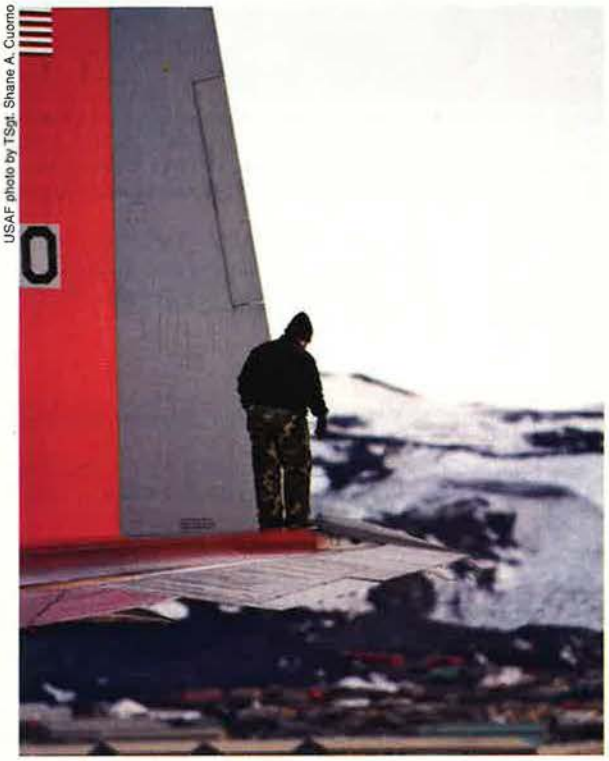
One of the Air Force's premier exercises—the Joint Expeditionary Force Experiment—has been reduced in size and increased in frequency in order to more rapidly try out and field useful concepts.

The JEFX used to take place every two years. It runs experiments in command and control to reduce the steps and time required to prosecute targets.

The first of the rescoped JEFX experiments was run in November at Langley AFB, Va. It tried out 11 initiatives involving 640 participants at 17 locations.

Among the new ideas was a Web-based system that allows multiple users to request aerial refueling using machine-to-machine links. In the field, such requests must now be made by voice. US Strategic Command and Air Mobility Command are unable to exchange data machine-to-machine during the planning and execution phases of a mission.

Another experiment made it possible for mission planners in an air operations center to directly change the target of weapons—such as the Joint Direct Attack Munition—that an aircraft has already released. The current method requires radio calls and



USAF photo by TSgt. Shane A. Cuomo

TSgt. Tammy Kirwan does a postflight check of an LC-130 on the runway at McMurdo Station, Antarctica, in November. Operation Deep Freeze—logistic support for the National Science Foundation's four-month-long research season in Antarctica—got under way in September. C-17s based at McChord AFB, Wash., and LC-130s from the 109th Airlift Wing, New York ANG, provide strategic and tactical airlift for the operation.

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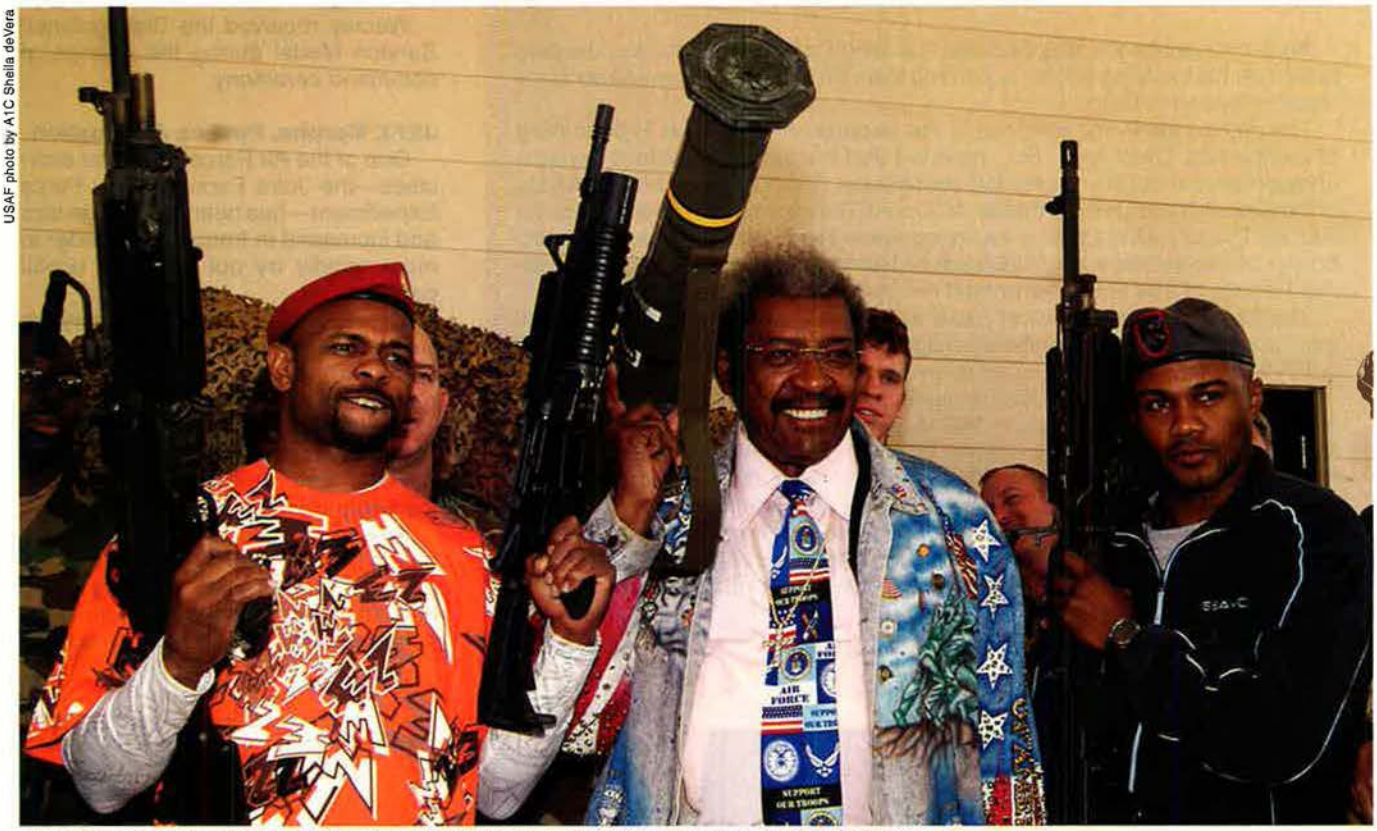
USAF photo by A1C Sheila deVera



Famed boxing promoter Don King (c)—sporting a special, Air Force-emblazoned tie and coat—hams it up at a Dec. 5 goodwill visit to USAF's 720th Advanced Skills Training Flight, Hurlburt Field, Fla. King, light heavyweight Roy Jones Jr. (l), and middleweight Felix Trinidad were touring military bases to show support to US troops. The weapons, of course, weren't loaded.

hand-entered-coordinate changes on the launch aircraft. The experimental system involves software that quickens the target update, giving commanders more chances to pursue time-sensitive or fleeting targets.

The JEFX is run at the Global Cyberspace Integration Center at Langley. It uses the center's mock-up AOC, known as the "Hot Bench," in realistic scenarios.

Brady Nominated for USAFE

President Bush has nominated Lt. Gen. Roger A. Brady to receive a fourth star and take over command of US Air Forces in Europe from Gen. William T. Hobbins, who is retiring.

Brady has been deputy chief of staff for personnel since June 2004.

Hobbins has been commander of USAFE since 2005. He was to relinquish command Dec. 10 and retire Feb. 1 after 38 years of service.

Reservists Feel the Bite

The Air Force has long said that the Reserve Component would share the pain as the service sheds some 40,000 full-time equivalent personnel. Air Force Reserve Command is about to take such a hit, losing 7,400 billets in 2008.

Under the 2008 Defense Appropriations Act signed by President Bush, AFRC is funded for an end strength of 67,500 Reservists, down from 74,900 authorized for 2007.

The bill also approves 9,999 full-time air reserve technicians and 2,721 full-time active guard reserve billets.

While the Reserve is taking its first

Vietnam-Era Airmen Identified

Two airmen listed as missing from the Vietnam War were identified, the Pentagon's Missing Personnel Office announced in November. Their remains were returned to their families.

Maj. John L. Carroll, of Decatur, Ga., was buried on Nov. 13 at the Air Force Academy in Colorado Springs, Colo., with full honors.

Carroll was lost on Nov. 7, 1972, while flying a forward air control mission over Laos in an O-1G Bird Dog. He was hit by enemy ground fire and forced to land. Rescue aircraft could not recover Carroll due to intense ground fire and the proximity of enemy forces.

Between 1996 and 2007 a joint US-Laotian team with assistance from Vietnam interviewed witnesses about the incident, eventually discovering Carroll's burial site.

Capt. Stephen A. Rusch of Lambertville, N.J., was buried Nov. 30 at Arlington National Cemetery near Washington, D.C., with full honors.

Rusch, a weapons systems officer, was lost March 7, 1972, while flying a mission in an F-4E Phantom over Laos. Rusch's flight leader lost sight of his aircraft but observed enemy ground fire closely followed by an explosion. Radio contact with Rusch couldn't be established, and subsequent searches of the area were unsuccessful.

Between 1995 and 2003, US and Laotian officials investigated the incident and interviewed several citizens around the crash site. After two excavations, teams recovered human remains that were analyzed and identified by DOD scientists.

The War on Terrorism

Operation Iraqi Freedom—Iraq

Casualties

By Dec. 13, a total of 3,888 Americans had died in Operation Iraqi Freedom. The total includes 3,880 troops and eight Department of Defense civilians. Of these deaths, 3,167 were killed in action with the enemy while 721 died in noncombat incidents.

There have been 28,661 troops wounded in action during Operation Iraqi Freedom. This number includes 15,832 who were wounded and returned to duty within 72 hours and 12,829 who were unable to return to duty quickly.

Iraqis Regain Kirkuk Airspace Control

US Central Command Air Forces officials transferred the Baghdad Air Control Center to Iraqi control in November. Iraqis now control the Kirkuk airspace area over 29,000 feet.

The handover was part of a transition process authored by CENTAF in 2007. The Baghdad ACC was the first in a series of stages to stand up on Aug. 30. Following the completion of the Kirkuk transfer, southern Iraqi airspace around Ali Air Base, Iraq, was expected to transfer late in 2007.

When the process is complete, the Iraqi Civil Aviation Authority will be responsible for control of all airspace over Iraq at 29,000 feet and above. The combined force air component commander will retain authority to take back sections of airspace in order to accomplish a military mission, however.

Operation Enduring Freedom—Afghanistan

Casualties

By Dec. 8, a total of 465 Americans had died in Operation Enduring Freedom. The total includes 464 troops and one Department of Defense civilian. Of these deaths, 274 were killed in action with the enemy while 191 died in noncombat incidents.

There have been 1,821 troops wounded in action during OEF. This number includes 716 who were wounded and returned to duty within 72 hours and 1,105 who were unable to return to duty quickly.

F-15Es to the Rescue

US, coalition, and Afghan security forces engaged with and killed a large number of Taliban insurgents near the Deh Rawod district of Oruzgan Province on Nov. 13, covered by USAF F-15Es.

The combined ground force was on patrol when a large group of insurgents attacked it with small arms and rocket propelled grenade fire. The insurgents then tried to fall back to a nearby compound—causing civilians in the area to flee.

After identifying the insurgents' position, four separate precision air strikes were called in as the Taliban fighters attempted to reinforce their position. F-15Es attacked with a GBU-12, GBU-31, and GBU-38s bombs and strafed with their 20 mm cannon. A joint terminal attack controller with the group deemed the strikes successful.

Afterward, ground forces assaulted the position. Another F-15E performed a "show of force"—a loud, low pass—to deter further resistance.

Largest Deployed Shelter Built at Bagram

A nine-person team from the 49th Material Maintenance Group at Holloman AFB, N.M., finished building the Air Force's largest deployable aircraft shelter Bagram AB, Afghanistan, in November.

The team began building the 225-by-70-foot hangar on Oct. 22 and completed it on Nov. 5. The new hangar houses three of the 455th Air Expeditionary Wing's HH-60 Pave Hawk combat search and rescue helicopters. A standard deployed shelter is 150 feet by 70 feet.

Normally a shelter is designed to hold one aircraft, but the Holloman airmen managed to splice two-and-a-half shelters together. The 49th had already completed several large projects across the theater of operations, including the erection of three 6,000-square-foot shelters and one 4,000-square-foot shelter.

round of cuts, the Air National Guard has not been affected yet.

Army and Marine Corps plans for expansion have also cast some doubt on the drawdown, and top USAF leaders have speculated that they may not reduce to an end strength of 316,000, but hold at 330,000. A larger ground force requires additional airmen who embed with them for missions such as combat air controllers.

Last "Black Jet" Air Show

The F-117 Nighthawk made its last appearance at an air show in November, at the Dubai aerospace exposition in the United Arab Emirates. It was on static display and also performed aerial demonstrations. No more public appearances are scheduled until retirement ceremonies, expected in April.

The Air Force has retired about half its F-117s; they are being phased out in favor of the F-22, which is absorbing the mission of the "Black Jet."

The F-117 was designed in the late 1970s, and made its first flight in 1981. The program, which created the first combat-capable true stealth aircraft, was highly classified until its existence was revealed in 1987. It was not until 1988 that an F-117 was made available for public display. The type flew combat missions in Panama in 1989, Gulf War I in 1991, Serbia in 1999, and Iraq in 2003. Only one was ever lost in combat, although several have crashed in accidents, one at an air show in Maryland.

Keen Sword in Japan

Air Force and Japan Air Self-Defense Force pilots took part in broad air-to-air exercises over Japan in November as part of the two-week-long Keen Sword.

The wargames simulated the defense of Japan by exercising more than 60 military units at 24 locations across the country. In the initial phases, F-16 pilots from Misawa AB, Japan, practiced basic intercepts to advanced multiship maneuvers. Participating aircraft included F-16s, KC-135s, and E-3 AWACS from Kadena AB, Japan.

The exercise concluded with a combined, large-force exercise of ground and air units.

AFRICOM's Air Component

The Air Force began organizing its element of the new US Africa Command in December. AFRICOM is to be fully operational by October 2008, according to US Air Forces in Europe planners.

The new component, 17th Air Force, will comprise about 300 airmen under the command of a major general, Col. Blake Linder—USAFE's deputy director for plans, programs, and

Senior Staff Changes

RETIREMENTS: Maj. Gen. John J. **Catton Jr.,** Maj. Gen. Frank R. **Faykes,** Brig. Gen. William J. **Germann,** Gen. Paul V. **Hester,** Maj. Gen. Timothy C. **Jones,** Maj. Gen. Roosevelt **Mercer Jr.,** Brig. Gen. Michael F. **Planert,** Brig. Gen. John I. **Pray Jr.,** Lt. Gen. Michael W. **Wooley,** Brig. Gen. David G. **Young III.**

PROMOTION: To General: Carrol H. **Chandler.**

NOMINATIONS: To be General: Roger A. **Brady. To be Lieutenant General:** Richard Y. **Newton III,** William L. **Shelton. To be Brigadier General:** Walter D. **Givhan.**

CHANGES: Maj. Gen. Dana T. **Atkins,** from Dir., Ops., PACOM, Camp H.M. Smith, Hawaii, to Spec. Asst. to the Cmdr., PACAF, Hickam AFB, Hawaii ... Brig. Gen. Brian T. **Bishop,** from Dep. Dir., LL, OSAF, Pentagon, to Cmdr., 332nd Air Expeditionary Wg., ACC, Balad AB, Iraq ... Maj. Gen. David E. **Clary,** from Vice Cmdr., ACC, Langley AFB, Va., to Dir., Air Component Coordination Element, Multinational Force-Iraq, ACC, Baghdad, Iraq ... Brig. Gen. Daniel R. **Eagle,** from US Defense Attaché, Russia, EUCOM, DIA, Moscow, to Dir., Intel., USAFE, Ramstein AB, Germany ... Maj. Gen. David M. **Edgington,** from Dir., Air Component Coordination Element, Multinational Force-Iraq, ACC, Baghdad, Iraq, to Dir., Rqmts. & Integration, JFCOM, Norfolk, Va. ... Brig. Gen. (sel.) James M. **Holmes,** from Spec. Asst., DCS, Air, Space, & Info Ops., P&R, USAF, Pentagon, to Cmdr., 45th Air Expeditionary Wg., ACC, Bagram, Afghanistan ... Brig. Gen. Stephen L. **Hoog,** from Cmdr., 57th Wg., ACC, Nellis AFB, Nev., to Cmdr., USAF Warfare Center, ACC, Nellis AFB, Nev. ... Maj. Gen. Gilmary M. **Hostage III,** from Dir., Rqmts. & Integration, JFCOM, Norfolk, Va., to Vice Cmdr., PACAF, Hickam AFB, Hawaii ... Brig. Gen. Darrell D. **Jones,** from Cmdr., 37th Tng. Wg., AETC, Lackland AFB, Tex., to Dir., Force Mgmt. Policy, DCS, Manpower & Personnel, USAF, Pentagon ... Maj. Gen. Kay C. **McClain,** from Dir., Force Mgmt. Policy, DCS, Manpower & Personnel, USAF, Pentagon, to Cmdr., AFPC, Randolph AFB, Tex. ... Brig. Gen. Michael R. **Moeller,** from Dir., Strat., Policy, & Plans, SOUTHCOM, Miami, to Cmdr., 379th Air Expeditionary Wg., ACC, Al Udeid AB, Qatar ... Brig. Gen. Robert P. **Otto,** from Dep. Dir., Intel & Air, Space, & Info. Ops., for Flying Tng., AETC, Randolph AFB, Tex., to Cmdr., 9th Recon Wg., ACC, Beale AFB, Calif. ... Brig. Gen. (sel.) Leonard A. **Patrick,** from Dir., Instl. & Mission Spt., AMC, Scott AFB, Ill., to Cmdr., 37th Tng. Wg., AETC, Lackland AFB, Tex. ... Brig. Gen. Harry D. **Polumbo Jr.,** from Cmdr., 9th Recon Wg., ACC, Beale AFB, Calif., to Cmdr., 380th Air Expeditionary Wg., ACC, Al Dhafra AB, UAE ... Brig. Gen. John D. **Posner,** from Dep. Dir., Ops, Natl. Mil. Cmd. Center, USAF, Pentagon, to Dir., AF Smart Ops. 21, USAF, Pentagon ... Maj. Gen. Anthony F. **Przybyslawski,** from Cmdr., AFPC, Randolph AFB, Tex., to Dir., Intel & Air, Space & Info. Ops., AETC, Randolph AFB, Tex. ... Maj. Gen. Douglas L. **Raaberg,** from Dir., Air & Space Ops., ACC, Langley AFB, Va., to Dep. Combined Forces Air Component Cmdr., CENTCOM, Al Udeid AB, Qatar ... Maj. Gen. Winfield W. **Scott III,** from DCS, Strat. Comm., Multinational Force-Iraq, CENTCOM, Baghdad, Iraq, to Spec. Asst. to the Cmdr., AMC, Scott AFB, Ill. ... Brig. Gen. Janet Anthea **Therianos,** from Spec. Asst. to the Asst. Vice C/S, USAF, Pentagon, to Dir., Intel., AMC, Scott AFB, Ill. ... Maj. Gen. Richard E. **Webber,** from Dir., Instl. & Mission Spt., AFSPC, Peterson AFB, Colo., to Asst. DCS, Air, Space & Info. Ops., P&R, USAF, Pentagon ... Maj. Gen. Roy M. **Worden,** from Cmdr., USAF Warfare Center, ACC, Nellis AFB, Nev., to Vice Cmdr., ACC, Langley AFB, Va. ... Brig. Gen. Scott E. **Wuesthoff,** from Vice Cmdr., Tanker Airlift Control Center, AMC, Scott AFB, Ill., to Dep. Dir., Ops., Natl. Mil. Cmd. Center, Pentagon ... Maj. Gen. Mark R. **Zamzow,** from Dir., Intel. & Air, Space & Info. Ops., AETC, Randolph AFB, Tex., to DCS, Strat. Comm., Multinational Force-Iraq, CENTCOM, Baghdad, Iraq.

SENIOR EXECUTIVE SERVICE RETIREMENTS: Christine M. **Anderson,** Christopher D. **Gardner,** William **Maikisch,** Lester **McFawn,** Bonnie D. **Taylor,** Hendrick W. **Ruck.**

SES CHANGES: Dennis M. **Firman,** to Dir., AF Center for Engineering & the Environment, Brooks City-Base, Tex. ... Philip L. **Ritcheson,** to Dir., User Engagement Group, Dep. Dir., Mission Spt., NRO, Chantilly, Va. ... Joseph D. **Rouge,** to Dir., Natl. Security Space Office, Office of the Undersecretary of the AF, Pentagon. ▪

analysis—told *Inside the Pentagon.* About half of those airmen will be part of the 17th Air Force staff, while the other half will be at a customized air operations center.

A location for command headquarters and an air operations center hasn't been identified yet, he added, and the new center will not be a full-up AOC since the primary mission of AFRICOM is security cooperation with regional allies.

US-Australia SATCOM Deal

The US and Australia signed an agreement in November to cooperate on the Wideband Global SATCOM (WGS). The constellation will be expanded from five to six satellites as a result of the deal.

Once the system becomes operational, the WGS will provide a large improvement in communications bandwidth for US and Australian military forces that must keep up with intensive demand for bandwidth stemming from data transfer and remote unmanned aircraft operations. The system will work in the X and Ka-band frequency range.

The first satellite is scheduled to achieve initial operational capability in early 2008, and full capability is expected in 2013, after launch of the last satellite.

Portable Careers

As part of an ongoing effort to make military life more amenable to families, the Pentagon and Labor Department have teamed up on a trial program to provide military spouses with assistance for training in "portable" careers.

Spouses of junior officers and junior enlisted personnel at participating locations can tap funds in self-managed "career advancement accounts" of $3,000 per year to offset expenses for post-secondary education and training. Books, fees, equipment, and credentialing can all be paid for with the account funds.

The two-year demonstration is now being offered at 18 military installations in eight states and is intended to help spouses develop skills needed to enter and advance in portable careers such as education, health care, information technology, and financial services.

Defense Secretary Robert M. Gates said that spouses are often called on to pack up and relocate their families, often at the cost of their own careers. This makes it difficult to navigate licensing and certification requirements in many professions.

Spouses may apply at participating installations' education centers or family support centers. Air Force facilities participating in the program include McChord AFB, Wash., Pope AFB, N.C., Hickam AFB, Hawaii, Eglin Air Force Base and Hurlburt Field, Fla.,and Peterson AFB, Colo.

AFSOC Wing Reorganized

Air Force Reserve Command's 919th Special Operations Wing, which flies variants of the MC-130 aerial refueling aircraft, is set to reorganize, swap missions, and move stations over the next few years, Air Force Special Operations Command announced in November.

Unit personnel assigned to the MC-130 will be assigned to new Reserve associate units where they will fly and maintain new aircraft with active duty AFSOC airmen. Over the next five years, the 919th SOW at Duke Field, Fla., will integrate with the 1st SOW at Hurlburt Field, Fla.

The 919th's 5th Special Operations Squadron flies the MC-130P Combat Shadow aircraft, while the 711th SOS

For a 90th anniversary salute to the 111th Fighter Squadron, Texas ANG, this F-16 sports paint colors and markings that spotlight various eras in the unit's history.

flies the MC-130E Combat Talon I. The wing will be shedding the Combat Shadow mission in the next two years and will retire the Combat Talon I by 2012.

In the interim, Reservists will share flight training duties by augmenting training units in a variety of missions—including the single-engine U-28 Pilatus light transport aircraft, the AC-130U gunship, and training and assisting foreign aviation forces.

AFSOC said that another emerging mission for the 919th SOW is an associate unit to augment the 3rd SOS at Nellis AFB, Nev., which flies the MQ-1 Predator.

CSAR Wing Gives Wildfire Support

Air National Guardsmen with the 129th Rescue Wing at Moffett Field, Calif., were asked in late October to help with search and rescue support for massive firefighting operations across Southern California.

A pair of HH-60G Pave Hawk rescue helicopters transported 16 Air Guardsmen—including pararescuemen, air crews, and maintainers from Moffett near San Jose to Los Alamitos Army Airfield in Southern California. The crews were put on search and rescue alert, with civilian recovery and official transport as potential missions.

An MC-130P Combat Shadow tanker and crew at Moffett were also put on standby to support firefighting operations. Several large wildfires burned in late October across Southern California—eventually consuming about 500,000 acres from Santa Barbara to the US-Mexico border. ■

News Notes

■ Pacific Air Forces rushed to Bangladesh in November with aid and relief for victims of Cyclone Sidr, which caused massive flooding and infrastructure damage. PACAF flew water, food, blankets, tents, and clothes in C-17s based at Hickam AFB, Hawaii, to staging areas in Guam, Thailand, and Bangladesh. From there, C-130s assigned to the 374th Airlift Wing at Yokota AB, Japan, flew the aid the rest of the way to the devastated area.

■ Among the winners of the 2007 Secretary of Defense Maintenance Awards, announced in November, were the 1st Aircraft Maintenance Squadron at Langley AFB, Va., and the 56th Maintenance Group at Luke AFB, Ariz. The award recognizes excellence in field-level and depot-level maintenance.

■ Elmendorf AFB, Alaska, received its second squadron of F-22 Raptors and activated the 525th Fighter Squadron in October. The second active duty F-22 squadron stood up about three months after the aircraft actually arrived on base.

■ A team of experts in search and rescue deployed to the Dominican Republic in the aftermath of Tropical Storm Noel in November to assist in recovery operations. The group of 19 airmen and Army soldiers, along with two helicopters, were transported to the disaster area, in a New York Air National Guard C-5 Galaxy.

■ A new class of corrosion-resistant materials has been developed by researchers working for the Air Force Office of Scientific Research, USAF reported in October. The materials, which involve new composites of copper and silver, could help reduce maintenance needs for new aircraft.

■ The Federal Energy and Water Management Award, given by the Department of Energy, recognizes organizations or individuals who save taxpayers more than $18 million through management and avoidance of waste. The 2007 awards went to personnel from Fairchild AFB, Wash.; Goodfellow AFB, Tex.; Kirtland AFB, N.M.; Randolph AFB, Tex.; F.E. Warren AFB, Wyo.; Elmendorf AFB, Alaska; and Sheppard AFB, Tex.

■ US Central Command Air Forces sponsored a close air support exercise in the Florida woodlands south of MacDill AFB, Fla., in November. The exercise, called Atlantic Strike VI, ran four days and involved more than 800 military personnel in several locations playing roles from insurgents to tactical air control parties. Aircraft participating in the exercise included the E-8 Joint STARS from Robins AFB, Ga., A-10s from MacDill, and F-16s from Homestead ARB, Fla.

■ A new high-fidelity simulator facility for F-15E pilots opened at the 366th Fighter Wing at Mountain Home AFB, Idaho, in October. The training center provides two dual-cockpit F-15E simulators with a 360-degree visual system, a virtual environment, and instructor or operator brief and debrief stations.

■ Air Force firefighters from Travis AFB, Calif., won the Scott World Firefighter Combat Challenge during a November competition in Las Vegas. It was their fourth win in a row.

■ A 15-person Air Force-Army team participated in the NATO exercise Toxic Trip 2007 in November. The exercise, held in Denmark, tests responses to a chemical, biological, radiological, or nuclear incident.

■ Reservists from March ARB, Calif., refueled Egyptian Air Force fighters in a grueling 11 days of training in October. KC-135 pilots and crews from the 336th Air Refueling Squadron deployed to Egypt and conducted as many as 50 air refuelings per day with that country's F-16 and Mirage 2000 fighters—far more than typical training sorties. Shortly afterward, C-17s and 60 airmen from Charleston AFB, S.C., participated in Bright Star 07—a training exercise in Egypt that includes troops from 13 countries. The C-17s air-dropped members of the 101st Airborne Division and the Egyptian Army. ■

Issue Brief

By Adam J. Hebert, Executive Editor

"AFSO 21," Explained

F-16 crew chiefs at Kunsan AB, South Korea, had a problem. To begin work on a fighter, each had to push a heavy tool box from a central storage area out to a hardened shelter, a trip up to half a mile. They didn't like it, but that's the way things always had been done.

It seemed like an unchangeable fact of life—until somebody changed it. The crew chiefs decided to store their tools in the shelters, near at hand. This simple step freed up two maintenance-man-hours per day. That's significant, given the amount of time required to keep old F-16s combat-ready.

Simple, common-sense steps are exactly what Secretary of the Air Force Michael W. Wynne had in mind when he launched Air Force Smart Operations for the 21st Century in March 2006. "AFSO 21," as it is called, has a simple goal: greater efficiency.

Reasons abound. There's a war on. The service's acquisition accounts are billions short. End strength is declining. The Air Force must make the most of what it has got. USAF, borrowing the concept from industry, is pushing AFSO 21 to free up manpower, time, and money for more productive uses.

The goals are concrete—improve productivity and readiness. Specifically, AFSO 21 aims to:

- Deep-six stupid, unnecessary tasks.
- Keep more equipment ready for service.
- Shorten response times.
- Eliminate accidents, injuries, and breakdowns.
- Cut energy costs.

The Air Force, like every large bureaucracy, must battle lethargy, precedent, and indifference to pull this off. AFSO 21 remains a source of confusion despite a full-scale campaign to explain it. A recent Internet search for AFSO 21 returned 6,000 hits on Air Force Web sites alone, but the information is often confusing and contradictory.

Part of the problem is that AFSO 21 and its descriptions are laden with jargon and buzzwords. Lean. Six Sigma. Theory of constraints. Business process re-engineering. Just-in-time inventory. Blah, blah, blah.

"Lean" means cutting fat—eliminating whatever action produces nothing. Done correctly, less work is performed for the same effect, freeing time and resources for other jobs. Six Sigma and the other business practices refer to eliminating defects, bottlenecks, and other limitations.

AFSO 21 gives USAF an organized way to improve efficiency by encouraging and allowing efficency initiatives without layers and layers of review and comment.

Many AFSO 21 projects so far simply required putting the right equipment in the right place. It really made no sense for airmen running the armory at Incirlik AB, Turkey, to spend an hour assembling equipment from different sites each time they had to equip a new security forces detail. Rifles, radios, and night vision goggles were spread throughout the armory. Incirlik airmen decided to move these items close to the distribution window, halving the time needed for each change of shift.

AFSO 21 encourages airmen to eliminate actions that don't add value. Walking back and forth doesn't add value.

In bygone days, maintainers at Aviano AB, Italy, who wanted to work on an F-16 would have to go get, transport, set up, and move ladders around the fighter. Somebody realized you could set up a scaffold and eliminate all of this wasted motion. The change helped cut two days from a seven-day-long repair process.

At Hanscom Clinic in Massachusetts, medical workers sought ways to streamline patient care. One step: Standardization of supplies kept in exam rooms. Now, medical technicians shouldn't have to hunt down gauze or tongue depressors.

Last March, the 379th Air Expeditionary Wing in Southwest Asia declared that the wing's AFSO 21 initiatives had saved nearly $20 million, enough to pay for a new MQ-1 Predator.

The Air Force is pushing AFSO 21 down to the lowest levels because it is the airmen performing the jobs who see the inefficiencies. They are often the ones whose lives are made easier by eliminating wasteful action.

USAF is only too aware that bureaucracies have a way of thwarting progress. "The desired effect is not the number of events or the number of personnel trained," wrote Ronald C. Ritter, the senior civilian AFSO 21 manager. "It's about the operational impact."

Most commercial enterprises fail when they try to streamline their operations, said retired CMSgt. Joe Harrison, who is also an AFSO 21 instructor at Dover AFB, Del. "The employees never embraced the culture."

Yet to be seen is whether the Air Force can sustain the momentum and bring further gains. Stayed tuned. ■

More information: http://www.af.mil/library/smartops.asp

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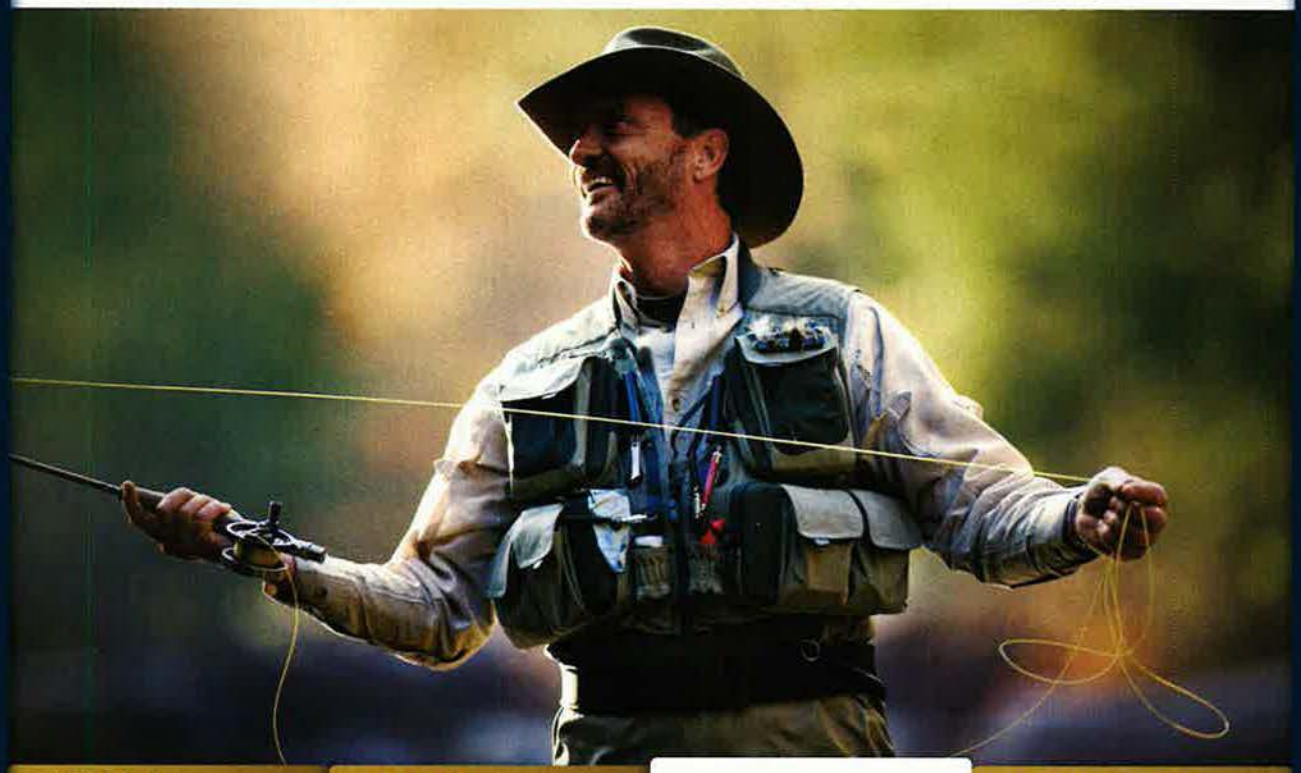

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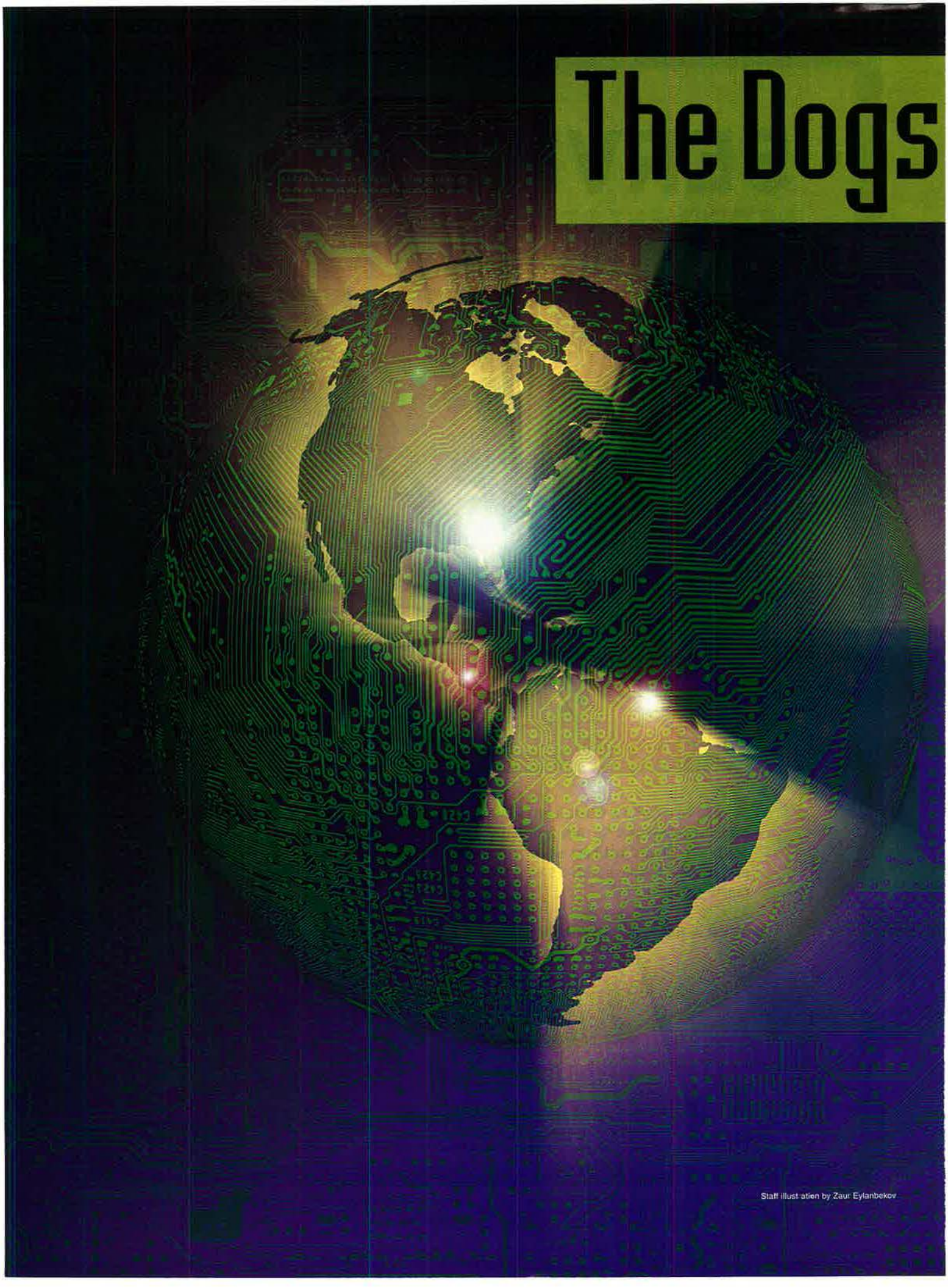
The Dogs



Staff illustration by Zaur Eylanbekov

# of Web War

US armed forces face "peer" adversaries in only one area—military cyberspace.

By Rebecca Grant

After years of claims and counterclaims concerning the severity of national security threats in cyberspace, the picture is at last starting to become clear. Recent jousting within cyberspace has provided clues about what to expect from combat in this new domain.

For example, China has been positively identified as a source of "campaign-style" cyber attacks on Department of Defense systems. Russia, moreover, is the prime suspect in last spring's notorious cyber assault on Estonia.

Outside the military realm, too, cyber attacks are forming a persistent threat to aerospace enterprises and other parts of the US industrial base.

More than ever before, cyberspace is on the minds of America's top leaders. Air Force Gen. Kevin P. Chilton, the new head of US Strategic Command, said during his confirmation hearing that "attacks impacting our freedom to operate in space and cyberspace pose serious strategic threats."

Defending the nation from cyberspace attacks is STRATCOM's mission—but one of the big challenges is assessing the strategic threat and demarcating lines of response.

It all begins with knowing the adversary. China is at the top of most lists of nations with advanced cyber capability—and the will to use it.

Because of the overall tenor of military competition with China, every report of Chinese activity raises hackles. In fact, there's been a steady level of reported skirmishing in cyberspace this decade.

Tactic No. 1 is near-constant pressure on US government systems. The goal of

Capt. Jason Simmons (l) and SSgt. Clinton Tips update anti-virus software at Barksdale AFB, La.

USAF photo by 2Lt Russell Wicke

Capt. Danny Stout, a USAF air liaison officer deployed with the Army's 82nd Airborne Division, contacts F-16s flying overhead, above the mountains of Afghanistan.

these attacks is to breach systems and leave behind malicious code capable of redirecting network activity or enabling access to stored data—to change it or steal it. "Cyber is all about 'protect it or steal it,'" Lt. Gen. Robert J. Elder Jr., commander of 8th Air Force and USAF's point man on cyber issues, said last year.

Sometimes cyber attacks take place during more traditional crises. In April 2001, the Chinese were preparing a hacker onslaught during the tense period when a US Navy EP-3 crew was held after making an emergency landing following a midair brush with a Chinese fighter. The FBI cautioned network operators in government and commercial sectors to keep up their guard.

Sure enough, in May 2001, Chinese hackers took down the White House Web site for almost three hours with a denial-of-service strike. Since then, the attacks originating from servers in China have grown in sophistication and intensity.

In 2003, a barrage of attacks from China hit Pentagon systems. The incursions were notable enough to get their own temporary code name, Titan Rain.

In February 2007, officials at Naval Network Warfare Command acknowledged that Chinese attacks had reached the level of a campaign-style, force-on-force engagement, according to *Federal Computer Week.*

Then, last April 26, came the first full-blown cyber assault resembling an act of war. A controversy over moving a bronze statue of a Russian soldier from the center of Tallinn, capital of Estonia, ended with a massive, coordinated assault on Estonia's cyber institutions. Many Web sites, both commercial and government, were shut down for days in the highly wired society.

Cyber Fingerprints

Unavailable, however, was firm attribution of who was responsible for the attack on the tiny NATO ally. Some of the cyber fingerprints suggested Russian involvement, but the nature of cyber attacks made the origin hard to verify. Russia officially denied involvement, noting that Russian computers could have easily been used by hackers worldwide.

"Estonia was kind of a wake-up call," said Marine Corps Gen. James E. Cartwright, vice chairman of the Joint Chiefs of Staff and previous head of STRATCOM. "We've got to make sure we have situation awareness at a scale commensurate with our equities."

All doubt about Chinese culpability in these sorts of attacks vanished shortly after Russia's likely assault on Estonia. Pentagon sources acknowledged that a Chinese attack broke into an unclassified e-mail system used by the Office of the Secretary of Defense in June 2007. As reported by the *Financial Times,* the Pentagon attributed the attacks not only to Chinese server locations but to the People's Liberation Army itself.

President Bush addressed the issue in some depth after the reports, saying, "A lot of our systems are vulnerable to cyber attack from a variety of places." The first question planners should ask should be "what are you doing to defend America against cyber attack? ... Are you then providing expertise and technology necessary to defend?"

Bush's remarks seemed to indicate more than a passing interest in the topic. "We understand that we're vulnerable in some systems—some, by the way, more valuable than others," he concluded.

Air Force Lt. Gen. Daniel P. Leaf, deputy commander at US Pacific Command, told the *Washington Times* in November 2007 that computer attacks were a growing problem. "We're very concerned about that—for the information that may be contained on [the networks] or for the activities we conduct that are command and control and situation awareness related," he said.

The attacks are of interest not for their fleeting effects—but for what they suggest about adversary intent, evolving capabilities, and the potential for debilitating breaches.

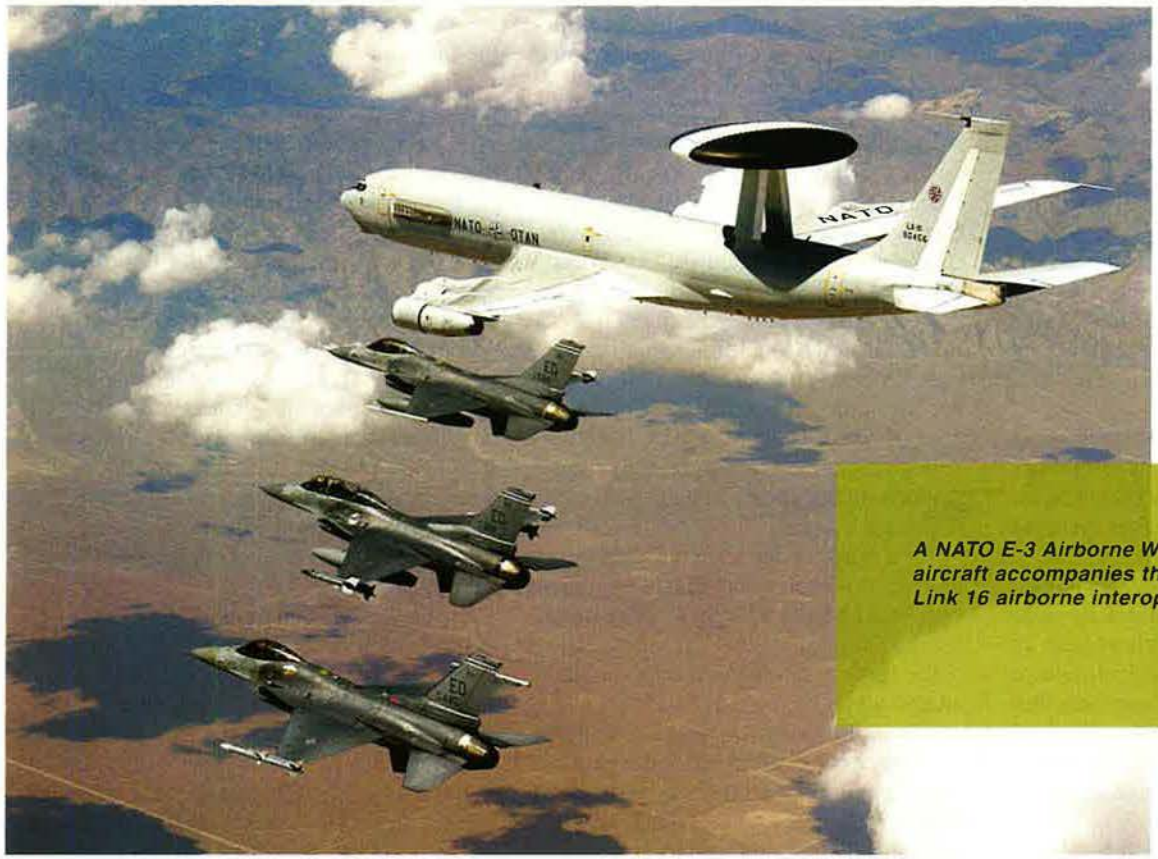
"China has put a lot of resources into this business," said Elder. Communist China's public doctrine calls for dominating the five domains of air, land, sea, space, and the electromagnetic spectrum. Although "they're the only nation that's been quite that blatant," Elder said, "they're not our only peer adversary."

Chinese cyber attacks also have a second goal: industrial espionage, with attempts made to access corporate databases. That tactic has been around 20 years or more, since early users of the Advanced Research Projects Agency Network (ARPAnet) first noticed Soviet operatives logging into the network from overseas sites to trawl file directories of the university and think-tank nodes.

China's attacks were not unlike the so-called Moonlight Maze incursions emanating from Russia. In the late 1990s, a band of Russian hackers was alleged to have stolen research and development secrets from commercial and government sites in the US and resold them.

Targeted e-mail attacks have become more and more alluring. In late 2006 and 2007, a common technique was to e-mail false news updates, such as one attack that offered news on a missile shootdown in Iraq.

On Aug. 21, 2007, e-mail attacks originating in China targeted 28 defense contractor sites in the United States. In this case, defense contractors were



USAF photo by Tom Reynolds

A NATO E-3 Airborne Warning and Control System aircraft accompanies three F-16s during a recent Link 16 airborne interoperability test mission.

tempted with an attachment purporting to discuss engine modifications for the Pioneer unmanned aerial vehicle.

According to the FBI, the e-mail text contained an actual presentation that had embedded a malicious code known as "Poison Ivy."

The FBI soon traced the attack to Internet Protocol address 218.106.252.77—which turned out to belong to CNC Group-BJ, CNC Group Beijing Province Network.

While the FBI reported that this intrusion was not successful, experts still shook their heads at the rapid morphing of these offshore probes.

All of this is creating a level of frustration. As Cartwright characterized it, "The probing of our networks, day in, day out, has gotten to a point where it's so egregious it actually cries and demands that we take some kind of action."

The first priority for the Pentagon is to protect the sophisticated suite of warfighting capabilities provided by the Air Force. Much of that depends directly on cyberspace.

"When we talk about cyber defense, we're not just talking about trying to fit some kind of better virus protection on a computer," said Elder. "We're talking about protecting this ability to do these interdependent joint operations."

By this definition, cyberspace is at the heart of expeditionary and global operations. "You have to realize we can go to any part of the world and we can start doing operations immediately because we can stand up the communications, the command and control systems, situation awareness systems, that we need to be able to do that," he explained.

Elder predicted that American (and, specifically, Air Force) capabilities will step up, and in fact, they already have. An important distinction is that the cyber realm is not just the Internet—it is the use of the electromagnetic spectrum. In this realm, battles are waging constantly. "This is not something we will do next year or the year after that," said Elder. "This is stuff we're doing now."

He noted last fall that ongoing cyber missions include defeating remotely triggered IEDs in Iraq, conducting electronic warfare operations, halting terrorist use of the Global Positioning System and satellite communications, and preventing jamming.

"We have peer competitors right now in terms of dealing with computer network attacks through computer network exploitation," Elder said. He also let it be known that the US—and specifically, USAF—was committed to dominance in cyberspace. "I believe that we're going to be able to ratchet up our capability," he said, by harnessing the intellect and the technological might of the nation. "We're going to go way ahead."

The Air Force has recently taken bold action in this regard. In 2005, it elevated cyberspace to a level on par with air and space, when cyberspace was added to USAF's mission statement.

Rules of Engagement

Elder himself oversaw the service's cyberwar capabilities during the time when the mission was being reinforced by the creation of a new Cyber Command, the Air Force's 10th major command.

A larger policy problem rests with calibrating cyberspace operations to a scale of legitimate action. Over the last decade, rules of engagement for kinetic military operations—like targeting a terrorist safehouse in Iraq—have become highly refined.

Theater-level rules of engagement, collateral damage estimation, and positive identification all must be observed before any strike takes place. Rules such as these keep responses proportionate to the political-military goals of an operation. It's a framework familiar to the hundreds of thousands of US troops operating around the world today.

With cyberspace operations, that framework is not so prominent. German Chancellor Angela Merkel said recently that China "must respect a set of game rules."

But what are those rules, and what constitutes a breach? Connecting cy-

berspace activities to the geographical norms of international politics is no easy task.

For centuries, most international law has depended on the concept of sovereign borders and sovereign rights of states to gauge legitimacy. Everything from the Geneva Convention to the law of armed conflict is predicated on most offenses taking place between—or within—sovereign states. Rules of war also take for granted that events occur at a physical location tracing back to a nation-state.

It is easy to tell when a state is using tanks or artillery against its neighbors or its own populace. With cyber attacks, it's unclear when and whether the state is involved.

Tracing attacks back to the originating Internet service provider does yield a physical location. (Cyberspace is projected from a physical infrastructure of servers, routers, and computers that have definite and sovereign physical locations.) However, cyberspace exists in a domain deemed independent of the nation-state.

What's harder to establish is whether people conducting the attacks are hackers working on their own or at a government's behest. If a computer remotely "occupied" by hackers traces a physical location to China, that is not necessarily evidence that China is behind the scheme. The ambiguity works both ways, however. If China is behind an attack, it has built-in deniability.

A Fundemental Question

"In this environment it's just very difficult to tell the point of origin," said Cartwright. "The source of the activity can be widely separated. Al Qaeda can live on a US ISP and execute from someplace else. How do we handle that?"

It boils down to a fundamental question: When does an attack in cyberspace become a de jure attack? Even in the case of Estonia, protected by NATO's collective defense principle, the proper response to last spring's attack was open to debate.

"If a bank or an airport is hit by a missile, it is easy to say that is an act of war," said Madis Mikko, a spokesman for the Estonian defense ministry. "But if the same result is caused by a cyber attack, what do you call that?"

The problem applies not only to state vs. state cyber conflict but to the persistent intrusions into business networks. Cartwright noted that "most law is generated in property, and [cyberspace] doesn't tend to respect property in the same way."

Still undefined is the proper role for the US military. Inside the United States, legal precedent and direction limits what the military can do. According to Cartwright, "If it's inside the US, if we're to do anything about it, it's got to be on dot.mil" for the military to act. Most classified military networks are self-contained and rarely subject to the same barrage of attacks carried via the Internet.

"If it's outside that and they want the military to do anything about it, then its military support to civil authorities just like we would do with a hurricane or anything else," he explained.

In fact, it's the Department of Homeland Security that houses the key response teams for responding to Internet attack.

Already, however, Cartwright hinted at a greater freedom of action in the cyberspace commons. "Once you leave our shores, then the military authorities start to be present, and what we do is layer the defenses out as best we can to get the most warning, situation awareness that we can to protect our interests," he said.

Given the constant probing, investing in survivability is a big priority. The cyber balance of power is "the most dynamic world we've ever seen," said a senior STRATCOM official. Software security fixes may just last for hours.

Expect to see an impact on Air Force budgets as service leaders fund the new mission. "What we're trying to do in '08 and '09 is to accelerate the programs that are tied to survivability of the Air Force portion of the global information grid," Elder said.

The new Cyber Command will focus dedicated attention to the problem. Elder and others are working to lay the foundation for a cyberspace career path in the Air Force on a par with those for weapons systems and specialties. "We're looking to set up a professional cadre of cyber operators, and this would be enlisted and officer," Elder said.

Investing now in survivability should help keep down the costs of buying new technology. A prime system is the Combat Information Transport System Block 30. "This is a system that is reducing our exposure to the commercial Internet," said Elder. "It's providing us much greater situational awareness in terms of being able to track the traffic on our networks."

Serious money is going to the effort. "Some things we're trying to do with the CITS Block 30, for example, are in the range of half a billion dollars," Elder said.

Investment will fund software tools to track vulnerabilities "before the hackers find them," said Elder, and insulate them with database wrappers that create portals to block incursions. The Air Force is also investing in extensive database

Marine Corps Gen. James Cartwright (l) meets with USAF Lt. Gen. Robert Elder for a status brief on issues including the stand-up of Cyberspace Command.

Estonian police use tear gas and truncheons to disperse a crowd protesting the removal of a bronze statue of a Russian soldier from the center of the capital city. The clash resulted in a massive cyber attack on government and private Web sites.

AP photo

encryption—a proven technique. "It's just much more difficult for someone to fool with your system when the data's encrypted," Elder said.

Yet it may take an increased sense of strategic threat to force clarification of the cyberspace mission.

Currently, there are classic divides. The intelligence community uses cyberspace in its tradecraft. Yet there is growing demand for operators to be able to exploit the same turf.

Also yet to be determined is how much traction the Air Force is getting with its commitment to cyberspace.

Creating Effects

Many acknowledge the current US cyberspace strategy is "dysfunctional"—to use Cartwright's term from when he headed STRATCOM. But there's been only tepid enthusiasm for the Air Force's willingness to step up to the growing mission. Ultimately, the Air Force may be recognized as the chief force provider for cyber capabilities. Signs suggest it won't come without a period of debate.

That debate will center first on the logic of cyberspace as a domain. To Air Force planners, the domain aspects have become self-evident. Cyberspace operations include activity to maintain the freedom to attack and freedom from attack in that domain. In fact, counterdomain operations are being defined, too.

As Elder put it, "The better your cyber is, the [more] quickly you can do decision-making, [to] create effects." Degrading and slowing operations—especially to the point where "you can't operate anymore"—creates what Elder termed a "counterdomain effect."

Not all accept cyberspace as a clear-cut domain like air, space, or the sea, however. Cartwright, for one, pointed out that it all turns in part on whether cyberspace is to be treated as a truly separate and co-equal area of warfare. "That's the huge debate," he said. "Should this be a domain or not be a domain?"

Even as the pace of activity escalates, there's a sense of proceeding carefully. Part of the concern rests with a reluctance to lock in poor solutions.

Cartwright urged senior leaders to recognize how much there is to learn from the younger generation. "The Joint Staff is an old staff, demographically," he said. "So here we are, in charge of thinking our way through cyber without the 20-somethings."

He warned against putting in place a rigid doctrine for cyberspace that might end up squashing the creative thinking that has always been a hallmark of the domain.

"If we try to use our industrial-age Napoleonic decision structures, are we disadvantaging ourselves?" asked Cartwright. He saw "a lot of cultural issues that far outreach the technical issues and the organizational constructs. What I'm most concerned about is protecting the decision space and the opportunity space of the 20-somethings."

Then there is the issue of service roles and missions. Cartwright will watch to see how the services invested in cyberspace and follow the dollars as a way of monitoring their commitment. He said he would take particular notice if a service stopped investing somewhere to increase cash for cyberspace. "If service X says I'm giving up this class of toys, for cyber, it will be very telling about their risk equation," he said.

But he stopped well short of handing over the cyber mantle to the Air Force. "Where we are right now, each of the services has found value," Cartwright said. The Air Force is making investments and letting its money "speak about their risk equations. We've got enough time to let that play out." ■

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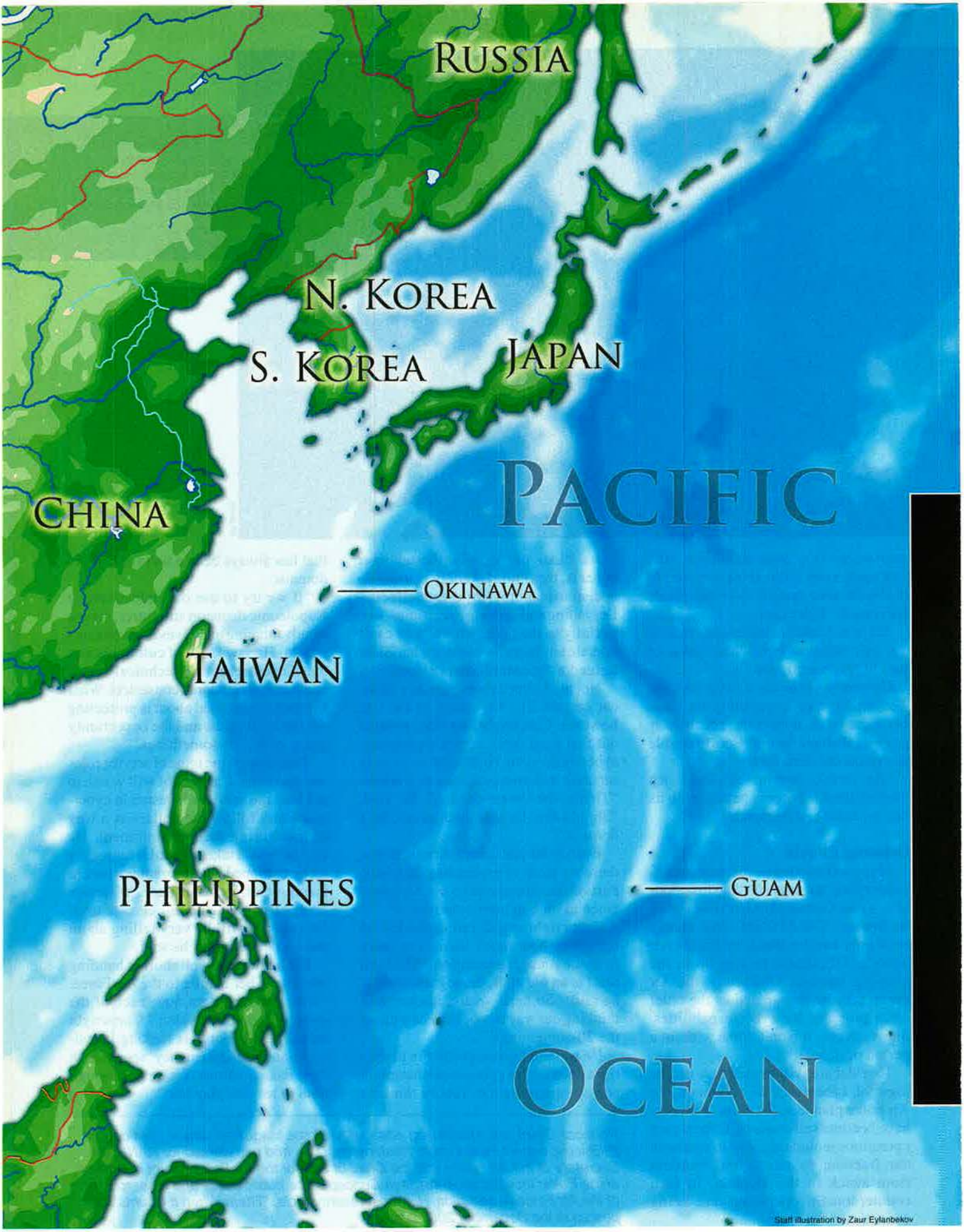
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Staff illustration by Zaur Eylanbekov

Guam, All Over Again

The island is the pivot of a sweeping realignment of US forces in the Pacific.

By Richard Halloran

Two days after Christmas 1972, the sky over Guam was black with B-52s returning from a massive raid on North Vietnam. One by one from the west came 78 of them, a minute or so apart, landing lights blazing, engines whining as they let down over the lagoon and then turned left to touch down at Andersen Air Force Base, from which they had launched 18 hours earlier.

Before, the BUFFs had been bombing South Vietnam in milk runs, usually in cells of three that laid down carpets of devastation 3,000 feet wide and 9,000 feet long. They rarely ran into opposition and their main enemy was boredom.

When the B-52s shifted to targets in North Vietnam for Operation Linebacker II, they used the same formations but flew into perhaps the thickest air defense assembled since World War II. Unlike in World War II, however, these air defenses were composed mostly of surface-to-air missiles. The US suffered heavy losses of crews and bombers.

During a stand-down on Christmas Day, Strategic Air Command and 8th Air Force decided to return to a principle of war: mass. A raid of 120 B-52s, 78 from Andersen and 42 from U Tapao AB, Thailand, was mounted during the night of Dec. 26. They overwhelmed North Vietnam's defenses by striking 10 targets, with all bombing runs completed within 15 minutes.

It was the largest launch of B-52s in history. Having accomplished their mission with only two bombers lost—both from U Tapao—they returned to Andersen.

Today, Guam is being revived as a pivot point in a sweeping realignment of US forces in the Pacific and Asia. The island will be a centerpiece in the

USAF photo by SrA. Brian Kimball

A B-2 Spirit deployed to Andersen AFB, Guam, refuels over the Pacific Ocean.

A B-52D leaves a heavy smoke trail behind as it takes off for a mission over North Vietnam during Operation Linebacker in 1972. Another one waits its turn.

American response to 21st century national security threats—notably a potential adversary in China.

Until now, the deployment of air, naval, and ground forces to the island reflected decisions made from World War II through the Cold War. Command lines, in particular, had become encrusted and needed to be streamlined. So, too, did the deployment of forces. Simply put, after Vietnam, Andersen and Guam fell into a lull that some called a "sleepy hollow."

Three times in subsequent years, however, the air base provided a haven. First it was for Vietnamese refugees, then for Americans fleeing from the Philippines after a volcanic eruption, and finally for Kurds from northern Iraq in 1996. Over those years, the island absorbed numerous typhoons and an earthquake.

Conceptual backing for Guam's strategic rebirth has come from several military thinkers. Retired Army Gen. Barry R. McCaffrey recently wrote that the looming challenge to the US in the Pacific and Asia is "the legitimate and certain emergence of the People's Republic of China [PRC] as a global economic and political power."

McCaffrey said that China was acquiring "the military muscle to challenge and neutralize the deterrence capacity of the US Navy and Air Force in the broad reaches of the Pacific maritime frontier." In addition, he wrote, "by 2020 we will face resurgent and expanding Russian Federation military power projection capacity as well as the likely emergence of other major maritime and air nuclear powers."

A Frontline Base

Guam has thus once again been thrust into the front lines of the US security posture.

Missions from the island are evolving into four: Deterrence, warfighting, supporting anti-terrorist and anti-piracy operations, and humanitarian assistance.

Deterrence is aimed at China, with its swiftly expanding military power; at North Korea, which has long threatened to assault South Korea; and at Russia, which has been reasserting itself with unknown consequences.

If deterrence fails and hostilities break out, Guam will become a frontline base. "We will fight from here," said Air Force Col. Joel S. Westa, vice commander of the 36th Wing at Andersen. The island's benefits are clear: It is sovereign US territory, it is central to numerous possible flash points, it provides strategic depth, and it has space available for a military buildup.

Not so incidentally, Guam is also situated along what the Chinese call the "second island chain" to which the communist military intends to project air and sea power in the foreseeable future. That island chain is anchored in central Japan, passes through Guam, and extends into the South Pacific. (The first island chain passes from southern Japan through Taiwan into the South China Sea.)

A buildup of forces from all four military services on Guam over the next 10 years has the potential to cause a clash of cultures on the crowded island, however.

"The services have different cultures and approaches to doing business," said Air Force Lt. Gen. Daniel P. Leaf, the deputy commander of US Pacific Command, who has been charged with overseeing the Guam buildup. "Those differences can cause a clash that is counterproductive, but we're committed

USN photo by Mass Comm. Spec. Seaman Stephen Rowe

USS* Kitty Hawk *arrives in Guam in June 2007.

to building a compatible construct for co-located units."

Accommodating this expansion of forces will require extensive construction, both on the existing bases and the civilian side of Guam. A master plan is under discussion within the military community there and between the military staff and the government of Guam. It is due to be completed in the spring of 2008 and to cover a period of 10 years.

A critical element will be protection from typhoons as Guam sits in a typhoon alley. Air Force officers said they would need 48 small, hardened hangars to house fighters against the weather. A large hangar for the Global Hawks and other large aircraft is under construction at a cost of $40 million. It is designed to withstand typhoon winds up to 170 mph and will be earthquake resistant. Bombers and tankers will not have new hangars but will necessarily be flushed to Kadena Air Base in Japan or to Hickam Air Force Base in Honolulu before a typhoon strikes.

Officers said initially they planned hangars for deploying B-2s because their stealth characteristic required that they be housed when not flying. That requirement has gone away because new technology made that protection unnecessary.

Some of Andersen's runways, known for the dip in the middle that makes a bomber almost disappear from sight before it climbs out and takes off, have been reinforced and others will be improved later.

The runways on the auxiliary Northwest Field, adjacent to the main base, still need to be resurfaced. PACOM has directed that Northwest Field be preserved with nothing built on it.

Facilities to support the Navy's incoming fast-attack and cruise missile submarines are mostly in place, but the Apra Harbor must be dredged and maintenance shops built to service nuclear-powered aircraft carriers.

It is the Marines Corps, thinking of 50 to 70 years on Guam, that will need to do the most work to accommodate a coming influx of 17,000 people. The bill for buildings, hangars, embarkation points, repair shops, housing, and moving costs is estimated to come to $10 billion, of which the Japanese government has pledged to pay 60 percent.

Marine Corps survey teams have identified several sites they could use. An area known as Andersen South has an old and not well-maintained housing area that could be used for training in house-to-house fighting. Two sites in the waist of the island could be used for maneuvers. Similarly, an old Navy ammunition storage area in the south might be used for small-arms training.

USAF photo by MSgt. Val Gempis

Weapons specialists (l-r) A1C Tommy Day, SrA. Phillip Ruiz, and TSgt. Dwayne Bolles prepare to load a BDU-56 bomb on a B-2 at Andersen.

The Air Force already maintains what it calls a "persistent presence" of bombers at Andersen. Normally, a squadron of B-52s, B-1s, or B-2s is on the island on a four-month rotation. That presence may increase if the Navy's aircraft carriers are away in the Indian Ocean or elsewhere, with bombers being called on to backfill.

Four stealthy B-2 bombers from the 509th Bomb Wing at Whiteman AFB, Mo., deployed to Andersen in October, for example, to replace six B-52s from the 2nd Bomb Wing at Barksdale AFB, La.

Fighters will also often be at Andersen, again on four-month rotations, but not necessarily with the continual presence shown by the bombers. Eighteen F-16 fighters from the 27th Fighter Wing, Cannon AFB, N.M., were at Andersen in mid-2007, but were not immediately replaced.

In later years, the fighters deployed to Andersen will include the new F-22 Raptor. Three of the Air Force's seven F-22 squadrons are to be assigned to Pacific Air Forces, with two to be based in Alaska and one in Hawaii. One Raptor squadron has already done a familiarization tour on Guam and at Kadena.

The Raptor performs both air-to-air and air-to-ground missions and is designed to penetrate thick air defenses such as that the Chinese are constructing.

Further, the Air Force will station three Global Hawk unmanned surveillance aircraft at Andersen, with the first due to arrive in mid-2009; a fourth is possible later.

These high-flying, long-endurance drones will give commanders near-real-time intelligence. During a typical Global Hawk mission, the aircraft can fly more than 1,300 miles at 65,000 feet and remain on station for 24 hours. Shanghai, on the coast of China, is 1,900 miles from Guam, while Seoul, the South Korean capital, is 2,000 miles distant.

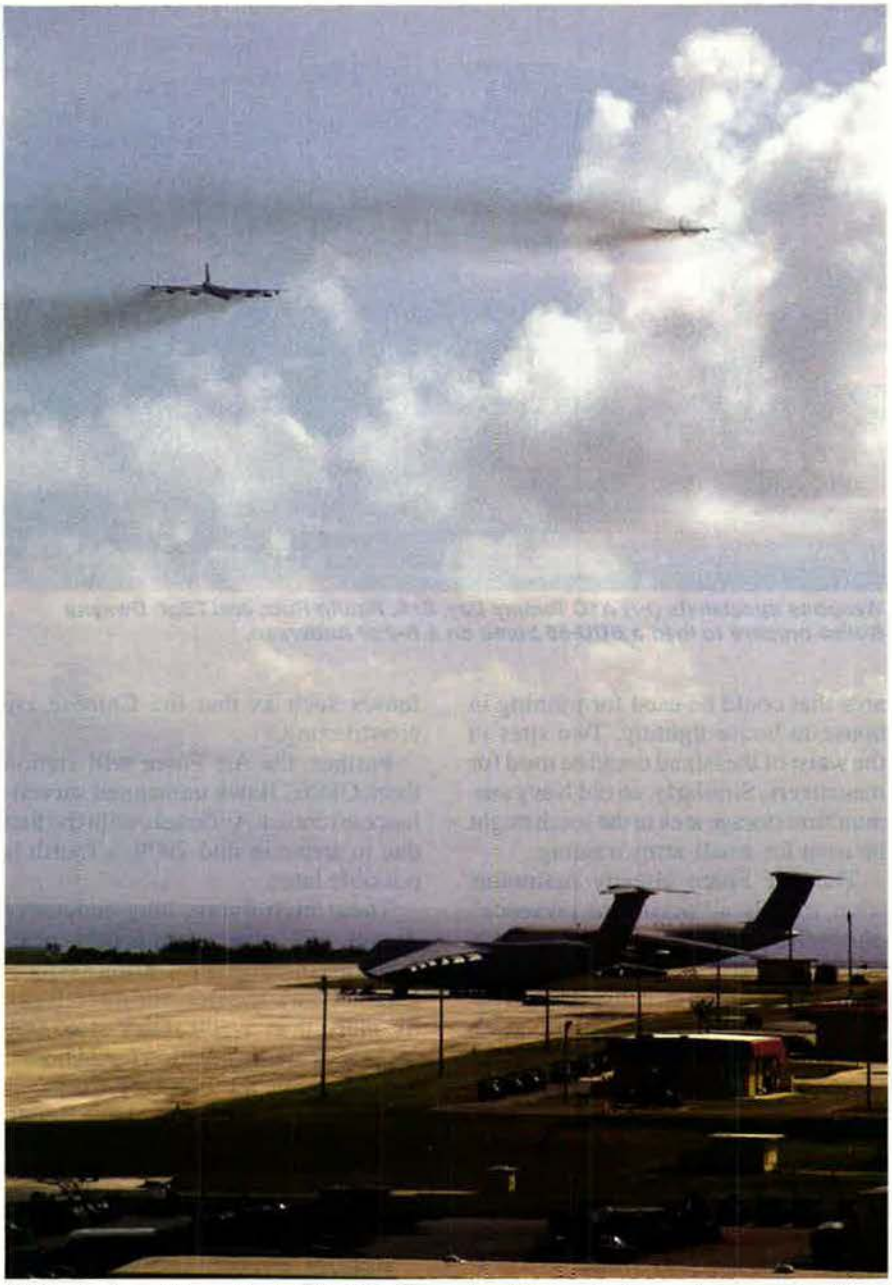
A Tanker Presence

Besides its conventional combat missions, PACOM officials said Global Hawk could target terrorist training camps in Southeast Asia or pirates in the South China Sea. From Guam to Singapore is 2,900 miles. The intelligence UAVs could also support humanitarian missions such as the disaster relief operation mounted after the destructive tsunami in the Indian Ocean in 2004.

Tankers have also begun rotations to Andersen. Earlier this year, an expeditionary squadron from MacDill Air Force Base in Tampa, Fla., and Grand Forks AFB, N.D., did a 120-day rotation on Guam. Air National Guard tankers will also come.

Bomber and fighter squadrons will bring tankers with them, but several will need to be stationed at Andersen to support permanent missions. "We are

DOD photo



B-52s deployed from Barksdale AFB, La., take off from Andersen in support of the 7th Air Expeditionary Wing's mission.

tanker dependent," says Lt. Gen. Loyd S. Utterback, who commands 13th Air Force at Hickam. "We need [tankers] to get there and to stay there," he said, noting that tanker recapitalization is the No. 1 modernization priority for the Air Force.

The Navy's role in the military expansion on Guam centers on attack submarines already deployed to the island; on a way station for two newly converted submarines armed with cruise missiles; and on a new berth for an aircraft carrier. This carrier berth will mean a flattop need not return to Hawaii or the West Coast for routine maintenance or resupply.

The three fast-attack submarines (fast-attack being one word in submarine lingo) are supported by the tender *Frank Cable*. The advantage of having these boats based in Guam is that it helps to overcome "the tyranny of distance." In a crisis, a submarine can get to the Taiwan Strait, for instance, in 48 hours as opposed to the six days the trip would take from Pearl Harbor—or the more than eight days from San Diego.

The cruise missile carriers, based in Bangor, Wash., have been converted from ballistic missile submarines, or boomers, and can each be armed with up to 154 cruise missiles. Those missiles can be fired singly or in salvo and at ships or targets on land. The two being assigned to the Pacific Fleet are *Michigan* and *Ohio*.

Each will have a Blue and a Gold crew, like the boomers, so they can stay on patrol for up to 400 days. In the middle of that deployment, they will surface and pull into Guam for 21 days to swap crews, undertake maintenance, and take on fresh supplies. The submarines can also take aboard special operations forces, land them to infiltrate a target area, then return later to pick them up.

For many months, naval officers, political leaders, and a variety of lobbyists for commercial interests argued over where a sixth Pacific Fleet aircraft carrier should be based. Guamanians wanted the carrier there, some in Hawaii wanted it at Pearl Harbor, and others in California sought to have it based on the West Coast.

Permanent Assignments

San Diego won out, largely because the facilities to support a nuclear-powered carrier were in place already. Thus, when *Carl Vinson* comes out of overhaul in 2010, it will be based in San Diego.

The 97,000 ton carrier, its 85 aircraft, and crew of 5,700, however, will spend a lot of time in the western Pacific, the South China Sea, and the Indian Ocean. By building a berth at Guam, the Navy will be able to keep *Carl Vinson* and other nuclear-powered carriers based on the West Coast on station much longer than would otherwise be possible. A carrier can also be serviced in Japan, where the nuclear-powered carrier *George Washington* will replace the conventionally powered *Kitty Hawk* in 2008.

Other moves to Guam are permanent assignments.

The Army will have the smallest and as yet undetermined element in the new Guam. It is slated to post a ballistic missile defense unit on the island, but, Pacific Command officers said, just what that will be hasn't been decided. Whatever comes to Guam will be interlocked with Army missile defense units in Japan and naval vessels at sea.

Army Special Forces may use Guam and the Marianas for training, particularly for small units heading into the southern Philippines and the islands around the Sulu Sea. The Special Forces and other unconventional war-

DOD photo by SSgt. D. Myles Cullen

Chinese armor forces listen to Marine Corps Gen. Peter Pace, then Chairman of the Joint Chiefs of Staff, after a demonstration at Shenyang training base in China.

riors from other services have been assisting Philippine forces in combating Islamic terrorists affiliated with al Qaeda where they are trained and then infiltrated into Malaysia and Indonesia. The Green Berets may invite Asian counterparts to Guam to train.

The largest personnel change involves the Marine Corps, which is scheduled to move almost half of the III Marine Expeditionary Force, including its headquarters, to Guam from Okinawa. Some 8,000 marines and 9,000 civilian employees and Marine Corps dependents will leave Okinawa for Guam by 2015. A heavy helicopter squadron will move at the same time from Iwakuni, an air station near Hiroshima on Japan's main island of Honshu.

The impetus for the move initially came from the Japanese government, which wanted to ease the friction between Americans and Japanese on Okinawa. It was resisted by the Marine Corps, which argued that this political decision was militarily unsound. Over time, however, Marine Corps leaders found that training sites in Guam and its neighboring islands were more than adequate and their resistance lessened.

Moreover, the Marine Corps came to realize that they would have freedom of action on Guam because the political restrictions under which they operated in Japan would evaporate.

Guam is US territory, as are the other islands in the Northern Marianas, and thus the marines can come and go without notifying the Japanese government, which might or might not be receptive to the policies of whatever Administration is in office in Washington then. Indeed, after 2015, the US could even pick up marines on Okinawa, bring them to Guam, and then dispatch them wherever in the world they have been ordered, without consulting Japan.

In the neighboring Commonwealth of the Northern Marianas north of Guam, the Marine Corps foresees joint use of Rota and Saipan for aviation landing practice, and Farallon de Medinilla, Anatahan, and Sarigan for both live and inert ordnance targets. Tinian and Pagan would be sites for amphibious assaults, maneuvers, and artillery live fire training.

Getting agreements with the government of Guam, which has been mostly supportive of the military expansion because it will bring in jobs and a boost to the economy, will be more complicated. The Marine Corps is working on what it calls a "contiguous base concept" in which family housing, work places, and individual training sites are within easy reach of one another.

At the same time, the military staff say they want to see military people absorbed into the culture of Guam. "We don't want a fence between us," says a marine official. "We want to be neighbors."

The arrival of roughly 17,000 people will put pressure on medical facilities, schools, child care, and other social services. In particular, the infrastructure needs a thorough overhaul, as the electrical grid, solid and liquid waste disposal, and the transportation system are not in good shape.

An initial estimate says it will take $10.3 billion to refurbish the infrastructure.

All this must be accomplished, Marine Corps officers said, while they mitigate the effects on the environment and find ways to prevent friction between their forces and the civilian community in Guam when everyone is living and working in close order on a tight little island. ■

USAF photo by SMSgt. Mahmoud Rasouliyan

Two F-16 fighters go wheels-up for aerial intercept training at Andersen.

Richard Halloran, formerly with the New York Times *as a foreign correspondent in Asia and as a military correspondent in Washington, D.C., is a freelance writer based in Honolulu. His most recent article, "The New Line in the Pacific," appeared in the December 2007 issue.*

Beyond "Back to Basics"

At AFA's Los Angeles Space Symposium, leaders say the Air Force has set a strong new course in space.

By John A. Tirpak, Executive Editor

Not long ago, the US military space program was sorely afflicted with multiple and severe problems—including, but not limited to, high costs, poor performance, and late delivery. The Air Force responded with a "back to basics" push that aimed to re-establish basic quality and reliability.

Today, all signs point to success. The space effort more and more seems to be strong and squarely on track.

The Air Force has put together a long string of undeniable technical and operational successes. These and other factors have convinced senior space leaders that USAF finally has a grip on its projects and can now think more broadly about the role military space will play in the future.

Such were the conclusions of US space leaders who spoke at the Air Force Association's National Symposium on Space, in Los Angeles last November. These included USAF Gen. Kevin P. Chilton, commander of United States Strategic Command; Gen. C.

Illustration by Erik Simonsen

The last satellite of the Defense Support Program, shown in this artist's rendering, was launched into orbit in November.

Robert Kehler, head of Air Force Space Command; and Lt. Gen. Michael A. Hamel, commander of Space and Missile Systems Center.

The leaders told attendees that, in the future, the US likely will grow ever more dependent on military and commercial space activities, even as space capabilities face threats more dangerous than ever before.

The key to the enterprise will be a dramatically enhanced ability to know what's happening in space so as to better detect, recognize, and respond to attacks when they happen—that is, what's known as space situational awareness.

Moreover, they noted, the nation must more thoroughly integrate military space activities with all other components of defense. In this way, space will cease to be merely an enabler of other military endeavors. The space force sometimes has to be a supported, rather than supporting, entity.

Sega's Guidance

Kehler, USAF's top space officer, noted that the Air Force had just successfully launched yet another Defense Support Program satellite. The launch was significant, he said, because it constituted the service's 54th consecutive successful launch. The satellite was thought to be checking out well in space.

He praised a team of Air Force personnel and space industry firms that has compiled the impressive launch record, though he warned that the team still "needs to get stronger" because of the lingering shadow of "a time period in our not too distant past where maybe the team didn't operate as strongly together as it needs to."

The architect of the back-to-basics approach was former Undersecretary of the Air Force Ronald M. Sega. Under his guidance, service managers streamlined programs, stripped away extraneous requirements, focused on discharging key missions, and worked to rebuild Air Force systems engineering expertise that had been allowed to atrophy.

The Delta launch was significant, too, because it straddled two eras. It was the first operational use of the Delta IV heavy launcher, which will be a workhorse in the future. It also marked the last launch to orbit of a DSP satellite, which has been a staple of the US space constellation for nearly four decades. The DSP will be supplanted in coming years by the Space Based Infrared System satellite type, which is not yet ready for service. Both infrared systems provide early warning of missile launches.

Kehler told reporters afterward that the SBIRS sensor has been tested in orbit on another satellite for more than a year, and its results have been "spectacular." He called the program an "absolutely critical" requirement and said it will prove to have been worth the wait once operational.

Although great progress has been made in "synchronizing" space with nearly all aspects of USAF and defensewide operations, the push is on to thoroughly integrate it into those functions, Kehler said. He expects that USAF space systems will become ever more technically capable, but without being truly integrated into all other military endeavors, it will never reach its full potential.

"If we continue on the path we are on, we will get improved capabilities," Kehler said, but space will continue to be "stovepiped" into other functions. By truly integrating space with air, their sum will not "equal two. ... Air plus space equals 20, or ... 100, or ... 10,000." Adding cyber operations "does not equal three. It's more like 100,000. ... This is called 'compounding.'"

The integration will come not by simply putting a space pipe into every aspect of operations, but by building network architectures where everything can talk to everything else.

"You've got to have data standards," Kehler said. "Everybody has to be operating on the same sheet of music." Data will have to be shared not just by people, but by platforms that can synthesize the data and produce a value-added product.

Moreover, integration must come through unified doctrine "and shared tactics, techniques, and procedures," Kehler observed. "I think we need to get at this with more intensity," especially in the area of intelligence-surveillance-reconnaissance, he said.

The first steps in integration are well under way. Kehler noted that an "air operations center"-like facility at Vandenberg AFB, Calif.—the Joint Space Operations Center—has been stood up and serves as the global clearinghouse for "space effects." There are also space experts embedded with the senior staff at all the other AOCs around the world. These directors of space forces will be charged with making regional commanders "aware of what space can do for [them]," especially when combined with cyber operations.

What it can do is increase the ve-

USAF photo by Michael Tolzmann

Four satellite communication dishes, protected from the elements by "golf ball" coverings, glow in the darkness at Thule AB, Greenland.

locity of achieving effects. Aircraft, Kehler said, can achieve effects in "minutes to days. Space can deliver effects in seconds to minutes. Cyber can deliver effects in milliseconds."

Needed: A Doctrine

He also noted that space is now a substantial part of the curriculum at the US Air Force Warfare Center at Nellis AFB, Nev., which until very recently was air-centric.

Kehler said there is a model for what must happen in the Air Force-Army effort to develop the AirLand doctrine of the 1970s. What is needed now is an "air, space, and cyber doctrine" that will seamlessly blend operations in all three domains.

In the immediate future, Kehler said it will be his command's job to fine-tune the capabilities they provide, and speed up the process at which it can take an idea from the drawing board to launch.

"We deliver great space capabilities, but in my humble opinion, it's taking us too long," he said. "We need to address that."

For the future, Kehler pointed to operationally responsive space efforts—the ability to launch payloads on short notice—as a major "benchmark capability." The concept of a no-notice launch system will go hand in hand with small satellites, he said.

"We launched TacSat [in 2006]. ... We've learned a lot" from the program, he said, that will enable "plug and play" concepts and "a strategic ability to put smaller payloads on orbit quickly, at the request of the joint forces commander." On the continuum of "crawl-walk-run" with TacSats, Kehler said USAF plans to "transition from crawl to walk around 2010." In the meantime,

USAF photo

Gen. C. Robert Kehler, head of Air Force Space Command, is pushing for further integration of space into all aspects of warfare. His No. 1 priority is space situational awareness.

vehicles that are lifted as test articles will be able to offer some long-lasting sensor capabilities.

The future of ORS was picked up by Hamel of the Air Force's Space and Missile Systems Center. Hamel, in a press briefing, said that Space Command is now looking to begin a formal project to develop a two-stage-to-orbit capability in the Fiscal 2010 budget. He described the system now envisaged as one that would have a reusable first stage and an expendable upper stage. This approach would not only offer a quicker way to get satellites launched but save money by not having to discard the whole launch vehicle on every mission.

However, USAF is working hard to make sure that ORS efforts produce "operational capabilities, not just experiments," Hamel said.

Part of making ORS work will be to standardize and "routinize" launch vehicles, satellite buses, and ground control facilities. An assembly-line approach to all elements of space will bring costs down and increase reliability, he said.

The pursuit of quick, cheap access to space has been "the quest for the Holy Grail," Hamel said. Space Command believes, though, that all the pieces necessary to make ORS work exist; what must be done is the integration and system engineering to bring the varied mature technologies together into a "hybrid" system of expendable and reusable elements.

USAF photo

SSgt. George Dollenger (left) and SSgt. Juan Orozco of the 332nd Expeditionary Civil Engineering Squadron set up a GPS base station antenna.

Space Command is working with Air Force Research Laboratory on "structures, propulsion, guidance and control, advanced vehicle health monitoring," all of which are mature enough to make the concept a reality, Hamel said. He expects it will take about six years to go from program start to a flyable vehicle.

One Chance to Succeed

"The technologies are in hand," he said, noting that many were demonstrated by the X-15 in the 1960s.

Hamel said the "back to basics" approach has been "inserted" into long-running programs such as the Wideband Global SATCOM, and was the foundation for future systems like the Global Positioning System III and the Transformational Satellite Communications System, or TSAT program. Part of the concept involves driving risk down as much as possible before proceeding to the next stage of a project, because "you don't get two chances to do it right."

Kehler said that the cost of fixing the SBIRS program is "considerably down" from earlier estimates putting the cost in the billions, but he declined to be more specific. He said the problem is principally one of software. The issues will be resolved "deliberately," he said, so that nothing is overlooked in a rush to get hardware into orbit. The DSP launch bought time to make the system right, Kehler said, but it's not clear how much

"We Can't Back Off Readiness"

For the time being, America's nuclear deterrent is sufficient, even given a reinvigorated Russian bomber force, US STRATCOM commander Gen. Kevin P. Chilton said.

In a meeting with reporters at AFA's space symposium in Los Angeles, Chilton said, "I'm comfortable with where we are" in terms of strategic forces to deter other nuclear powers.

He's not overly concerned about Russia's resumption of long-range bomber missions or its pursuit of new intercontinental ballistic missiles, because the US deterrent forces maintain a strong posture of readiness.

"I'm not so much disturbed by ripples in the domain because I think we have to be ready all the time," Chilton said. "I don't think we can afford to back off on readiness."

He is satisfied that a program now under way to upgrade the Minuteman III with new guidance and many other systems will be sufficient for the life of the system.

The improvements will carry the Minuteman III through 2018 to 2020, but after that, it may be time to field a Minuteman IV, Chilton said. The reduction in the ICBM force from 500 to 450 missiles "serendipitously" made 50 missiles available for assurance testing, so that the force will remain thoroughly credible for its remaining life. They will receive the same upgrades as the rest of the inventory, so that tests will be fully representative of the ICBM force.

Chilton said that despite the recent retirement of more than 400 Advanced Cruise Missiles, there's still a mission for the B-52.

"As long as we have one" nuclear cruise missile, it will be necessary to maintain B-52s and man them with trained crews, Chilton said. He would be comfortable with having the B-52s modified for the standoff jamming mission, because he routinely designates some B-52s to conventional missions such as close air support in Iraq or Afghanistan. His only requirement is that "a certain percentage" of the fleet always be available for the nuclear mission, or are "able to be recalled, ... reconfigured, and manned up to support the timelines that are required" for a nuclear call.

Boeing photo by Carleton Baillie

A Delta IV heavy launch vehicle lifts off on a demonstration in December 2004 at Cape Canaveral AFS, Fla. Expendable launch vehicles are working well, but USAF is marching toward reusable, "responsive" craft in the near future.

"Predicting the longevity of things on orbit is an imprecise science," he told reporters. Should the DSP fail before SBIRS is ready, the US would be seriously hindered in its ability to detect global ballistic missile launches.

As for space situational awareness, improvements "can be made largely with what we're doing on the ground," through software and enhanced sensor systems, Kehler said.

Chilton—the Air Force officer who runs US Strategic Command, Offutt AFB, Neb., and who came to his job after a tour as head of Air Force Space Command—said "access and situational awareness" are the underpinnings of all future efforts in space.

Access has been addressed with the Evolved Expendable Launch Vehicle program and the ORS effort, Chilton said, while SSA is an urgent requirement, especially given recent bald-faced efforts to threaten US space capabilities. Last year's test of an anti-satellite system by China and widespread efforts to develop GPS jamming capabilities are but two examples, Chilton noted.

The Chinese ASAT test made it clear "even to ... those who haven't been paying attention ... that space is not a sanctuary for operations," Chilton said.

"You can bet we will be targeted," he warned.

Such is the US dependency on space capabilities—for targeting, communications, navigation, weather, ISR, and other functions—that US forces would be hard put to fight without them, according to Chilton. That means the space domain—like air, land, and sea—is one that "we must be prepared to defend."

Thinking Holistically

In a meeting with reporters, Chilton said defense of satellites does not necessarily demand "a space solution."

"Some people's immediate reaction is that it's all about defending the satellite," he said, but every link in the chain connecting forces to the satellite must be considered as well. Dish antennas, ground control stations, relays, etc., must all be defended, because an effective attack on any one of them effectively renders the satellite silent.

"We need to think holistically" about the whole range of vulnerabilities, Chilton said. He argued that one way to discourage attacks on US satellites would be to bolster ISR capabilities in other domains—such as land, sea, air, and cyber. If the relative value of destroying a satellite goes down, that could dissuade an enemy from attacking it, or even from creating the capability to attack it.

"You could look a potential adversary in the eye and say, 'You may have the capability to take out my space platform, but it really doesn't matter. I'm still going to win.'" Chilton said such an approach might be expensive, but should be considered before considering a space-only approach to defense.

Because the nation is so militarily and commercially dependent on space, Chilton asserted that the time has come to stop thinking about it as simply "an enabler."

"I think we need to start thinking about how the space domain needs to be supported by the land, sea, and air components as we look to the future," Chilton told attendees.

"This is a domain we operate in daily. ... It's going to be attacked. We're going to have to defend it, and we're going to want to deny adversaries capability in this domain."

The same discussion will need to take place about cyber, Chilton said, as it is a domain in which America has a heavy stake and that must be defended.

Chilton said there is a key piece missing in the overall military space picture. He said the US has national policies stating its position with regard to space—that nations must have the right to use space for peaceful purposes, "the right to operate freely" in space and to defend their assets there. However, "what we don't have ... today is a comprehensive strategy on how we're going to follow through on those policies, should we ever reach a time of conflict." He said that STRATCOM and AFSPC are working together to craft just such a strategy.

What must be answered, Chilton noted, are questions such as "what do you want to use space for? ... After that, what's it going to take to accomplish that?" The US will also need to answer whether it wants to enter into space alliances with other countries, or try to reserve some space capabilities exclusively for its own use.

"Then you put down on paper the timelines, milestones, and costs. And to me, that's a strategy." ■

What senior leaders say about *AIR FORCE* Magazine. . .

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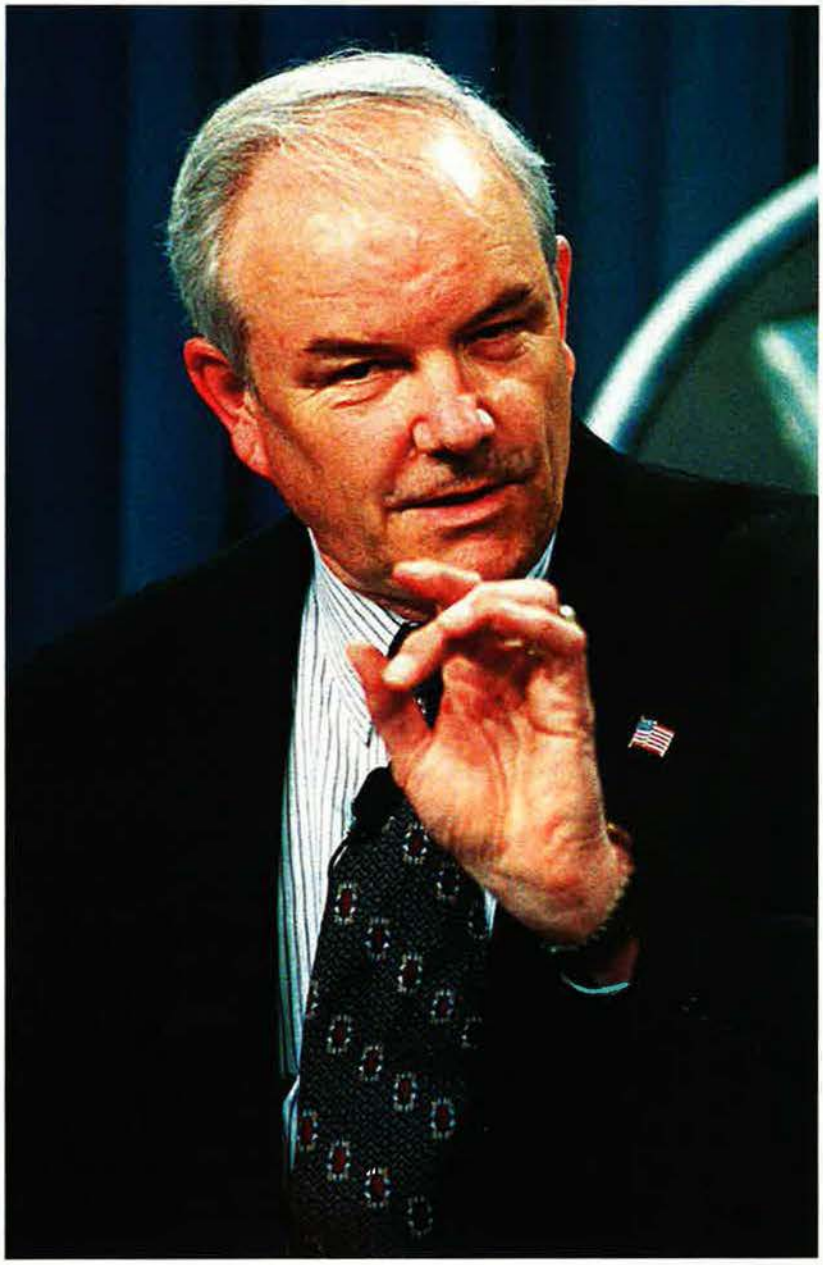
Michael W. Wynne,
Secretary of the Air Force



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Scarce Flying Hours

USAF photo by A1C Chad Strohmeyer

Desperate to save money, USAF will cut 10 percent from its flying hours program this year.

By Marc V. Schanz, Associate Editor

Faced with the double blow of rising costs and stagnant funding, today's Air Force is looking for savings everywhere, and that includes some areas that traditionally have been off-limits to budget-cutters.

The best example is the Air Force flying hour budget—the funding used to pay for live flight training. This particular pot of money had long been held sacrosanct and nearly untouchable. However, even flying hours are being scaled back.

In 2005, the Pentagon told USAF it must use service funds, rather than separate DOD allocations, to pay for Operation Noble Eagle, the post 9/11 domestic combat air patrols over US cities. Noble Eagle had been financed through wartime supplementals.

Air Mobility Command began slashing its training flights that same year. Likewise, Pacific Air Forces cut flight training by about 9,000 hours in 2005, shaving its bill by $50 million, about nine percent of its flying budget. Others followed suit.

Now, the Fiscal 2008 budget is setting a risky precedent. The spending blueprint calls for cutting overall flying hours by 10 percent across the board. According to Air Combat Command officials, decreased flying hours are forecasted for all missions except testing and intelligence gathering. No platform in the combat fleet is getting an increase in hours.

Air Force leadership is far from comfortable with the situation and is squeezing dollars where they can find them for flying hours. As of December, the Air Staff was pushing to bring back up the flight hours for the 2009 fiscal year, indicating that funds would be shifted out of some military construction projects. However, the flying hour program for 2010 and beyond remains in question.

Air Force leaders aren't happy about all of this.

"We have continued to dumb down

the standard until we've reached a point where we are not producing the sorties," Gen. T. Michael Moseley, USAF Chief of Staff, told a House panel this year. "Nor are we producing the total combat preparation that I'm comfortable with."

Service leaders are uneasy about the effect of these cuts. Less time in the air has been a contributor to the decline of readiness levels in recent years, they note.

As flight hours decline, the combat air forces are increasingly relying for their aircrew training on high-fidelity simulators. Modern simulators are a powerful training tool, said Col. Eric H. Best, head of the flight operations division at Air Combat Command, Langley AFB, Va. However, he added, they are no cure-all.

Lt. Gen. Raymond E. Johns Jr., the Air Force's deputy chief of staff for strategic plans and programs, reports that recent flying hour cuts have degraded the ability of some aircrews to drop weapons, and the service needs to find a way to get the hours back up in the budgets for Fiscal 2009 and 2010.

Moreover, the simulator can never fully reproduce the so-called "wow factor" produced by the launch of a live weapon. In combat, Johns noted, pilots "don't have time for a 'wow factor,'" because they are too busy flying and fighting.

Another problem: High-fidelity simulators are not available in large numbers. "We are trying to take legacy systems and turn them into high-fidelity systems," said Best. "It doesn't do us any good to send a guy into a simulator that's not configured the same as what's on the flight line."

Today, only a few platforms have hardware and software deemed good enough to substitute for actual training sorties. As of October, ACC could provide this level of simulation to only the pilots of its E-3 AWACS, F-15 fighter, and Block 50 F-16 fighter.

Still, those few simulators provide a great deal of capability. Currently, 25 percent of AWACS crew hours are being "flown" in simulators. F-15 pilots can accumulate as much as 20 percent of their required training sorties in simulators.

Hi-Tech Simulators

The capability of some modern simulators makes possible the execution of even highly challenging training scenarios. "I can do things in a simulated environment that I've never done in almost 4,000 hours in an F-16," Best said.

Still, there are limits. "I can't simulate what it's like to take off when the weather is near zero on a mission," said Best. "I can't simulate when you start hearing weird noises and looking at gauges doing strange things." For those situations, nothing can match the actual flight experience.

To help map out its yearly flight regimen, ACC produces a single Air Force flying model that takes into account aircrew experience level, type of aircraft, and many other factors, and then spits out the number of yearly flying hours needed for a given platform.

In 2007, Air Combat Command aircraft flew 327,794 hours of all types. The majority of the flying hours came out of the command's budget, but about 60,000 hours were flown under the category of "contingency flights"—meaning operations in Iraq or Afghanistan.

A portion of the "contingency" flying hours come out of the ACC training budget, with the remainder funded by supplementals. In 2007, only 12,000 of the Air Force's 60,000 contingency flying hours were funded by war supplementals.

Future budgets remain tight. Starting in 2008, the service has 261,348 flight hours on the books for the combat fleet. Going forward through 2013, the budget will fluctuate but not by much - with an average of 260,000 hours a year. In December, however, Air Staff officials indicated they would be rolling back cuts to the FY 2009 flying hour program but gave no specifics on recapturing flight hours in the out years.

Overseas rotations take a toll on overall readiness. When a squadron is slated for a predeployment training cycle, pilots perform their buildup to get ready for the specific missions they are expected to perform when they deploy. Deployment spin-up training is "just a subset of capabilities," Best said—preparation for what the aircrews will need over Iraq or Afghanistan.

Best, a former operations group commander at the 8th Fighter Wing, Kunsan AB, South Korea, noted that a Korean deployment requires different mission sets and capabilities than what are currently needed over Southwest Asia, where there is no air-

USAF photo by SSgt. Doug Nicodemus

Opposite, an A-10 Thunderbolt fires flares in a combat search and rescue training exercise. Here, SrA. Adam Mirabal gives signals to the pilot of a B-52 as part of Operation Enduring Freedom.

USAF photo by Lisa Terry McKeown

First Lt. Joden Werlin, 75th Fighter Squadron, Langley AFB, Va., focuses on the controls of an A-10 simulator as he prepares to participate in a Virtual Red Flag exercise.

to-air threat or integrated air defense system to defeat.

In the four months before a unit leaves, commanders will look at what the unit will be tasked to do, and the operators will train to those missions—at the expense of everything else.

When this happens, other skills atrophy. "We accept risk in some of those missions; we know there is going to be some spin-up time before we can execute," Best pointed out. Commanders are forced "to make hard choices."

Getting units back up to mandated readiness levels takes close adherence to a building block approach that closely monitors which missions and skills are needed imminently. "It's something we are good at, but it takes a conscientious management of those programs," said one Air Force officer.

Eye on the Prize

Meticulous management is particularly important for fleets that consist of very old aircraft such as the B-52, or that have limited availability, such as the B-2.

ACC planners keep their eyes on factors such as cost per flying hour, maintenance man-hours per flying hour, mission capable rates, and utilization rates to ensure platforms and their crews are properly funded.

With the F-22 program, pilots are tightly managed and previously qualified. With new Raptor units coming online, USAF wants experienced pilots in place as the Air Force stands up squadrons in Alaska, Hawaii, and New Mexico. Starting next year, however, the program will start admitting pilots fresh out of training, which will complicate the equation.

"I'm sure we'll learn a few things," Best said.

Working training into the rotations of in-demand combat aircraft—such as bombers and close air support fighters—takes even greater care and attention to detail.

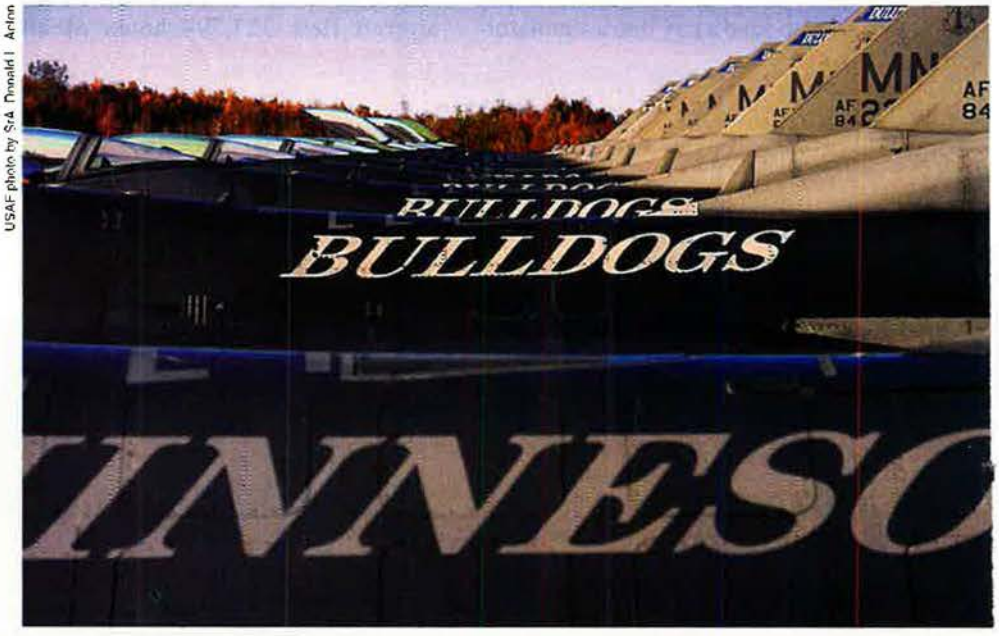
Maj. Kent L. Payne of ACC's flight operations division said deployment management is vital to ensuring proper readiness.

"[Before] this calendar year, the B-1 was on a four-month deployment and eight months at home station," said Payne, himself a B-1B operator. "Those eight months at home, we were training up on other missions, [but] not getting enough spin-up for going back to theater."

Earlier this year, the B-1B went to a six-month-long deployment cycle, with one year at home station. The extra time in the US helped fill in the training gaps that arose when older, more-experienced crews deployed, leaving behind younger officers who had not completed mission qualification.

Bombers fly fewer but longer training sorties, Payne added, and the extra time at home station is already paying off—flying hours are more evenly distributed to the airmen who need them. In a given 20-month Air and Space Expeditionary Force (AEF) cycle, a less-experienced B-1 pilot needs at least 80 training sorties in the air. An experienced pilot only requires 60 sorties.

Highly tasked assets, such as the A-10 attack aircraft, confront major training challenges on two fronts—coordinating home station training with deployments and making sure maintainers can provide healthy aircraft for training. "We are going to two theaters," Iraq and Afghanistan, on



USAF photo by SrA Donald J. Acton

F-16s on the flight line at Duluth Arpt., Minn. These F-16s are assigned to the 148th Fighter Wing "Bulldogs."

USAF photo by Capt. Tana R.H. Stevenson

F-15s lined up on the flight line await a Red Flag Alaska mission at Eielson AFB, Alaska.

six-month deployments, said Maj. George Stanley, the ACC flight operations division section chief for A-10 training.

Fighter crews fly more and shorter sorties than do their bomber counterparts. For A-10 pilots, the minimum sortie requirement in an AEF cycle for a less-experienced flier is about 180 sorties, with more experienced pilots needing 160 flights.

When the A-10s return from deployments, they have a large assignment portfolio, but no longer have priority for parts, such as targeting pods and other equipment. Furthermore, there are only four deployable active duty units.

National Guard to the Fore

If an A-10 unit deploys 12 of its aircraft, for example, those aircraft need 100 percent manning to support the mission, Stanley said. As a result, home-station training must be scaled back, since a squadron cannot generate the sortie rate without an adequate number of maintainers.

Fortunately, the Air National Guard is able to assist with the A-10 mission. Just this fall, ANG units from Maryland and Michigan were deployed to the US Central Command region with their recently upgraded A-10Cs, helping to spread the training and deployment burden while putting the most capable aircraft in the combat zones.

ACC's flight operations division has been searching for solutions to the nagging funding shortage. Earlier this year, Moseley directed that fighter and bomber units no longer be deliberately overmanned—a change greeted with relief at Best's office.

When a squadron is overmanned, the flying hours requirement goes up along with the manning level. "If I have 125 percent ... manning, then my requirements for hours are 25 percent greater," Best said. The change is "going to help with my sortie generation requirement."

There was no excess capacity to go around. Not all aircrews were meeting their minimum training levels. One hundred percent manning helps spread resources "across the right population," Best said. "I get better distribution across my aircrews; I get better currency."

But shedding manpower is tricky. When flying units cut personnel to correct overmanning, the first to go are the more experienced fliers—who are useful in other assignments—to make room for pilots coming out of flight training.

The "brand-new beans" to the system now have to go through the training program quicker to close the experience gap, Best said. Pilots with 300 or 400 hours on a given airframe are replaced with pilots who may have 70 hours—and more training hours are required for these new pilots than for experienced operators.

If not managed correctly, this shift in experience levels can affect the quality of training, Best added.

In the coming years, Air Combat Command's flight operations office at Langley will exert more authority over USAF's training portfolio, fleetwide, in an attempt to get the force in line with requirements.

Beginning in this year, ACC's flight operations division is tackling US Air Forces in Europe and Pacific Air Forces flying hour planning as well. The hope is that consolidated planning will help equalize the flying hours across the combat fleet. ■

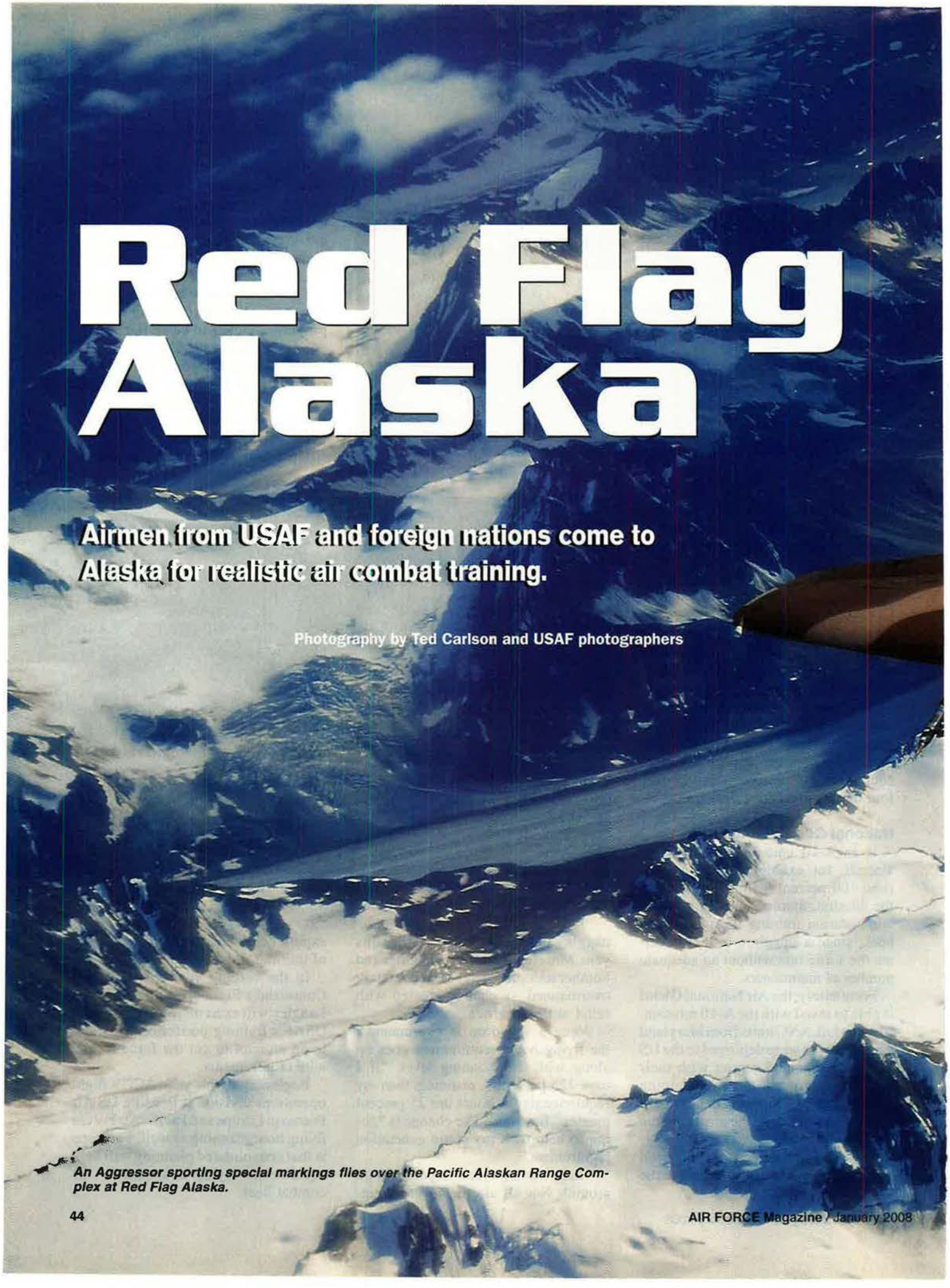
USAF photo by SSgt. Samuel Rogers

Capt. Matt Buckner, 71st Fighter Squadron, flies an F-15 on a combat air patrol mission over Washington, D.C., as part of Operation Noble Eagle.

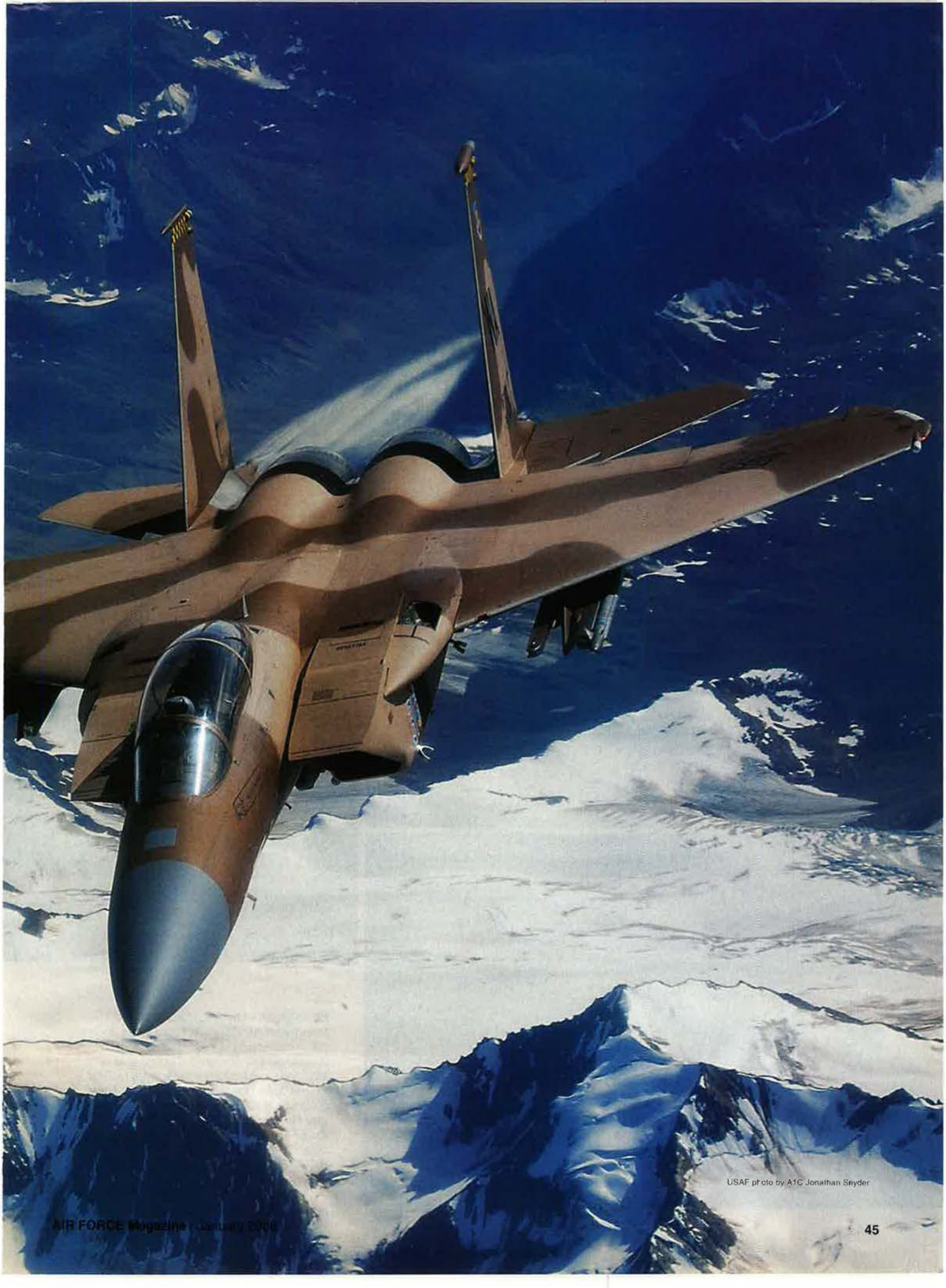
Red Flag Alaska

Airmen from USAF and foreign nations come to Alaska for realistic air combat training.

Photography by Ted Carlson and USAF photographers



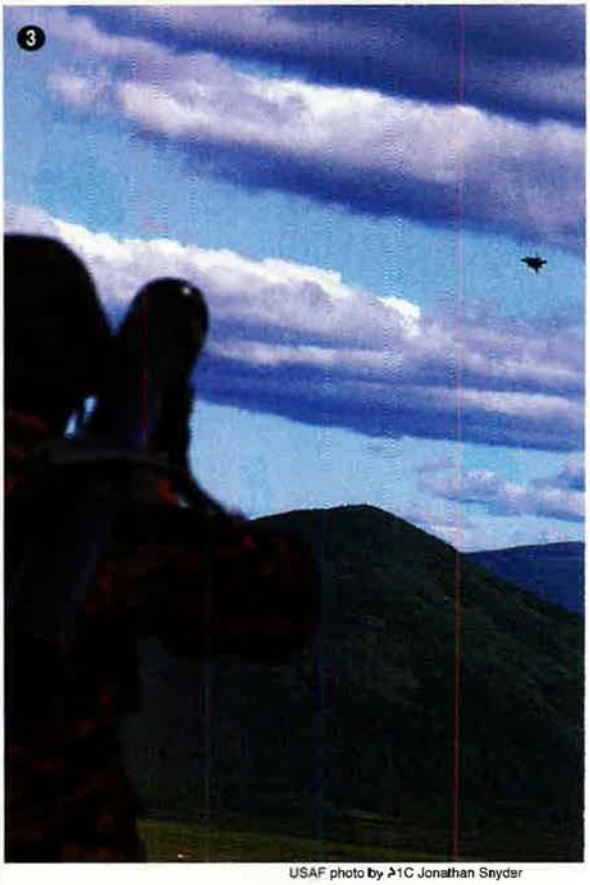
An Aggressor sporting special markings flies over the Pacific Alaskan Range Complex at Red Flag Alaska.



USAF photo by A1C Jonathan Snyder

RED FLAG Alaska brought together more than 1,500 military personnel and 80 aircraft from several nations last July for air combat training. It was the third joint-service, multinational Red Flag exercise held in Alaska in 2007. Sponsored by Pacific Air Forces, Red Flag tests joint offensive counterair, interdiction, close air support, and large-force employment in simulated combat.

[1] An F-15 pilot from the 19th Fighter Squadron, Elmendorf AFB, Alaska, prepares for a Red Flag mission. Blue Force strike aircraft staged from both Elmendorf and Eielson AFB, Alaska. [2] Since Elmendorf is located in Anchorage and Eielson is in Fairbanks—some 200 miles north—face-to-face briefings weren't possible. The next best thing: teleconferencing.



USAF photo by A1C Jonathan Snyder

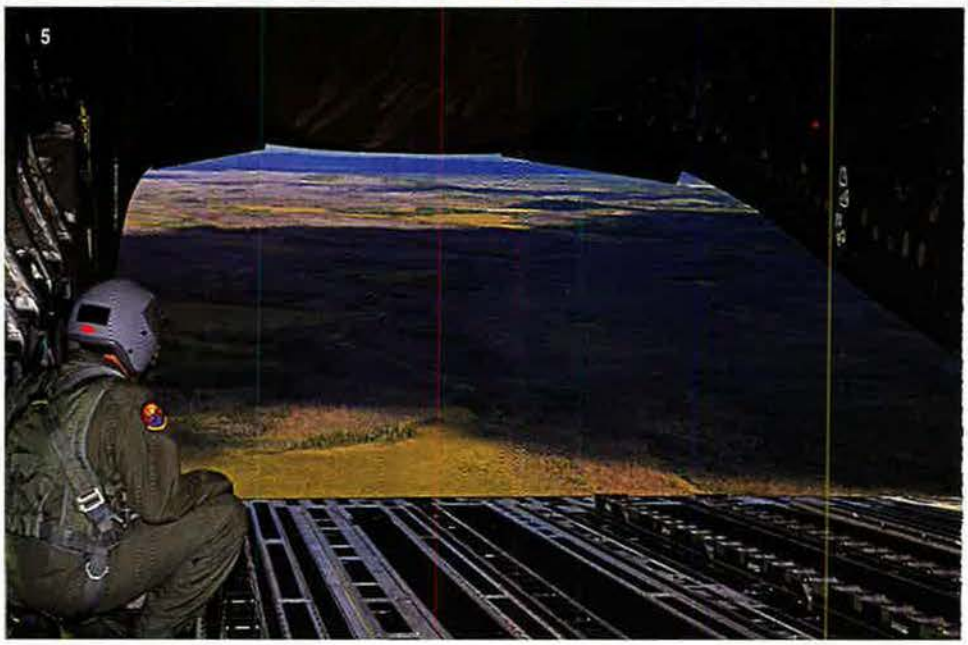
[3] SSgt. Munkhuu Batmunkh of the Mongolian Air Defense Force aims an SA-7 man-portable defense system. Japan, Spain, Thailand, Turkey, and Mongolia sent military personnel to Red Flag Alaska. Representatives from Bangladesh, Indonesia, Philippines, Russia, and Sri Lanka observed the exercise. [4] An EF-18A, one of eight brought by the Spanish Air Force, refuels from a Spanish KC-137E. Spain brought KC-130Hs to the exercise, as well.

I1I A Japan Air Self-Defense Force E-767 AWACS lands at Elmendorf after a Red Flag mission. More than 125 Japanese airmen went to Alaska for the air combat training. I2I Armed with AIM-120C AMRAAMs, a specially marked F-15C from Elmendorf's 3rd Wing heads to the fight in afterburner. Other USAF aircraft at Red Flag Alaska included B-52s from Andersen AFB, Guam, and HH-60G Pave Hawks. I3I A 3rd Wing C-17 loadmaster watches as the Globemaster III taxis to its parking spot. Crews often open up the ramp after landing, to acclimate the aircraft and expedite unloading after the engines shut down.

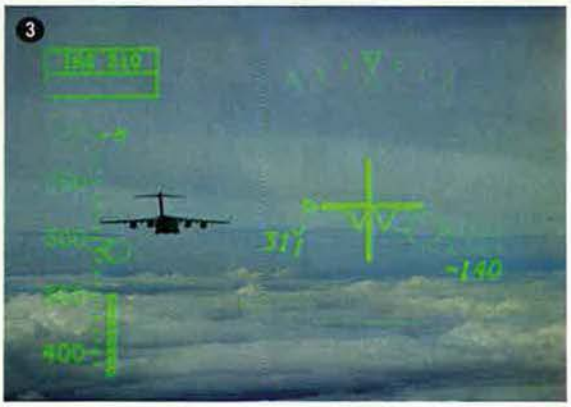
I4I A Royal Thai Air Force C-130H-30 performed airdrops at Red Flag, working with Spanish Air Force KC-130H crews. I5I A pair of Spanish Hornets—a single-seat EF-18A and a two-seat EF-18B—prepare for an interdiction mission.

USAF photo by A1C Jonathan Snyder

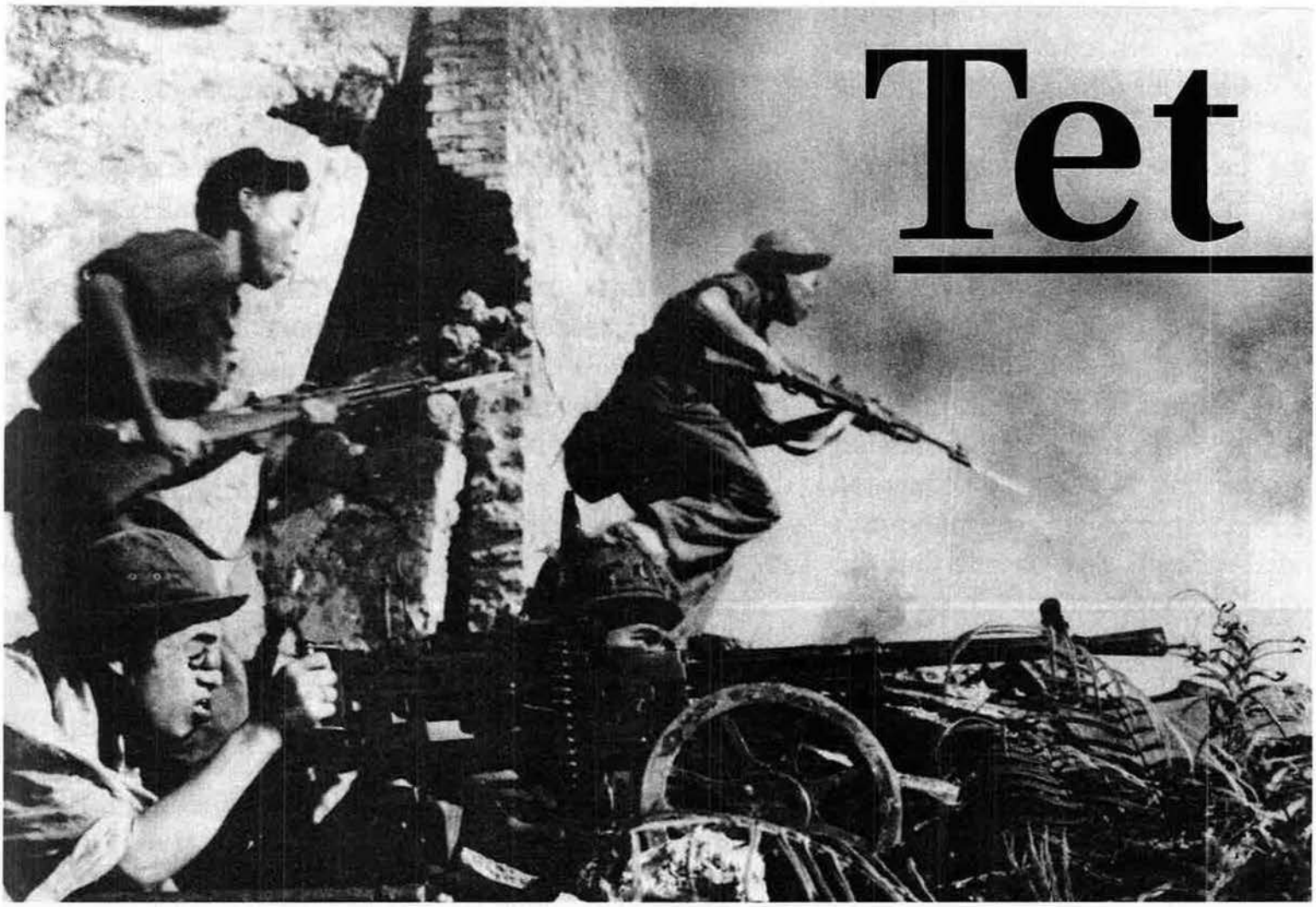
|1| An F-16 (foreground) from Eielson's 18th Fighter Squadron and an F-15C from the 65th Aggressor Squadron, Nellis AFB, Nev., simulate air combat over the Pacific Alaskan Range Complex. Red Flag Alaska takes place in airspace over 67,000 square miles. Up to 70 fighter aircraft can fly in the same airspace for a single event. Two missions—one in the morning and one in the afternoon—took place every day except the last during the 10 days of this Red Flag. |2| An AWACS from 3rd Wing's 962nd Airborne Air Control Squadron awaits its new mission. A NATO Germany-based E-3 also flew controller missions from Elmendorf during the exercise. |3| Spanish Air Force Brigada Jacinto Gamboa carries out his duties as flight engineer in a KC-137E tanker. Turkey also provided aerial refuelers.



|4| A C-17 takes off for the range on a low-level aerial delivery mission. Elmendorf's 517th Airlift Squadron had received its first C-17s only a month before. |5| A C-17 loadmaster checks that everything has cleared the back. The aircraft made low and fast runs, demonstrating its tactical prowess.



I1I A 19th FS F-15C takes off from Elmendorf. The Eagles provided cover for Blue Forces, going head-to-head with Red Air aggressors. I2I US Navy EA-6Bs provided suppression of enemy air defenses and electronic attack capability. I3I The view through a C-17's head-up display illustrates some of the new technology on the transport. I4I C-17 pilots Maj. Pete Axtell (left) and 1st Lt. Jeff Hoelscher follow another Globemaster III heading to Elmendorf. I5I A Spanish Air Force KC-130H waits on the ramp for its next air-drop mission. Red Flag Alaska allows military forces to improve coordination, communication, interoperability, and warfighting capabilities. ■



Tet

The Tet Offensive of 1968 was the turning point of the Vietnam War. On the night of Jan. 30-31, the North Vietnamese Army and the Viet Cong attacked cities, towns, and military bases all over South Vietnam, striking in more than 100 locations from the Demilitarized Zone to the Mekong Delta. The synchronized attacks came at the beginning of the Lunar New Year holiday, traditionally a time for mutual cease-fire, when security was relaxed.

The offensive was defeated at every point. The North Vietnamese regulars and Viet Cong suffered enormous casualties, and the Viet Cong were destroyed as a cohesive fighting force. It was a clear-cut military victory for the United States and South Vietnam.

In US public and political opinion, though, Tet was transformed into a defeat. Within months, the United States had tacitly conceded the war to be lost, curtailed operations, and started planning for a pullout. The political damage was so great that President Lyndon Johnson announced that he would not run for re-election.

The press and television are often blamed for this astounding misjudgment of the Tet Offensive, but that is too simplistic. The public was indeed misled by sensational and erroneous news reports, but the White House, Pentagon, and Military Assistance Command Vietnam (MACV) were equally at fault for what happened. By their inept words and actions, they gave credibility to the distorted output of the news media.

In a larger sense, Tet accelerated a chain of circumstances that was already under way. Public support for the Vietnam War was slipping and Tet greased the skids. The events of 1968 flowed from strategic decisions made earlier by the United States and North Vietnam.

The long-running war in Indochina entered a new phase in 1960 when the North Vietnamese Communist Party declared the liberation of South Vietnam to be a "strategic task."

There was a division of opinion about how liberation of the south was to be accomplished. One faction of the party leadership—which included Gen. Vo Nguyen Giap, hero of the defeat of the French at Dien Bien Phu in 1954—favored a strategy of insurgency and guerilla warfare. Another faction—led by Le Duan, first secretary of the party, and Gen. Nguyen Chi Thanh, commander of operations in southern South Vietnam—advocated direct, main force action.

Giap's view prevailed until January 1967, when the party plenum called for "decisive victory in the shortest time possible," shifting official support to Le Duan and Thanh and their main force position. However, B-52s bombed Thanh's headquarters in South Vietnam, wounding him critically. He was carried across the border to Cambodia and flown to Hanoi, where he died July 6.

Giap was left to plan the main force attack, even though it went against his own strategic principles. He laid out an operation with three objectives: a general uprising in the south, disintegration of the South Vietnamese armed forces, and convincing the Americans that the war was unwinnable.

Viet Cong irregulars lead an attack during the 1968 attacks.

North Vietnam's 1968 offensive failed, but public opinion converted it into a defeat for the United States.

By John T. Correll

The US attrition strategy in South Vietnam was in its third year. In April 1965, fearful of drawing Russia and China into the war, President Johnson and Secretary of Defense Robert S. McNamara had downgraded the air campaign against North Vietnam to secondary status after only a month of halfhearted effort. They insisted that the war be decided in the south, even though it was directed and sustained from the north.

In the summer of 1965, the MACV commander, Gen. William C. Westmoreland, implemented an attrition strategy with "search and destroy" tactics. Focused as it was on ground operations in the south, the strategy could do no more than react to North Vietnam's initiative. US forces won firefights and local battles, but made no strategic progress. MACV used "body counts" and "kill ratios" to show how the enemy was being whittled down by attrition, but the numbers were implausible and MACV lost credibility. (For more about the attrition strategy and its consequences, see "The In-Country War," *Air Force* Magazine, April 2007.)

The US presence in South Vietnam increased steadily and by December 1967, there were almost 500,000 American military members in country. Of these, 397,534 were Army and Marine Corps ground forces.

In September 1967, a public opinion poll found—for the first time—that more Americans opposed war than supported it. The President reacted by stiffening his determination. He spoke with disdain of those who wanted to "cut and run."

The White House stepped up efforts to put the best possible face on the war with a "Success Campaign" in the fall of 1967. Walt W. Rostow, Presidential advisor on national security affairs, was put in charge of an interdepartmental Psychological Strategy Committee to promote a positive image.

Westmoreland was called back from Vietnam to help. The most notable of his appearances was a speech at the National Press Club on Nov. 21. "The enemy has not won a major battle in more than a year," Westmoreland said. "In general, he can fight his large forces only at the edges of his sanctuaries." He said the enemy was "certainly losing" and that his hopes were "bankrupt." The Press Club speech went down in history because of 14 words. "We have reached an important point when the end begins to come into view," Westmoreland said.

(Contrary to an often-told tale, Westmoreland did not say he saw "light at the end of the tunnel." It was Gen. Henri Navarre, the commander of French forces in Vietnam in 1953, who said that.) Other Administration spokesmen carried the "success" message far and wide.

Downgraded Numbers

In circumstances that are still disputed, MACV, in November and December 1967, reduced its official estimates of enemy strength. Whatever the intent, the effect was to shore up the erroneous belief that the attrition strategy was working. The downgraded numbers were not known to the public but they helped Administration decision-makers convince themselves.

In late 1967, the North Vietnamese launched exploratory attacks around the Demilitarized Zone and along the Laotian and Cambodian borders to draw Americans away from the urban areas of South Vietnam and to screen infiltration. US intelligence, watching the increased enemy troop movements, expected offensive action of some kind, possibly around Tet.

The first major attack fell on Khe Sanh, a combat base 16 miles below the DMZ and 10 miles due east of Laotian border, occupied by 6,000 US marines and South Vietnamese rangers. Westmoreland decided, against some advice to the contrary, to make a strong stand there.

Khe Sanh was in a strategic corner of South Vietnam, close to infiltration routes from the Ho Chi Minh Trail, but that was not its real importance. If the North Vietnamese Army attacked Khe Sanh in mass, Westmoreland would get the set-piece battle he had wanted ever since he adopted the attrition strategy. It would be a costly fight, but superior US firepower would finally have a chance to destroy the enemy.

The North Vietnamese moved against Khe Sanh on Jan. 21 with two regular Army divisions supported by another two divisions nearby, a force of 20,000 to 30,000 troops. Khe Sanh was soon encircled and under siege. With land access cut off, the combat base depended on air support for its existence. Bombers and fighters pounded the enemy positions, and artillery from US fire bases at the Rock Pile and Camp Carroll provided further support.

News media in the United States followed the fight at Khe Sanh intently, and it took on great symbolic importance. According to Westmoreland, President Johnson developed a "fixation" about Khe Sanh. He had a large aerial photo and a terrain model set up in a White House situation room and he studied them for hours at a time during the 77-day siege.

In the middle of the unfolding action at Khe Sanh, the North Koreans captured the US intelligence ship *Pueblo* Jan. 23 and imprisoned the crew, adding to US difficulties in Asia.

Mutual cease-fires for Tet had been observed since 1963, and these had come to be regarded as a holiday truce. In November 1967, the National Liberation Front —the Viet Cong—proclaimed a seven-day cease-fire for the upcoming Tet holiday. On Jan. 25, the Viet Cong put out a public appeal for observance of the Tet cease-fire.

The Americans anticipated that the enemy would violate the truce. South Vietnam had taken over security for the cities in December and some US forces had been moved into rural areas. Fortunately, Westmoreland—at the urging of Lt. Gen. Frederick C. Weyand, US commander in the III Corps area which included Saigon—recalled 15 combat battalions from border assignments and repositioned them closer to Saigon. This gave Weyand 27 battalions near the capital. The United States persuaded South Vietnamese President Nguyen Van Thieu to reduce the cease-fire to 36 hours, but half of the ARVN (Army of the Republic of Vietnam) was on leave.

The enemy made the first of many military blunders on Jan. 30, when local commanders, who apparently misunderstood their instructions, instigated attacks on seven cities in the northern

AP photo

Peter Arnett of the Associated Press (with cameras) produced controversial reports on two major events. Walter Cronkite (right) told his TV audience that the US was "mired in stalemate."

part of South Vietnam. These premature attacks gave MACV still more warning of the offensive about to unfold.

The main offensive began in the small hours of Jan. 31. Some 80,000 enemy troops struck all over South Vietnam, including assaults on 64 district capitals and many smaller towns as well as military bases. The forces in the southern part of the country were mostly Viet Cong, and the North Vietnamese Army carried the effort in the northern part.

The Viet Cong committed 35 battalions to the Saigon area, targeting the Presidential Palace, Tan Son Nhut Air Base (where the MACV compound was located), the ARVN armor and artillery command headquarters, and the US Embassy. At Tan Son Nhut, about 1,000 defenders, mainly security police, held an attacking force of 3,000 to a minor penetration until US Army reinforcements arrived at dawn. On the outskirts of Saigon, two VC infantry battalions and a reinforced rifle company achieved a minor penetration at Bien Hoa Air Base, but Air Force security police beat back the attack.

The Viet Cong captured the government radio station in Saigon around 3 a.m. They came with radio technicians and tapes proclaiming a general uprising and the liberation of Saigon, but the government, following the emergency plan, shut down the transmitter 14 miles away. The VC could not broadcast their tape.

The attacks caused great destruction and disruption throughout South Vietnam, with numerous civilian casualties and throngs of refugees. On Feb. 1, President Thieu declared nationwide martial law.

The Embassy Fight

Neither side understood at first how important the attack on the US Embassy would be in the legend of Tet. The Viet Cong sent only 19 inexperienced men to do the job. One US officer called it "a piddling platoon action." MACV, focused on larger battles elsewhere, regarded the fight at the embassy as a relatively minor affair until the telephone calls started coming from Washington.

The embassy complex consisted of a six-story concrete-reinforced chancery building and several other structures, surrounded by an eight-foot wall. At 2:45 a.m., a Viet Cong sapper team attacked the compound, blew a hole in the wall, and gained access to the grounds. They blasted the building with rockets and a fragmentation grenade, but they did

AP photo

US bombers drop ordnance close to South Vietnamese troops defending Khe Sanh. News reports compared Tet to the French defeat at Dien Bien Phu.

not get inside. The Viet Cong leaders were killed and the others took cover, returning the fire directed at them from nearby rooftops.

Peter Arnett of the Associated Press was one of the first reporters on the scene. In the street, he encountered two soldiers who did not know any more than he did but who guessed the enemy was inside the chancery. At 7:25 a.m. (6:25 p.m. in New York), Arnett filed his first report: "US military police on the scene said it was believed about 20 Viet Cong suicide commandos were in the embassy compound and held part of the first floor of the embassy building."

Five minutes later, at 6:30 p.m., the Huntley-Brinkley Report on NBC-TV went on the air, with Chet Huntley souping up the AP dispatch. "Twenty suicide bombers are reported to be holding the first floor of the embassy," Huntley said. He added that "snipers are in the buildings and on rooftops near the embassy and are firing on American personnel inside the compound," which was the exact opposite of what was actually happening.

Westmoreland arrived at the embassy just after 9 a.m., toured the complex, and told reporters that all of the sappers had been killed or captured and that none of them had gotten inside the building. Nevertheless, UPI reported from Saigon at 10 a.m. that a VC suicide squad had stormed the embassy "and occupied the first five floors." Arnett and AP reported Westmoreland's statement and added that according to "some sources," the embassy had been penetrated. Not until 7 p.m. Saigon time did AP say flatly that the attackers had failed to get into the embassy building.

By then, the morning newspapers were out in the United States. An eight-column banner headline on the front page of the *Washington Post* said, "Vietcong Invade US Embassy." The *New York Times* headline said, "Foe Invades US Saigon Embassy."

The facts of the attack never quite overtook the emotional jolt of the first reports. Arnett later called the invasion story a minor error.

On Feb. 1, the day after the attack on the embassy, Westmoreland appeared at the late afternoon press briefing, the "Five O'Clock Follies," at the Joint US Public Affairs Office in Saigon. He said there was evidence the enemy was "about to run out of steam" and that 5,800 enemy troops had been killed in the first two days. It was the familiar MACV "body count" exercise, complete with numbers

After Tet, President Johnson (left) pulled out of the Presidential race. Gen. Earl Wheeler (right), Chairman of the Joint Chiefs of Staff, encouraged sending 200,000 more troops to Vietnam.

the reporters didn't believe, and it led them to discount Westmoreland's other assurances as well.

What credibility Westmoreland had left was blown away when his request for an additional 206,000 troops was leaked to the *New York Times*. The story behind the story was amazing in itself.

Wheeler's Agenda

In early February, Gen. Earle G. Wheeler, Chairman of the Joint Chiefs of Staff, asked Westmoreland if he needed reinforcements. Wheeler said it might be possible to raise the limits previously imposed.

Wheeler did not disclose his actual agenda. By 1968, about half of the US armed forces were tied down fighting or supporting the Vietnam War. Other forces were covering obligations and requirements elsewhere and the strategic reserve was at a low level. Wheeler and the Joint Chiefs had been unable to convince the President to mobilize the National Guard and Reserve to rebuild the strategic reserve. A big troop increase in Vietnam would put pressure on him to agree.

Encouraged by Wheeler, Westmoreland asked for an increase of 206,756 troops and 17 additional fighter squadrons. In Westmoreland's mind, the number was based on a change in strategy that would permit ground operations across the DMZ and against the Ho Chi Minh Trail and border sanctuaries in Laos and Cambodia. There was no chance that such a strategy would be adopted and it played no part in the furor that followed.

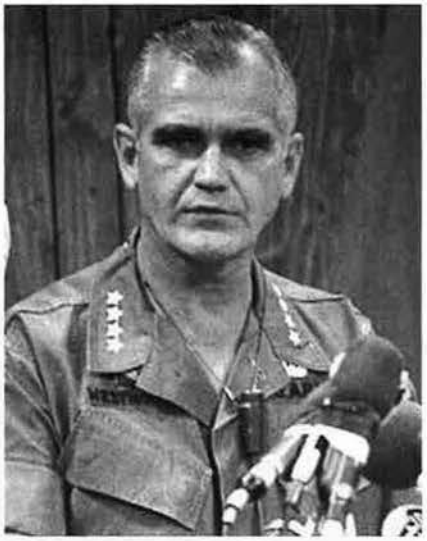
Daniel Ellsberg of the RAND Corp. obtained a copy of the top secret paper proposing the increase, and in a preview of his leaking the Pentagon Papers to the news media in 1971, he gave it to the *New York Times,* where it was the lead story on the front page on Sunday, March 10.

Wheeler's gambit had backfired. If the enemy was about to run out of steam and the Tet Offensive was nothing to worry about, why should Westmoreland need 206,000 more troops?

"Except at Hue and Khe Sanh," Westmoreland said, "most of the combat that could be considered part of the Tet Offensive was over by Feb. 11." In the locations where the attacks continued, the action was hot and heavy

There was hard fighting, house to house, in the old imperial capital at Hue. The enemy captured the city and the US marines and the ARVN were not able to oust them until March 2. Fighting continued elsewhere. By the end of March, Tan Son Nhut had been attacked half a dozen times, including a rocket bombardment on Feb. 18. The US Air Force flew more than 16,000 sorties in support of US and allied ground forces during Tet.

The biggest single battle was Khe Sanh, and there is disagreement about its significance in the North Vietnamese strategy. Westmoreland thought it was



North Vietnamese Gen. Vo Nguyen Giap (far left) planned the offensive. US Army Gen. William Westmoreland was MACV commander at the time. Just before the attacks, US Army Maj. Gen. Frederick Weyand (right) repositioned 15 combat battalions closer to Saigon, blunting an objective of the offensive.

the main effort. Writing in *Vietnam Magazine* in 1993, he said, "I believed then, and I continue to believe, that the 'General Uprising' was in reality a feint, a secondary attack." Giap said otherwise. "Khe Sanh was not important to us," he said. "It was only a diversion."

In February, Wheeler asked Westmoreland whether "tactical nuclear weapons should be used if the situation in Khe Sanh should become that desperate." Westmoreland said he did not need nuclear weapons at that point. "Although I established a small secret group to study the subject, Washington so feared that some word of it might reach the press that I was told to desist," Westmoreland said. Lyndon Johnson later denied that use of nuclear weapons had ever been considered.

Air support for the combat base at Khe Sanh was massive. On an average day, it consisted of 350 tactical fighter sorties, 60 B-52 bombers, a dozen C-123 and C-130 airlifters, plus forward air controllers, reconnaissance missions, and gunships.

The B-52s were especially effective. A formation of three B-52s could lay waste to an area more than a mile long and half a mile wide. The bombers struck enemy positions as close as a half-mile from the base, and the fighter and attack aircraft worked the area between. "The thing that broke their backs was basically the fire of the B-52s," Westmoreland said.

The base was sustained by C-130s, C-123s, and C-7s running a gauntlet of machine gun fire from the hills and ridges to deliver or air-drop supplies to the garrison. Aircraft and helicopters also landed to evacuate the wounded.

Khe Sanh was compared constantly with Dien Bien Phu, the remote mountain base in far northwestern North Vietnam where the French were besieged for 56 days in 1954.

"Almost to the end, it was a story heavily flavored with the suggestion of impending disaster—a disaster comparable to that suffered by the French garrison of Dien Bien Phu at the hands of General Giap in 1954," said Peter Braestrup, who in 1968 was chief of the *Washington Post* bureau in Saigon.

"Invisible to the Press"

Such reports overlooked key differences. At Dien Bien Phu, the airstrip was destroyed by artillery early in the battle. The only way in was by parachute, and there was no way out. The Dien Bien Phu defenders were supported by only a handful of air support sorties, none of them by heavy bombers.

The B-52 strikes were "largely invisible to the press," Braestrup said. Television couldn't see them, so it didn't show them. The emphasis was on the enemy attack. News reports and photos tended to depict the Marine Corps at Khe Sanh as hunkered down under fire. During the battle, *Newsweek* ran 29 photos from Khe Sanh. "About half—13—showed American or ARVN troops dead or wounded," Braestrup said. "None showed US troops firing back."

CBS correspondent Murray Fromson's report from Khe Sanh on Feb. 14 was indicative of the prevailing tone. "Here, the North Vietnamese decide who lives and who dies," Fromson said, "and sooner or later, they will make the decision that will seal the fate of Khe Sanh."

When the siege ended on April 8, the North Vietnamese had been soundly defeated. Some 10,000 North Vietnamese and Viet Cong troops had been killed by airpower and another 5,000 were dead from artillery and small-arms fire. There was no more talk of Dien Bien Phu.

Braestrup later compiled the definitive study of the news media and Tet in *Big Story,* published in two large volumes in 1977. He examined 2,100 articles, telecasts, and commentaries from the three television networks, the news magazines, the *New York Times,* and the *Washington Post.*

He found that 90 percent of the reports from Vietnam were from three locations: Saigon, Khe Sanh, and Hue. "The net result, in terms of media treatment, was that the fighting in Saigon, Hue, and Khe Sanh became the whole war, a war in which, seemingly, no or few ARVN forces fought and US forces were particularly hard pressed," he said. "The overall—and inaccurate—impression given, especially on film, was that, well into March, the outcome on the Vietnam battlefield was very much in doubt." Braestrup also found that there were more than twice as many negative reports and commentaries as positive ones.

Arnett, the Associated Press correspondent who reported the embassy invasion, scored again on Feb. 7. He was one of several newsmen visiting Ben Tre, a town of 35,000 in the Mekong Delta where the battle had lasted two days. The Viet Cong force of 2,000 outnumbered the local defenders by six to one and except for US air strikes, would have wiped them out. A substantial part of the town was destroyed in the fighting.

Arnett's report quoted an anonymous Air Force major, who said, "It became necessary to destroy the town to save it." Nobody else heard it and Arnett would not reveal who the major was, but his statement became one of the most famous lines of the war.

Dan Southerland of UPI, at Ben Tre on the same trip, quoted an Air Force sergeant who said, "The Viet Cong were holed up in a lot of buildings and there was no way to get them out but to shell and bomb them out." Nobody much repeated what Southerland and the sergeant had to say.

On March 24, William Tuohy of the *Los Angeles Times* went to Ben Tre on follow-up and reported that "only 25 percent of the city—rather than the reported 80 percent—was actually destroyed by the Viet Cong attack and the Vietnamese artillery and US air strikes that followed. And the US advisory group doubts that the statement [reported by Arnett] was actually said in that form."

The coup de grace was delivered by Walter Cronkite, anchor of the CBS Evening News. As first reports of Tet streamed into the newsroom in New York, Cronkite exclaimed aloud, "What the hell is going on? I thought we were winning the war." He went to Vietnam in February, saw the fighting still under way in Hue, talked to both officials in Saigon and troops in the field, and gave his opinion in a CBS news special Feb. 27.

"To say that we are closer to victory today is to believe, in the face of the evidence, the optimists who have been wrong in the past," Cronkite said. "To suggest we are on the edge of defeat is to yield to unreasonable pessimism. To say that we are mired in stalemate seems the only realistic, yet unsatisfactory, conclusion."

Lyndon Johnson responded to the attacks with a continuation of his "Success Campaign." He sought to minimize importance of the Tet Offensive and made no effort to rally the nation. Talking with reporters at the White House on Feb. 1, he said the offensive had been expected, that there would be no change in US strategy, and that he had seen nothing in the Tet Offensive to change his evaluation of the situation in Vietnam.

Verdict of the Public

In a Gallup poll the last week in February, 61 percent—compared with 41 percent in November—said the United States was losing the war or standing still. In the New Hampshire primary in March, anti-war Sen. Eugene J. McCarthy got 42 percent of the vote versus 49 percent for Johnson. Also in March, the Johnson campaign adopted a "Peace With Honor" theme, which represented a softening of the President's position.

On March 25-26, Johnson convened a meeting of two dozen of his senior officials and advisors to get their counsel on the war. All but five of them favored disengagement or de-escalation.

On March 31, Johnson quit the Presidential race and ended the bombing over most of North Vietnam as a "first step to de-escalate the conflict." On June 26, Khe Sanh—where the use of tactical nuclear weapons had been considered four months previously—was abandoned. On July 1, Westmoreland was succeeded as MACV commander by Gen. Creighton W. Abrams Jr., who promptly moved away from the attrition strategy, but the heart had gone out of the US commitment. Bombing of North Vietnam was completely stopped Nov. 1. The incoming Nixon Administration adopted a policy of "Vietnamization" of the war.

By the summer of 1969, "we were clearly on the way out of Vietnam by negotiation if possible, by unilateral withdrawal if necessary," said Henry A. Kissinger, the new national security advisor.

Giap's offensive failed. The "general uprising" did not occur. The South Vietnamese armed forces did not collapse or switch sides. Giap was counting on a strong operation to impress the Americans, but that did not happen either. The public reaction in the United States was a lucky windfall for the North Vietnamese. It was not because of anything Giap accomplished in the offensive.

As Giap knew all along, his forces could not defeat the United States and ARVN in open battle. A bad strategy was weakened further when Giap chose to strike simultaneously in so many locations, spreading his force too thin for effective concentration. In "Tet II" or "mini Tet" in May, Hanoi sent 80,000 to 90,000 replacement troops south for a final effort. They attacked at 119 locations but gave it up when losses reached 4,000 a week.

In the final tally for Tet, between 40,000 and 70,000 North Vietnamese and Viet Cong were killed and many more wounded. The Viet Cong were thereafter reduced to a marginal role in the conflict. Le Duan's "main force" faction lost credibility and North Vietnam returned to its previous emphasis on insurgency.

It is impossible to say what the effect of the slanted news reporting might have been if the US government had not bungled its response to the Tet Offensive. Harry G. Summers Jr., noted author of *On Strategy* and longtime editor of *Vietnam Magazine,* said that "the real reason for the debacle was the void created by President Lyndon Johnson's 'psychological defeat.' His two months of inaction after Tet allowed critics to define the terms of this perceived disaster."

The Administration's credibility, already low when Tet began, got steadily worse. Most of what the government did and said added to the impression that a defeat was in progress. It was as if the White House and the Pentagon had set out to undermine their own case. Tet was the catalyst that prompted Lyndon Johnson's own politicos and advisors to bail out on him.

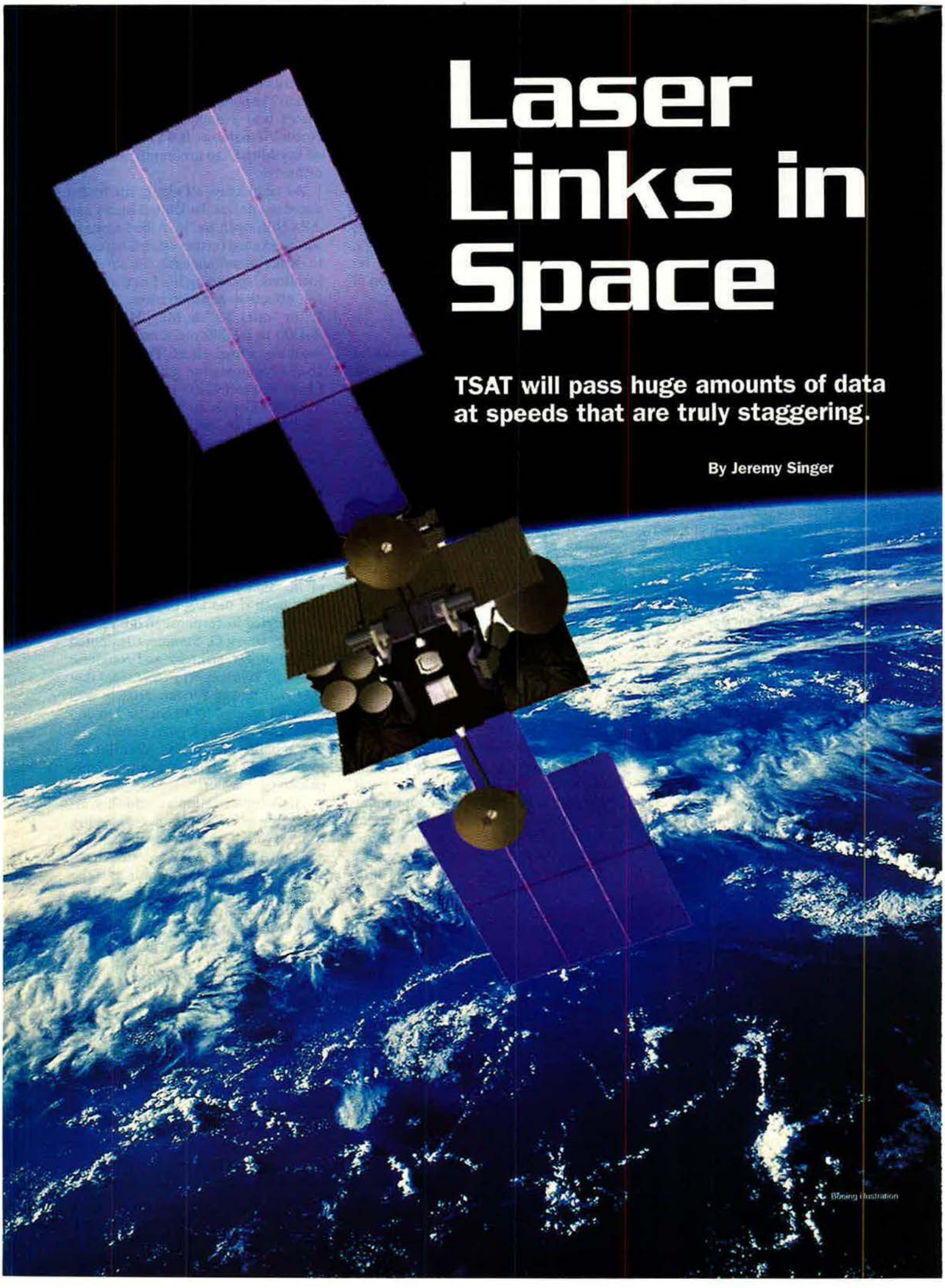
Despite the North Vietnamese and Viet Cong losses, Tet did not change the military prospective that much. The best the US could do was to resume marching in place. Any chance of victory had been cut off years before with the decision to fight the war in the south. Tet altered the timetable but not the outcome. ■

John T. Correll was editor in chief of Air Force *Magazine for 18 years and is now a contributing editor. His most recent article, "Caught on the Ground," appeared in the December 2007 issue.*

Laser Links in Space

TSAT will pass huge amounts of data at speeds that are truly staggering.

By Jeremy Singer



Boeing illustration

US forces have a pressing need for greater communications power. On that, military space officials and combatant commanders agree. Bandwidth is critical to functions ranging from voice and data links for fielded forces to the dissemination of the photos and other intelligence data gathered by aircraft.

The Air Force may not be able to satisfy all bandwidth needs—at least for the near future—but it will take a huge step toward that goal with launch of the Transformational Satellite Communications System around the middle of the next decade.

TSAT (pronounced "tee sat") is being developed—and paid for—by the Air Force. Without it, other developmental projects such as the Army Future Combat Systems will not come close to delivering on their potential.

Boeing and Lockheed Martin are leading teams competing for the TSAT prime contract, which could be worth up to $15 billion, according to the Air Force. That money covers up to five satellites and a ground spare, as well as the required command and control infrastructure.

The TSAT concept dates back to late 2001, when senior military leaders were looking for ways to dramatically increase the communications bandwidth available to troops deployed in remote areas such as Afghanistan.

The concept caught on quickly with military commanders eager for more bandwidth to receive data from the unmanned aerial vehicles that were proving valuable during combat in Operation Enduring Freedom.

The number of UAVs in use has since exploded, as has the use of bandwidth-hogging full-motion video. Military bandwidth demand is now typically referred to as insatiable.

At that point, the Defense Department looked at possibilities that included launching the satellites—originally referred to as Advanced Wideband—as early as 2007 or 2008. That date has slipped several times for several reasons, including Congressional budget cuts.

Budget issues—originating both on Capitol Hill and within the Pentagon—led to the Air Force a year ago moving the planned launch date from 2014 to 2016.

The Air Force began its work on TSAT at a time when most of its space acquisition portfolio was plagued by cost overruns and schedule delays. Service officials, mindful of the lessons learned from programs that went wrong, have taken steps to avoid repeating the same mistakes with TSAT.

One of the strategies is to use the block acquisition approach championed by Ronald M. Sega during his tenure as Air Force undersecretary between 2005 and 2007. In keeping with this philosophy, the Air Force does not seek to field all the new capabilities envisioned with TSAT on the first satellite.

Bite-Size Chunks

As Air Force Gen. Kevin P. Chilton, commander of US Strategic Command, noted during an Air Force Association symposium last September, USAF won't wait until it gets "the whole enchilada right" to field TSAT.

Chilton, who was commander of Air Force Space Command at the time of those remarks, said the service will instead develop the system "in bite-size chunks" that offer incremental improvements.

"We'd like to provide an infrastructure where [troops] don't have to worry about command and control information," said Richard D. Pino, the Air Force TSAT program director at the Space and Missile Systems Center in Los Angeles.

The Advanced Extremely High Frequency Satellite Communications System satellites will help in this regard, as they offer a tenfold increase in secure communications bandwidth over the current Milstar satellites. However, TSAT goes even further, with a tenfold increase above the capability of Advanced EHF.

"Since enemies know our dependence on [satellite-based communications] and the fact that we're using satellite communications for everything under the sun, you can expect enemies of the future to be attempting to disrupt, interfere, and exploit our communications links any way they can," said Leonard F. Kwiatkowski, a retired Air Force brigadier general who now works as vice president and general manager of military space programs at Lockheed Martin Space Systems. "Advanced EHF, and then TSAT, have a leap ahead in security to stay ahead of the game."

TSAT will offer a low probability of detection and intercept, so enemies should have difficulty knowing that US forces are in the area by picking up radio signals, Kwiatkowski said.

"The enemy will have a hard time seeing that we're communicating, much less figure out what we're doing," he said.

The first two TSAT satellites are con-

Lockheed Martin photo

Far left, a Boeing illustration of the TSAT. Left, workers put the final touches on a Milstar payload just before it is fitted atop a Titan IV B launch vehicle.

Northrop Grumman photos

Top, a Global Hawk in flight. Here, the Global Hawk's hangar—the type of large, detailed image that will zip through TSAT.

sidered Block I, and the four that follow are Block II, according to Pino.

While the first two blocks are similar in functionality, the capability increases dramatically on the second, he said.

Another key element in the plan to build a solid foundation for the TSAT program is risk reduction work. A large amount of risk reduction has been performed in the early stages of the program, according to Gary E. Payton, deputy undersecretary of the Air Force for space programs.

Satellite programs such as the Space Based Infrared System (SBIRS) missile warning effort, which has seen its cost skyrocket by a factor of five since its inception, "were awarded in the late 1990s under the philosophy that you have a competition amongst the prime contractors, and you select the best of the competitors, and sort of let them do it," Payton said in October.

No Cheap Fix

For TSAT, the government has sought to ensure that the key technology is mature before it awards the prime contract. Doing so has not been cheap, Payton noted, as the Air Force has funded this work by Lockheed Martin and Boeing to the tune of roughly $500 million each.

"But once we start with full-scale development on TSAT, we will have a much higher confidence, because our departure point is based on proven subsystem technology," Payton said. "That's a huge difference in a program's start-up architecture."

Kwiatkowski, who once served as program director for the Military Satellite Communications Joint Program Office at Los Angeles AFB, Calif., called the level of Air Force investment in maturing the TSAT technology "unprecedented." He could not recall a space program that had received a similar degree of investment prior to prime contract award.

"That gives us confidence that we're ready to move into the next phase," Kwiatkowski said in October.

In order to pass huge amounts of bandwidth quickly, TSAT relays data from one satellite to another via laser cross-links. This has been one of the two major areas of focus for the roughly $1 billion in risk reduction investment over the past several years.

Most communications satellites pass data over long distances through radio frequency connections to ground nodes. This is slower and introduces ground infrastructure vulnerable to enemy attack.

The secure communications satellites that precede TSAT—Milstar and Advanced EHF—use cross-links to avoid this vulnerability, but rely on radio frequency, which lacks the speed and capacity of lasers.

The Defense Department has experimented with laser satellite links in the past with the National Reconnaissance Office's GeoLITE spacecraft. It exchanged information with other government satellites during a demonstration in 2001. However, TSAT will represent the first operational use of this technology.

The speed with which TSAT will pass data is staggering, particularly when compared with the first block of Milstar secure communications satellites.

- An air tasking order that would have taken an hour to send in 1994 over Milstar will take less than a second with TSAT.
- A reconnaissance aircraft's high resolution image that would have taken nearly a day to send will take less than a second.
- A radar image from a Global Hawk that would have taken nearly five days to transmit would also take less than a second.

Unlike Milstar, TSAT won't just serve troops in fixed sites or those who have stopped and erected antennas (and become more vulnerable targets in the process), according to John Peterson, Boeing's TSAT program manager.

While the military has some satellites that equip mobile forces with a limited communications capability, those satellites don't approach the capacity envisioned for TSAT. The next generation constellation will enable troops to have Internet capabilities comparable to someone at a desktop computer. This connection will still be available while driving 35 to 45 miles per hour, Peterson said in October.

Even the next generation of mobile communications satellites that the Navy plans to launch in late 2009 offers "no comparison" with TSAT, Pino said.

This speed will dramatically change the intelligence picture for troops on the battlefield, Peterson said.

TSAT will allow troops to receive so much relevant data that they will view the battlefield like a quarterback who can determine the precise location of opposing defenders, know who may have fallen down or be otherwise out of position, and react quickly to find an open receiver, he said.

Simulations of battles in areas such as Korea and Southwest Asia indicate that this capability could help significantly reduce US casualties, Peterson said. It will also boost the precision of US strikes—leading to a considerable reduction in collateral damage, he said.

While the discussion on TSAT's advanced capabilities often focuses on the benefits to ground forces, Kwiatkowski noted that the increased speed and capacity will benefit nearly every area of Air Force operations. TSAT will provide previously unobtainable intelligence products to airmen flying missions ranging from air cargo to close air support.

The other key technology that the Air Force and its contractors have worked to mature for TSAT is the Internet protocol (IP) router that some program officials refer to as "the brains of TSAT."

Troops communicating over most satellites today need to set up circuits; TSAT will enable them to easily plug into networks. It should be like a business traveler connecting to the Internet with a laptop in a random hotel room, without significant preplanning, Pino said.

This networking will greatly expand the use of video teleconferencing for US forces, a capability that is generally limited to commanders.

As is the case with the lasers, TSAT will represent the first operational use of the router technology aboard a military satellite. Like the lasers, there is precedent for incorporating IP routers in space—the technology is featured on the Boeing-built Spaceway 3 commercial communications satellite, which launched in August.

Despite the considerable work that has been completed in developing and testing the technology for the individual components of the TSAT satellites such as the laser and router, the rest of the effort will still be challenging, Payton said.

While the Air Force is confident that the individual components will work, still to come is "the tough part"—integrating those pieces into the satellite system, Payton said.

USAF photo

As head of Air Force Space Command, Gen. Kevin Chilton—left, shown here in 2007—was anxious to get TSAT fielded.

Congress has been intrigued by the promise of TSAT since the beginning, but has been skeptical about the cost and risk involved with the development of the laser-linked satellites.

Keep Them on Track

The Advanced EHF system is the Milstar successor and TSAT's predecessor. When the Air Force began development on TSAT, the service truncated its planned AEHF acquisition. The buy was cut off at three satellites from five, with the first scheduled to launch in 2009.

Lawmakers have repeatedly pushed the Air Force to slow TSAT development to a more cautious pace, and buy at least one more AEHF satellite in the interim. They see this as insurance, to avoid a possible gap in communications coverage that could result if TSAT runs into the technical problems that have plagued the other satellites in the Air Force's space acquisition portfolio.

The Air Force believes it has properly addressed risk and would prefer to keep those satellites on track. The alternative is to slow the work and take money from the TSAT program to buy another Advanced EHF, according to Lt. Gen. Michael A. Hamel, commander of Space and Missile Systems Center.

Though the Congressional push for a fourth Advanced EHF satellite continues, the Air Force's TSAT budget requests have been treated somewhat more gently on Capitol Hill over the past two years. Congressional staffers have in fact pointed to the program during conference speeches as a model for future space acquisition work.

Officials are hoping the huge increase in communications capability that comes from TSAT will play a significant role in reducing use of commercial satellite services, which today make up about 80 percent of the communications bandwidth used by US forces operating in Afghanistan and Iraq.

Some officials feel that that the Defense Department needs to reduce its dependence on commercial satellite services. Some capability is provided by firms based in the Middle East, where host governments may not always be friendly to the United States.

While commercial satellite services have proved valuable, they lack the ability to resist jamming and other types of interference. It would require "a heroic effort" for an adversary to even come close to jamming TSAT, Pino said.

Another security concern is that commercial systems are more vulnerable to the threat of an enemy hijacking the spacecraft for its own use. This has happened; Kwiatkowski pointed to the Liberation Tigers of Tamil Eelam's hijacking of a transponder aboard a satellite operated by Intelsat. The Tamil Tigers then broadcast the group's message in Sri Lanka.

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Rep. Ellen Tauscher (D-Calif.), a key member of the Congressional defense establishment, sees some negative trend lines.

The "Redheaded Stepchild"

Rep. Ellen O. Tauscher *(D-Calif.) is head of the House Armed Services Committee's panel on strategic forces. In a Nov. 8, 2007 meeting with the Defense Writers Group in Washington, D.C., she discussed the defense program, budgets, nuclear weapons, missile defense, Iran, and a host of other topics. What follows are excerpts of her remarks.*

Neglect of USAF

"The Air Force effectively [is] the redheaded stepchild [in the budget], just like the Navy is, in the Pentagon. They're just being completely constricted in their capabilities in order [to permit DOD officials] to deal with what you have to do for [Army and Marine Corps] ground forces in Iraq and Afghanistan. ... How long are we going to do this?...

"When it comes to money for the Pentagon, we've got to replace everything with a wheel and a wing on it that currently is in theater. What's that going to cost us? Eight hundred billion? A trillion dollars? ... We've got a military that's at war and a country that's not at war. We don't have an industrial base that's at war, either."

Lack of Airlifters

"You need to have a healthy, vibrant, robust airlift capability in order to do anything that we're doing anyhow. ... Why aren't [DOD officials] asking for C-17s in the budget? Why are they depending on the Congress to add them in? ...

"What I have done, and what I've been very happy to do, is to help keep the C-17 line warm. ... The Pentagon and the President have not asked for one C-17 for the last, I think, three years, and we've increased them by 36 over the last three years."

The C-5/C-17 Mix

"My concern [is] that we've got [many] models of the C-5, and some of them are dogs, and some of them are better than others. The problem I've got is that the C-17 and the C-5 have similar missions but not the same capabilities. I don't want to go to just one model too fast. I think that we have every reason to believe that we need to have both of them right now since we're renting Russian [An-124] planes to go around the world and do things."

Desperate Situation

"I've been enormously concerned about the senior military leadership not telling the civilian managers how desperately bad our readiness is, how significantly we are unable to deal with any other contingencies.

"We have no C-1-rated ground force unit in this country. We have broken the Guard and Reserve. We are allowing criminals into the military. We've degraded our ability to recruit and retain. We have broken families. We have a military medical system that is a scandal."

Lowered Standards?

"There are a number of [recruits] that have been allowed to come into the military with criminal records, which was not true just even two years ago, two-and-a-half, three years ago. Now I'm all for rehabilitation, and I'm all for people getting a second chance. That's not why we're doing this. We haven't decided that there is a cadre of folks that have been rehabilitated and now they can come into the military. This is about the fact that we need people with pulses that are willing to come into the military. And I find that to be startling."

Long, Hard Slog

"It's just amazing to me that, when we know what the success of the volunteer professional force [means], when we know the requirements of it, when we know that it's a 'have-to-have' and not a 'nice-to-have,' that we went for so long breaking it and then we expect to be able to turn

on a dime and have people just forget about what's going on today. It's not like we're out of Iraq. It's not like we're finished with Afghanistan. It's not like we're coming home to rest and recuperate. We've got a long way to go."

Nuclear-Force Questions

"In the House, ... we've said we want a Congressional blue-ribbon panel to do a study of exactly what our number of weapons should be. What is the strategic need and capability for the United States for nuclear weapons? The Senate asked for ... an accelerated new Nuclear Posture Review for the new Administration [that arrives in 2009]. ... We think that they complement each other, and so that's what we're doing. We're going forward with our Congressional blue-ribbon panel. We think Congress has a reason to weigh in. We think we have a reason to have our own people take a look at this."

Triad Still Needed?

"That's a good question. That's one of the reasons why we have the commission that the Congress is [putting] together. I think that we need a fresh look at everything. I'm not saying that we don't [need a mix of land-, air-, and sea-based nuclear weapons], but I think we need to take a look at everything."

"Hedge" Warhead Problem

"Suppose I had to go to work every day, and I had to have a car that I knew worked every day. It was so important that ... I had a couple of cars. I had my primary car, but I also had a couple of 'hedge' cars. If the first one didn't turn over OK, I went to the next one. Then I went to the next one.

"That's what our weapons stockpile is like right now. We have the stockpile, and then we have a bunch of what we call hedge weapons. And that's caused us to have thousands of weapons. ... In the Moscow Treaty, we're coming down to someplace between 1,700 and 2,200, but that's still a lot of weapons."

The "Reliable Replacement Warhead"

"I will tell you that, over the last three years that we've talked about RRW, the foes have diminished and the fans have increased. We're still not sold on it, and [we have] a very cautionary investment strategy ... but, at the same time, I think that many of us are hopeful that it is a path to get to where we want to go."

Missile Defense Hokum?

"I believe that the 2004 deployment of the missile defense system at Ft. Greely [Alaska] and Vandenberg [AFB, Calif.] was a political statement. I don't believe that [the US] has done enough operational testing. ...

"We don't have credible deterrence with this missile defense system. It certainly hasn't deterred the North Koreans. They have [backed up], but it's not because they think our system's going to work. We certainly haven't achieved credible deterrence with the Iranians and others who are developing these long-range missile systems."

"If the Iranians decided to pop one off into southern Europe, Article 5 [of the North Atlantic Treaty] says that we're in."

"We've got to replace everything with a wheel and a wing on it that currently is in theater."

Iranian Missiles

"Who has the most short- and medium-range missiles in the Middle East? The Iranians. They have 600. ... What is the current threat? The current threat is 600 short- and medium-range missiles in Iran against Europe and our troops that are forward deployed there and, of course, Israel. What should we be trying to defeat? Those systems.

"So what I have insisted on is that we begin to first 'NATO-ize' the [US ballistic missile defense] system."

The Escalation Threat

"If the Iranians decided to pop one off into southern Europe, Article 5 [of the North Atlantic Treaty] says that we're in. It's very easy for us to understand that this is a prerogative of the Iranians to do this, and it certainly is an imperative for us to protect ourselves, so I think we've got to work hard to get this idea of a NATO-ized system up and going."

Pakistan's Nukes?

"We've been watching this percolate for a long time, knowing that it was going in the wrong direction, going from simmer to boil for a long time. ... We need ... a much more robust and significant American commitment to international regimes for arms control. We need a lot more visibility on what is going on in Pakistan. Who does have that 'football?' Who is next in line? What is going to happen should something untoward happen? ...

"I've learned that we don't have as strong a handle on it as I thought we did."

Vladimir Putin's Russia

"You have to be wary of a country whose leader has figured out how to maintain control even though he has got term limits. ... I think the trend lines on Russia are not good. They still obviously have a tremendous amount of [military capability]. ... That is not somebody that you stiff-arm; that is somebody that you grab by the collar and bring as close to you as you can. ... You bring people very, very, very, very close if you're worried about them." ■

The Years of Wheelus

Recent events spark memories of what had been USAF's jewel in North Africa.

By Walter J. Boyne

In a solemn ritual last August, a funeral team at Delaware Veterans Memorial Cemetery laid to rest the remains of 54 Americans. Most were infants. All had just been transported a great distance, and all had been interred once before. They died a long time ago—between 1958 and 1969.

The 54 were among 72 Americans whose bodies had just been retrieved from Hammangi Cemetery in Tripoli, Libya's capital. The deceased were relatives of US airmen once stationed at Wheelus Air Base in that North African country. A planned cemetery repair threatened to disturb the 72 graves, and Libya allowed the US to repatriate the bodies.

US Air Force members stationed in Libya? Many who read accounts of the event no doubt were hearing the name "Wheelus Air Base" for the first time. For USAF members of the 1950s and 1960s, though, the news brought a flood of recollection about a world that vanished decades ago.

Wheelus looms large in the memories of Air Force veterans and their families. Though the sun burned many a back during the summer, the Mediterranean beach brought a welcome relief after a long flight. For the most part, Libya's "364 days of sunshine" weather was wonderful compared to Europe, but the searing heat and the choking ghiblis—dust storms—caused both flying and maintenance problems. During one of the frequent dust storms, temperatures could soar above 110 degrees.

Nonetheless, Wheelus' location and climate made it for about two decades indispensable to Air Force operations. Politics forced its closing on June 11, 1970. The closure itself was guided by one Col. Daniel "Chappie" James Jr., who distinguished himself under difficult circumstances.

Situated seven miles east of Tripoli, Wheelus provided a convenient refueling point for transports and a forward operating location for Strategic Air Command bombers and tankers. Eighty miles away was the 23,000-acre El Uotia gunnery range, frequently used by fighter-bomber units based in Europe and elsewhere. A natural logistic springboard to the entire Middle East, Wheelus was also a convenient spot for many clandestine intelligence operations over the years.

Events leading to the creation of Wheelus were historically important to aviation. In 1911, imperial Italian forces invaded the crumbling Ottoman Empire's North African provinces and, in 1912, consolidated two—Tripolitania and Cyrenaica—into a single state called Libya. In 1923, the Italian conquerors opened Mehalla Air Base near Tripoli.

Over the years, the base grew in size and importance. When World War II broke out, German forces moved in and joined Italian air forces for operations in North Africa. The base was used by the Luftwaffe until January 1943, when it was captured by the famed "Desert Rats" of the British Eighth Army, led by Gen. Bernard L. Montgomery and his air chief, RAF Air Chief Marshal Arthur W. Tedder.

A New Government

The United States Army Air Forces immediately began air operations from Mehalla. It was the start of a long and useful relationship. The end of the war came, but the Allies didn't leave. On May 17, 1945, the American military renamed the facility Wheelus Air Base in honor of 1st Lt. Richard Wheelus, an airman who was killed in Iran earlier that year.

The relationship between the people of Libya, on one hand, and the Allies, on the other, soon was clouded by politics. Italy had been a cruel colonial power, and local resentment more or less was transferred toward the US and Britain. American and British officers, concerned about the drift of things, sought to create a government friendly to the West. In the end, the United Nations established the independent state of Libya on Dec. 24, 1951, with King Muhammad Idris Al-Sanusi I as head of state. Idris had sided with Britain against the Germans during World War II, but was not a popular figure.

In the 1950s, Wheelus became a powerful economic engine within Libya, which was then dirt poor. The money, as was true in most Third World nations, tended to flow to a few rich families rather than more broadly to the people. The inequality of wealth was magnified

in 1959 by the discovery of oil, which overnight transformed Libya from one of Africa's poorest nations into one of its richest. Once again, customary practices diverted most of the oil revenue to a small upper class.

Over the years, Wheelus became invaluable to the United States. Its control was taken up by the Military Air Transport Service and it became a well-known and important stop for big transports, but the heat was a constant problem. Retired Lt. Col. Harry Heist, a veteran of the era, recalls that when runway temperatures were high, his C-124 would break ground, then have to fly at rooftop level for several miles before being able to start the climb to altitude.

In 1951, Libya made available to USAFE fighter and bomber units the excellent facilities at the El Uotia range. It was through the years used for training in air-to-air combat, air-to-ground gunnery, and conventional and nuclear ordnance delivery. In 1958, elements of the 20th Fighter-Bomber Wing took over the management of what was by then called the USAFE weapons training center. Poor weather in Europe frequently would shut down USAF squadrons for days at a time, but they could get a month of uninterrupted training at Wheelus.

Some units found permanent homes there. The 58th Aerospace Rescue and Recovery Squadron was stationed there from 1952 through 1970. In a notable event, three Sikorsky HH-3E Jolly Greens from Wheelus in 1969 flew into flood-ravaged Tunisia and saved the lives of at least 433 people trapped in high waters.

Wheelus' location and clear weather made it a natural forward operating location for Strategic Air Command, especially in the early days of aerial refueling, when aerial tankers were few. SAC deployed to Wheelus B-50 and B-47 heavy bombers as well as KB-29, KB-50, KC-97, and KC-135 tankers. They, along with a variety of support aircraft, were maintained by permanent housekeeping units. The rotating crews and airplanes normally stayed for 45-day periods.

In 1951, USAFE was given responsibility for Wheelus, with the 7272nd Air Base Wing (later Fighter Trainer Wing) given duties as the host unit. Also operating out of the base were many other units, including the 431st Fighter Interceptor Squadron—the "Red Devils"—flying F-86F and D models. From 1956 through 1959, Wheelus was the site of the USAFE's 17th Air Force.

Nationalism was always an ever-present problem, but it underwent a sharp increase in the late 1960s. The Mideast War of June 1967 saw Israeli forces in a mere six days inflict near-total defeat on Egypt, Syria, and Jordan and seize Sinai, the Golan Heights, and the West Bank and Gaza Strip. Given Israel's close ties to Washington, it was no surprise that the war sent a shockwave of anti-American resentment through Libya, where the US Embassy was stoned and two vehicles from Wheelus burned and their drivers beaten. The US Embassy decided to evacuate all Americans willing to leave Libya. The sudden influx of contractors and civilians drove Wheelus' population temporarily to 9,000, of whom more than 6,300 were evacuated.

Artwork by Henry Koehler

Artist Henry Koehler's drawing commemorates the events of Armed Forces Day in 1956 at Wheelus.

Opposite, F-86 Sabres roar off the runway at Wheelus AB, Libya. Left, an aerial view of the base's 11,000-foot runway.

Enter Qadaffi

Soon afterward, the increasingly hostile Libyan parliament began issuing calls for removal of foreign military bases from Libyan soil. In a response, Washington launched a series of public relations programs. It expanded US support for the Royal Libyan Air Force, supervising flying training in the F-5s fighters that Libya had purchased, and so forth. This had little discernible effect.

Through all of this, USAF was preparing for the inevitable. It began to reduce investment in base maintenance and seek alternate facilities in other countries.

The base's fate was determined on Sept. 1, 1969, when a small group of Libyan Army officers seized control of the central government, declared the abolition of the Libyan monarchy, and announced establishment of the Libyan Arab Republic. Idris was in Greece at the time, undergoing a lengthy treatment of an illness. In return for assurance of the safety of his family, Idris quickly capitulated and agreed not to contest the takeover.

Shortly after the bloodless coup, a new strongman, 27-year-old Muammar Qaddafi, rose from captain to colonel and became Libya's maximum leader. In a single day, Libya was changed from a

A USAF cargo airplane is loaded with moveable assets as part of USAF's evacuation of Wheelus.

monarchy friendly to the United States to a radical Arab state led by a political firebrand who incessantly demanded expulsion of American forces.

Col. Daniel "Chappie" James Jr. had just arrived at Wheelus in August 1969 as commander of the 7272nd Fighter Training Wing, and would play a key role in shutting down the base while sometimes dealing personally with Qaddafi.

There followed months of discussions between the US and Libya, conducted for the most part in a courteous manner but with the desire of some Libyan negotiators to appear to their constituents to be tough.

One major diplomatic contretemps severely damaged the fraying relations. Daniel A. DeCarlo, who was supervising principal of the Wheelus dependent school system, contrived to smuggle a Libyan Jew to Malta, hidden in a crate manifested as containing musical instruments. The aircraft commander was unaware of the stowaway.

The smuggled Libyan was discovered and reported. DeCarlo was arrested and pleaded guilty to violation of Maltese immigration laws. Joseph Palmer II, US ambassador in Tripoli, apologized to the Libyan government, making it clear that no US agency had a part in the incident. Both US and Libyan military security was greatly increased at the terminal as a result.

The situation was deteriorating quickly at this point. On Oct. 16, 1969, Qaddafi called for "the liquidation of foreign bases on Libyan soil." Fourteen days later, Palmer received a formal Libyan note asking for discussions on the evacuation of US forces. Requests for the resumption of USAF training flights at Wheelus were rejected by Qaddafi.

The best the United States could achieve was agreement that the base rights agreement would be adhered to until "the last airman and last aircraft had departed." While the US sought to delay the turnover until September 1970, Libyan negotiators insisted that the final transfer of the base be concluded by June 30, 1970.

Irrational Decisions

Negotiations continued to worsen as the Libyans sought to acquire vehicles, equipment, and "demountable real property" in exchange for their continued cooperation. In the words of an official USAF history, Libya's "dark suspicions of USAF intentions resulted in unpredictable and often irrational Libyan decisions."

James (who would later rise to four-star rank as commander of North American Aerospace Defense Command) played a vital and effective role in keeping negotiations on track. He supervised the withdrawal of 4,000 personnel and $21 million in removable assets.

In addition, James and Qaddafi had at least one personal confrontation, a face-off that has now become the stuff of legend in the Air Force. In a face-to-face encounter during the base's final days, James noted that Qaddafi was wearing a sidearm in a holster strapped to his leg. As the two men talked, moreover, the Libyan leader moved his hand onto the grip of the weapon. James later recalled, "I had my .45 in my belt. I told him to move his hand away. If he had pulled that gun, he never would have cleared his holster."

Qaddafi withdrew his hand and the confrontation ended without violence. Within months, both James and the American air base were gone from Libya for good.

The loss of Wheelus did not prove to be a military catastrophe. By 1970, SAC deployed a large tanker force and had increased its reliance on US-based ICBMs. All of the Wheelus functions were transferred to other bases.

Still, it was a sad day for many when Wheelus closed. On that day—June 11, 1970—the base was closed with a low-key, five minute ceremony that featured a Libyan military band playing the "Star Spangled Banner" at the lowering of the US flag and the Libyan national anthem at the raising of Libya's standard. No speeches were given.

The last USAF aircraft to leave Wheelus was a C-130, airborne at 8:41 a.m., which carried the last commander, Col. Walter J. Russell Jr., to Germany.

The site would remain prominent in USAF thinking, however. After renaming it Uqba Bin Nafi Air Base, Tripoli invited Soviet forces to move in, which they did. Moscow stationed equipment and troops at the base. Much of their activity was in support of the sale of Soviet MiG fighters and Tupolev Tu-22 Blinder bombers to Qaddafi's fledgling air force.

Qaddafi was implicated in several high-profile terrorist acts in the mid-1980s, culminating in the April 5, 1986 bombing of a Berlin nightclub packed with US troops. This prompted President Ronald Reagan nine days later to launch Operation El Dorado Canyon, a punitive raid that saw some 100 USAF and Navy aircraft attack numerous targets in Libya—including Uqba Bin Nafi.

The US attack marked a kind of turning point. By most accounts, it had a sobering effect on Qaddafi, and, though his rhetoric never faltered, he greatly reduced his actual use of violence and force. After nearly 20 years of this cold peace with Washington, Libya opted for better relations and restored diplomatic relations in 2006. A year later, the 72 Americans finally came home.

Libya now calls the old Wheelus base site Mitiga Airport, and it is still active in civil and military aviation in North Africa and the Mediterranean, as it is in the memories of the thousands of USAF men and women who served there. ■

Walter J. Boyne, former director of the National Air and Space Museum in Washington, D.C., is a retired Air Force colonel, author, and member of the National Aviation Hall of Fame. He has written more than 600 articles about aviation topics and 50 books, the most recent of which is Soaring to Glory. *His most recent article for* Air Force *Magazine, "Tidal Wave," appeared in the December 2007 issue.*

Verbatim

By John T. Correll, Contributing Editor

The Seat of Government

"In explaining any puzzling Washington phenomenon, always choose stupidity over conspiracy, incompetence over cunning. Anything else gives them too much credit."—***Charles Krauthammer,*** **Washington Post,** ***Oct. 19.***

Cut Too Much

"The Air Force ... in 2005 made a decision to reduce its force structure by 40,000 people. We are getting close to fully implementing that decision, and I'm concerned that it is not working. The savings from this personnel reduction have been eaten up by operating costs and have not served to boost modernization accounts as intended. And since 2005, the Army and Marine Corps have decided to increase their ranks considerably as I have been suggesting since 1995. As a result, the Air Force appears to be short of the people needed to support a larger ground force."—***Rep. Ike Skelton (D-Mo.), chairman of the House Armed Services Committee, Oct. 24.***

Underweighted in Strategy

"'We should create a US national security policy based principally on the deterrence capabilities of a dominant global Air Force and naval presence. ... The US Air Force is our primary national strategic force ... yet it is too small, has inadequate numbers of aging aircraft, has been marginalized in the current strategic debate, and has mortgaged its modernization program to allow for diversion of funds to prosecute' unfunded wars in Iraq and Afghanistan."—***Retired Army Gen. Barry R. McCaffrey, as quoted in*** **Arizona Daily Star** ***(Tucson), Oct. 20.***

The Fat Bomb

"Obesity is a terror within. It is destroying our society from within and unless we do something about it, the magnitude of the dilemma will dwarf 9/11 or any other terrorist event that you can point out. ... Where will our soldiers, sailors, and airmen come from? Where will our police and firemen come from if the youngsters today are on a trajectory that says they will be obese?"—***Dr. Richard H. Carmona, US surgeon general from 2002 to 2006, in forthcoming documentary, "Killer at Large," announced Oct. 25.***

Duty, Honor, Safety

"It's one thing if someone believes in what's going on over there and volunteers, but it's another thing to send someone over there on a forced assignment. I'm sorry, but basically that's a potential death sentence and you know it. Who will raise our children if we are dead or seriously wounded?"—***Jack Crotty, senior foreign service officer, at State Department "town hall meeting" where Crotty and hundreds of other diplomats objected to the possibility of involuntary assignments to fill requirements in Iraq, Associated Press, Oct. 31.***

NATO Commitment Gap

"In Afghanistan, a handful of allies are paying the price and bearing the burdens of allies to create the secure environment necessary for economic development, building civic institutions, and establishing the rule of law. The failure to meet commitments puts the Afghan mission—and with it, the credibility of NATO—at real risk. If an alliance of the world's greatest democracies cannot summon the will to get the job done in a mission that we agree is morally just and vital to our security, then our citizens may begin to question both the worth of the mission and the utility of the 60-year-old trans-Atlantic security project itself."—***US Secretary of Defense Robert M. Gates, Conference of European Armies, Heidelberg, Germany, Oct. 25.***

History Lesson

"The new song and the flag became known as 'The Star Spangled Banner' and became a rallying cry for the American patriots during the Revolutionary War."—***Exhibit in the Kentucky state capitol, getting several decades ahead of itself about the national-anthem-to-be that Francis Scott Key wrote during the War of 1812, Associated Press, Nov. 7.***

Non-Veterans Day

"For our Veterans' Day celebration, my class will be making a banner that honors conscientious objectors and Veterans for Peace."—***Rolf Hanson, fourth-grade teacher at Bay Haven elementary school in Sarasota, Fla., whose program switched to honoring veterans "in a very traditional way" when his original plan provoked an avalanche of public criticism,*** **Sarasota Herald-Tribune,** ***Nov. 8.***

Untouched by the War

"Riding home that day with my parents, I felt nervous, too exposed in their Ford Taurus. There was no armor on the car, and it felt light. We stopped at every red light and stop sign, and I saw potential dangers everywhere, even though I-94 heading into the city was nothing like Baghdad's Airport Road. There were no torched trucks or craters left by bomb blasts. I think it was the neatness of it all that made me uncomfortable. It seemed that staying alive shouldn't be so easy."—***William Quinn, on riding home from the airport in Detroit after service with the Army in Iraq,*** **Washington Post,** ***Nov. 11.***

Relative Outrage

"Europe was not as outraged by Auschwitz as by Guantanamo Bay."—***Hungarian-born Rep. Tom Lantos (D-Calif.), chairman of the House Foreign Affairs Committee, who escaped from a Nazi forced labor camp during World War II, in a discussion that offended members of the Dutch Green Party, Associated Press, Oct. 28.***

Intelligence Withheld

"If you're a parent, explain this one to your kids: It's OK to share a foxhole with an Aussie, have him die for you, but we can't tell him which way the threat's coming from. It's just ludicrous."—***Marine Corps Gen. James E. Cartwright, vice chairman of the Joint Chiefs of Staff, on prohibitions about sharing classified information, Geospatial Intelligence 2007 Symposium, American Forces Press Service, Oct. 23.***

The Modernization Imperative

"There is a time to park the B-17 and move on to a new aircraft."—***Gen. T. Michael Moseley, Air Force Chief of Staff,*** **Government Executive** ***interview, Oct. 31.***

Their lineage goes back a long way, and they play a vital role in today's Air Force.

First Shirts

By Bruce D. Callander

Think of a military job that creates stiff personal demands, requires breaking with your primary career field, demands around-the-clock attention, and lasts only three years. Now note that the person holding this job is the first one to which a troubled airman turns when he or she needs serious help.

You begin to grasp the importance of USAF's first sergeants—"first shirts," in Air Force parlance. You also grasp why, with airmen deploying constantly and working at a very high operations tempo, the contribution of these top-level enlisted members is more important than ever.

In the Air Force, "first sergeant" is not a grade but a special duty designation. He or she reports directly to the unit commander on matters of enlisted morale, welfare, and conduct, and is the chief enlisted advisor to the commander on all of these factors.

The position normally is filled by noncommissioned officers with the permanent ranks of master sergeant, senior master sergeant, or chief master sergeant. They can be identified by the diamond device that they wear on the center of their rank insignia.

CMSgt. Sandra Miller, the first sergeant special duty manager for the Chief Master Sergeant of the Air Force, who today is CMSAF Rodney J. McKinley, said senior NCOs should consider a tour as first sergeant "not only for their career and breadth of experience but for [the sake of] the Air Force."

Specifically, the first shirt helps provide a commander with a mission-ready enlisted force and prepares enlisted personnel for deployments. He advises the commander on a wide range of topics including the health of his airmen and their esprit de corps, discipline, well-being, career progression, and professional development. The first sergeant works with fellow senior NCOs and supervisory personnel to ensure equitable discipline.

He ensures that supervisors set an appropriate example for subordinates and provides guidance. He oversees

USAF photo by Sandy Wassenmiller

As the 381st Training Squadron's first sergeant, MSgt. John Myers speaks to airmen who have just arrived at Sheppard AFB, Tex. When they need help, airmen turn first to their unit's "first shirt."

training in leadership, customs and courtesies, dress and personal appearance, self-discipline, adherence to standards, drill and ceremony, and safety. The first sergeant helps enlisted members adapt to the military environment and adjust to the organization and manages care and upkeep of unit dormitories and adjacent grounds. He coordinates with supervisors to schedule unit functions, duties, leaves, and passes.

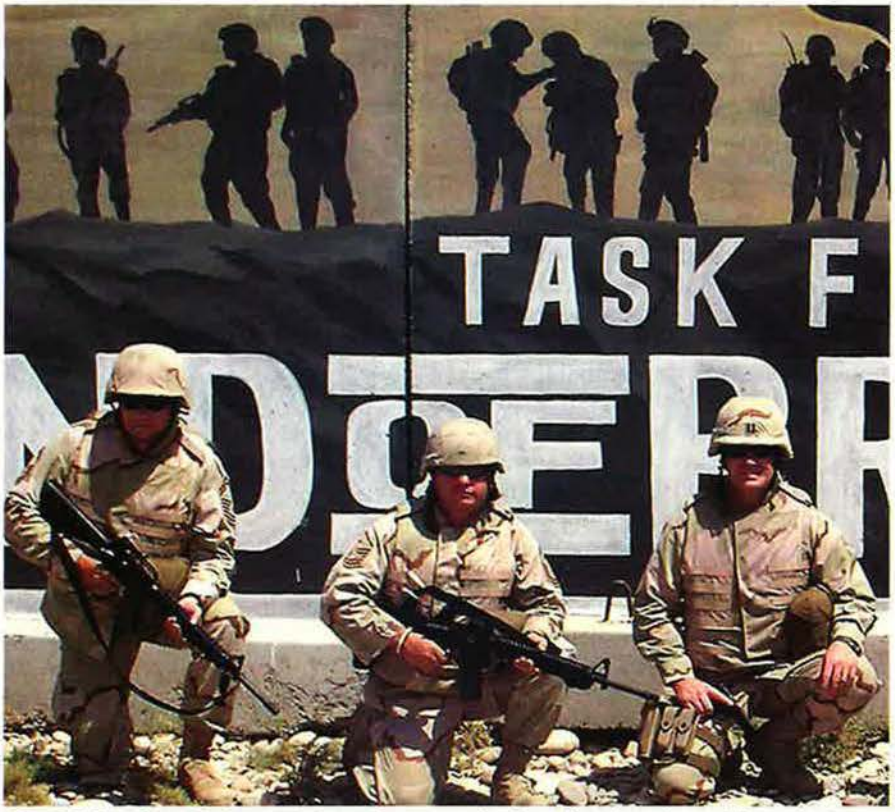
The Search for Top-Notch NCOs

Equally important, a unit's first sergeant works closely with the relevant command chief master sergeant—the senior enlisted advisor to the commander at the level of wing, numbered air force, and major command—to ensure airmen are prepared to execute their missions.

"In effect, the first sergeant is a facilitator," said Miller.

First sergeants are selected through a combination of application and nomination. Once an NCO applies, the application goes through a wing command chief, to a wing commander, to a major command chief, and on to the Military Personnel Center. Sometimes, a nominee will not be released from his primary career field. Assuming the applicant is released, however, the NCO is scheduled to attend the First Sergeant Academy at Maxwell AFB, Ala.

It is highly unlikely that a nominee will wind up back at the unit from which he came. "Chances are, that the unit already has a first sergeant," said Miller. "So that NCO is going to get trained and usually will go to another squadron."



USAF photo

AFRC MSgt. Scott Daigneault (center) was on the front line literally and figuratively as first sergeant for the 506th Expeditionary Logistics Readiness Squadron in Southwest Asia. At left is SMSgt. Robert Griffin. ANG Capt. Christopher Green is at right.

As a special duty assignment, the first sergeant job is in competition with a number of other special duty jobs, all of which are looking for top NCOs. A first sergeant is critical in a squadron. "That's why it is so important to keep the jobs full," said Miller.

Some NCOs are fearful that a tour as first sergeant will slow their advancement in their primary careers and delay promotions. The facts show this is not so. "I think any time you do a special duty," said Miller, "any time you take on that extra responsibility, you become a better senior NCO." She added that NCOs who have done a tour or more as a first sergeant are more likely to be promoted. The scope of experience gained as a first sergeant provides a boost.

A number of command chief master sergeants have, at one time, served as first sergeants. Moreover, McKinley, the current Chief Master Sergeant of the Air Force, served as first sergeant with four squadrons.

At last count, the Air Force had 1,190 first sergeants serving in assigned positions and was looking for another 60 to fill vacancies. Keeping the posts filled is difficult. Not only do the appointments require top-notch senior NCOs, they also last for only three years, meaning there is constant turnover.

Throughout its history, the US Army relied on the concept of the first sergeant, which was a formal rank. The Air Service, Air Corps, and Army Air Forces, all of which were integral parts of the Army, also embraced the concept. When the Air Force became a separate service in 1947, however, it broke with

USAF photo by Steve Thurow

MSgt. Rodney McCleod (l) does push-ups, while MSgt. Paul Martin observes, during a fund-raiser for the Brooks City-Base, Tex., community. Both are unit first sergeants.

Army tradition and made the position a duty specialty. In 1954, Gen. Nathan F. Twining, the USAF Chief of Staff, approved the use of the diamond in the V above the grade insignia as the first sergeant device.

Twists and Turns

In the late 1950s, the responsibilities of the first sergeant were reduced. The unit first sergeant became essentially an orderly room manager. In the same period, the Air Force created the E-8 and E-9 grades, further complicating the role of the first sergeant.

Superintendents in these grades routinely overruled the first sergeant's directions to airmen in junior grades. Numerous problems with the position prompted a study of the procedures for selecting and using first sergeants.

In 1961 the Air Force created the separate first sergeant career field (01090) and ruled that males in grades E-7 and above and females in E-6 and above could hold the post.

USAF photo

The first shirt is a top-notch senior NCO. SMSgt. Michael Brimmer, shown here at Wright-Patterson AFB, Ohio, was AFRC's 2006 first sergeant of the year.

In 1967, Strategic Air Command's 15th Air Force opened at March AFB, Calif., what is thought to be the Air Force's original first sergeant school. Training included advanced management, personnel counseling, communications, and military justice.

In the early 1970s, the Air Force made a top-down effort to improve the first sergeant selection, training, and image. A headquarters workshop recommended formal training courses and in 1972, the Air Force Extension Course Institute developed a first sergeant career development course. A year later, the Air Force issued AFR 39-16, "Selection, Training, and Utilization of First Sergeants."

In 2003, the Air Force again changed course, turning the first sergeant job once more into a separate special duty assignment. At the same time, it adopted the "three plus three" policy making the tour three years, with the possibility of a three-year extension. The reason for making the job a special duty was largely a matter of perception, said Miller.

"The stigma used to be that when you became a first sergeant, you stayed a first sergeant," she said. "You never could go back or, if you went back, it was negative."

Another factor in the decision to make the job a special duty was the hard fact that it had lost its appeal to many airmen. The Air Force was seriously short of first sergeant applicants. The changes made the post more attractive to senior NCOs and improved recruiting.

Since 1973, new first shirts require training not only at the Senior Noncommissioned Officer Academy but also at the First Sergeant Academy. There is little duplication in their curricula. At the FSA, security forces procedures, human resources intervention, and counseling skills are all covered in more depth than at the Senior NCO Academy.

Among enlisted troops, there is support for returning the first sergeant job to a career Air Force Specialty Code. The fact that so many command chiefs and Chief Master Sergeants of the Air Force have served as first sergeants seems to bolster the argument for returning it to career status.

On the other hand, some first sergeants like the idea of making the status a rank, as in the Army. Past confusion over whether the first sergeant or the ranking NCO on a base was in charge of enlisted members lends some support to this thinking. ■

How Did "First Sergeants" Become "First Shirts"?

The term "first shirt" has been applied to the duty for years, and it seems that no one can authoritatively document the origin. However, there are three main theories.

The first and most colorful version has it that federal troops in the early frontier days wore their shirts into tatters and eagerly awaited the supply wagon bringing new uniforms. When it came, the first sergeant, being the ranking enlisted man, got the first pick of the shirts.

The second theory is that the first sergeant, being the most senior and usually the most experienced of soldiers, often collected more decorations and insignia than anyone else. His shirt thus was the gaudiest—the first—in the outfit.

The third explanation is that when the Army troops removed their shirts to work in hot weather, the first sergeant continued to wear his because he was boss of the work crew and did not do manual labor. When anyone wanted instruction on some subject, he was told to see "the shirt."

Bruce D. Callander is a contributing editor of Air Force *Magazine. He served tours of active duty during World War II and the Korean War and was editor of* Air Force Times *from 1972 to 1986. His most recent article for* Air Force *Magazine, "Vanished Arts," appeared in the October 2007 issue.*

Air Doctrine by Sir Arthur

By early 1943, British forces had been dueling German Field Marshal Erwin Rommel across North Africa for many months. British air and ground leaders had accumulated hard-won lessons about command arrangements and had lashed together a unified air command and air-ground liaison system. For the British—RAF and Army alike—there were three truths. First, the air commander had to have centralized authority over air units. Second, the supreme requirement was air superiority. Third, airpower could be used to control enemy maneuver forces.

RAF Air Vice Marshal Arthur Coningham, the overall allied tactical air commander, delivered a now-famous summation of these lessons at a meeting in Tripoli. In the audience were many senior Americans, most of whom were aware that, in the Battle of Kasserine Pass raging not far away in Tunisia, many US aircraft were grounded by inept management by ground commanders. The ideas in Coningham's speech soon became the touchstones of US tactical air employment doctrine, and remain so down to the current day.

"Army-Air Operations"

Air Vice Marshal Sir Arthur Coningham
Talk to Assembled British and
American General and Senior Officers
Tripoli, Libya
Feb. 16, 1943

Find the full text on the Air Force Association Web site
www.afa.org
***Air Force* Magazine**
"The Keeper File"

THE doctrine that we have evolved by trial in war over a period of many months could, I think, be stated in its simplest form as follows: The soldier commands the land forces, the airman commands the air forces; both commanders work together and operate their respective forces in accordance with a combined army-air plan, the whole operations [sic] being directed by the army commander.

There are fundamental differences between the army and the air forces which should be recognized: The army fights on a front that may be divided into sectors, such as a brigade, division, corps or an army front. The air front is indivisible.

An army has one battle to fight, the land battle. The air has two. It has first of all to beat the enemy air, so that it may go into the land battle against the enemy land forces with the maximum possible hitting power. We have not, as yet, secured sufficient superiority to finish the air-to-air battle off completely, but we have been pretty near it and we have been able to concentrate up to 80 or 90 percent of our hitting power on the enemy land forces.

The fighter governs the front, and this fact forces the centralization of air control into the hands of one air commander operating on that front. I think it is generally accepted that, with adequate fighter superiority and bomber forces, the air has a governing influence on what happens within reach on the ground or on the sea.

And finally, there is no doubt that, in this technical age, it needs a life of study and specializing for a sailor, a soldier, or an airman to learn his profession. He is never free from the problems of development, particularly in war, and I therefore cannot accept the possibility that any man, however competent, can do the work of the other services without proportionately neglecting his own. In plain language, no soldier is competent to operate the air, just as no airman is competent to operate the army.

It is generally agreed that the fighting efficiency of a service is based upon leadership, training, and equipment. The commander is personally responsible for the leadership and training, and no one who has not this power should operate the forces concerned. ...

You will notice that the army commander does not use the word "co-operation." I submit that we in Eighth Army are beyond the co-operation stage, and that work is so close that we are, in effect, one unit. I hope you won't mind if I suggest that co-operation means the other fellow co-operating with you. We in the air force have cause to view the word with mixed feelings because, in the past, co-operation has meant the air co-operating with the navy or the army. The difference in the Eighth Army is that there has been as much air co-operation by the army as army co-operation by the air, and the natural result is that we have now passed beyond that stage into a unit or team which automatically helps the other. ...

It often happens that an army formation at the front sees a good target which, though reported, is not attacked. To take an instance: A front formation reports a concentration of 200 M.T. [motor transports] and accompanying arms. Its request for air attack is turned down. Fifteen or 20 miles away, however, there is a concentration of 2,000 or more, indicating an armored division or even larger forces. This concentration, we know from experience, will probably affect the whole battle area perhaps 10, 18, 24 hours later. It is this concentration which is receiving all the weight of air attack, and that is why the comparatively little target on the front is ignored.

The smaller formations of the army must understand that penny packets of air are a luxury which can only be afforded at certain times, and that judgment on the question of targets is the result of agreement between the army and air commanders, and in accordance with the army commander's broad directive on priority.

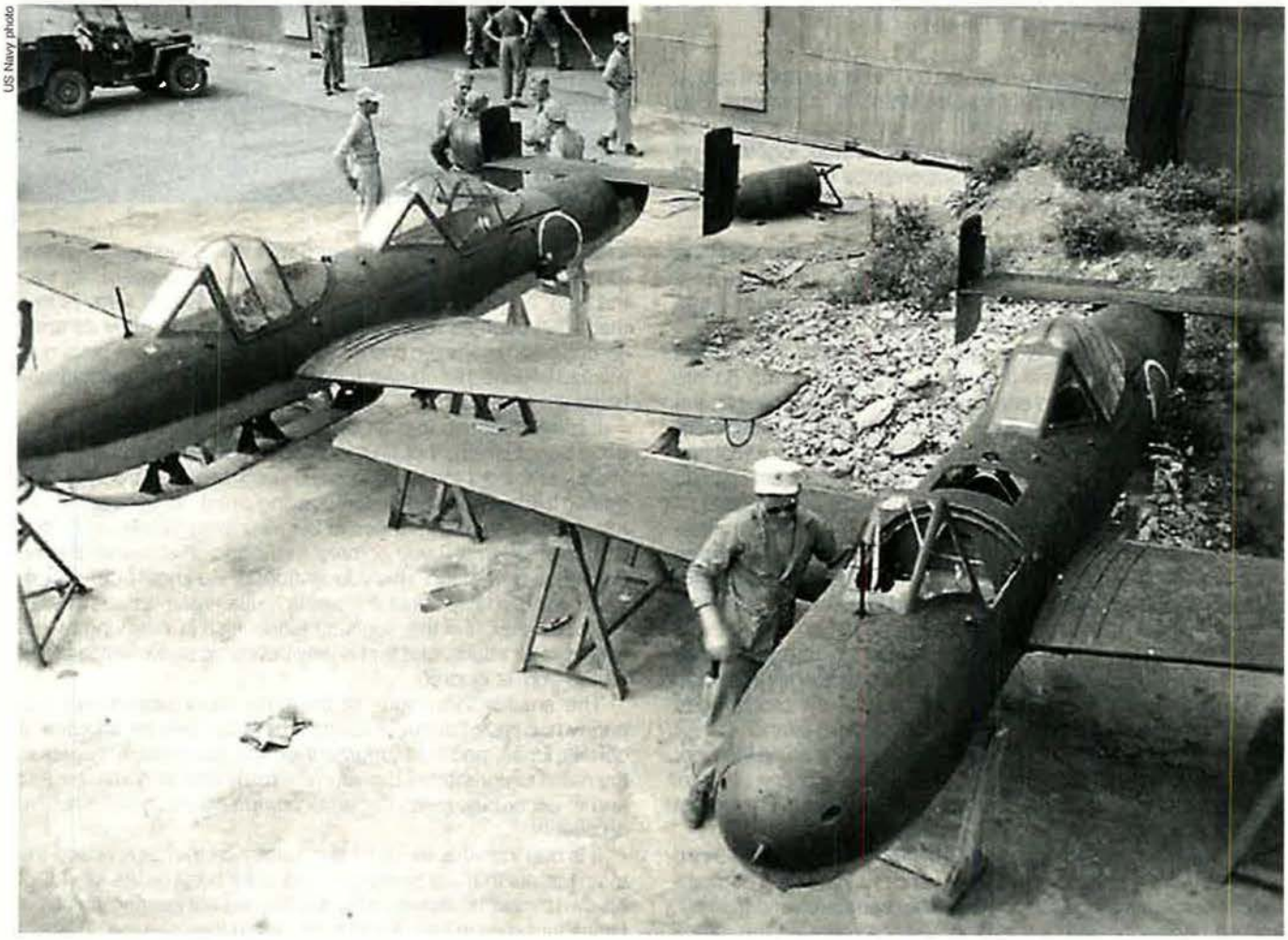
It is bad luck that the front line soldier cannot always see the main targets that are being attacked, but if he sees the sky full of his own aircraft he can rest assured they are not wasting their time. I think all forces in the Eighth Army, when they see the bombers going over, take it for granted that the Hun is being thrashed and that there is something more important than their own small front line target being dealt with. ...

Is it too much to suggest that we obey the rules of simple logic and take success in army-air development as reached in this theater as a model on which further development can take place? ■

The "Wakazakura"

These two Japanese aircraft bore the poetic name translated as "young cherry blossom," but their purpose was deadly: to train Japanese World War II pilots to deliberately crash into US Navy ships. In this photo, American Navy personnel inspect two Ohka Model 43 K-1 KAI two-seat trainers built at Yokosuka before Tokyo surrendered. The aircraft were powered by a solid propellant rocket in the tail, and the second cockpit replaced a warhead. The trainers had flaps and retractable skids for landing. The armed version of these human-guided missiles were launched from a mother aircraft on one-way missions flown by suicide squads known as kamikazes.

US Navy photo



Air Force Association presents
The 24th Annual Air Warfare Symposium

AIR DOMINANCE

YESTERDAY, TODAY, TOMORROW

February 21-22, 2008

Rosen Shingle Creek Hotel
Orlando, Florida

Invited speakers at the symposium include the top leaders of the US Air Force.

Air, space, and cyberspace power is the domain of US military capabilities. Total situational awareness of the battlespace brings asymmetrical advantages with a host of opportunities as America's defense addresses current threats while transforming to meet future needs. Whether it is intelligence provided by a space craft, streaming video from the Predator unmanned aerial vehicle to the warfighter on the ground coordinating operations, an F-16 providing close air support precision strike or detecting hostile ground activity, or fuel from a tanker crew, air warfare is being challenged and is evolving in ways never seen before.

SYMPOSIUM REGISTRATION FEES:
The Symposium registration fee is $895.

GOLF TOURNAMENT:
The Central Florida Chapter of AFA will sponsor a golf outing on Wednesday, February 20 at Walt Disney World's Magnolia Palm Courses.

GALA
The Central Florida Chapter of AFA will sponsor their 24th annual black-tie Gala on Friday, February 22 at Rosen Shingle Creek Hotel.

Please visit the Air Force Association website at www.afa.org for additional information, and to register.

For additional information, please contact:
BARBARA COFFEY regarding Military/DOD/Industry inquiries, at (703) 247-5805 or bcoffey@afa.org

JIM DEROSE regarding the Golf Tournament, at (407) 356-0461 or james.l.derose@lmco.com

TOMMY HARRISON regarding the Gala, at (407) 886-1922 or tgharrison@aol.com

We hope you join us!

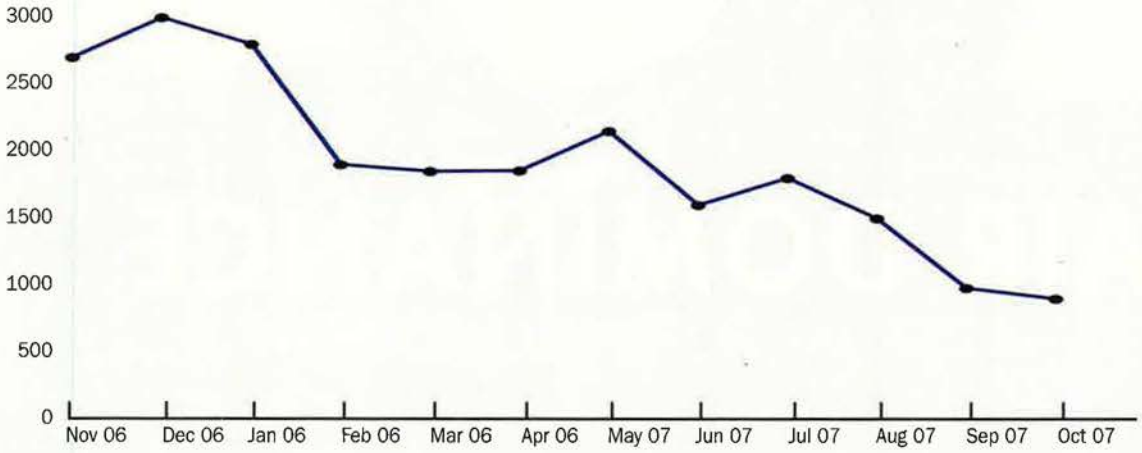
Chart Page

By Tamar A. Mehuron and Heather Lewis

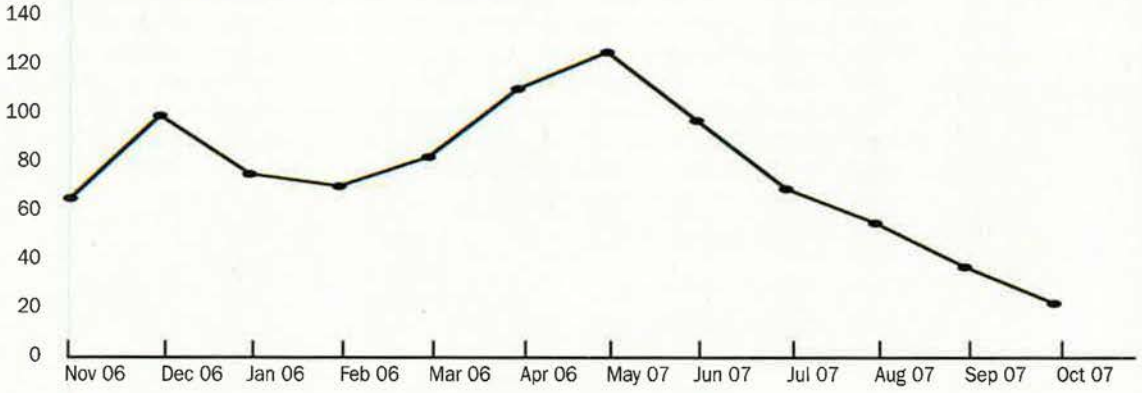
The Three Lines

Did the US in late 2007 finally turn a corner in Iraq? That seemed possible as three positive trends emerged. The surge of US ground, air, sea, and special operations power was working, though few were willing to declare victory.

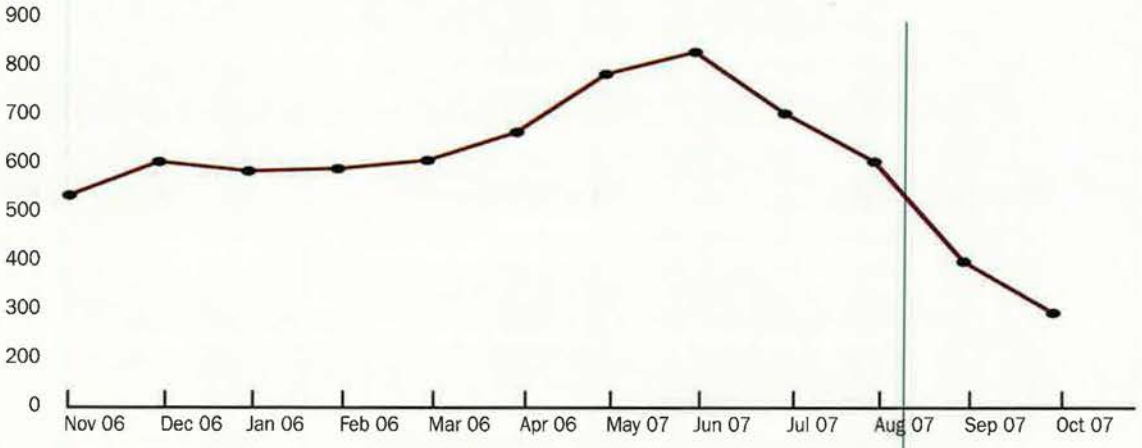
Iraqi Civilian Deaths



Coalition Forces Killed in Action



Coalition Forces Wounded in Action



Source: Nov. 1, 2007 Defense Department briefing by Lt. Gen. Raymond T. Odierno, commander, Multinational Corps-Iraq.

AFA National Report

natrep@afa.org

By Frances McKenney, Assistant Managing Editor

The Airfield in Afghanistan

Rocket attacks were common. Suicide bombers attempted to kill perimeter patrols. At a September meeting of the **Lexington Chapter (Ky.),** ANG Col. Steven P. Bullard described such incidents in his firsthand account of his assignment at Kandahar Airfield, Afghanistan.

Bullard served as the senior airfield authority for the NATO International Security Assistance Force from September 2006 to March 2007. Bullard described for chapter members how he and his staff combined NATO resources, managing maintenance and control of US and foreign aircraft and reconstruction of the runway and other facilities. He said that his team opened up the Kandahar terminal for use by Afghan civilians, the first time it had been operational since the fall of the Taliban. Bullard told the audience that he was particularly proud of the Air Force's hosting of more than 5,000 followers of Islam who were making their pilgrimage to Mecca.

AFROTC cadets from the University of Kentucky were among the audience members listening to Bullard's presentation. Also on hand: CMSgt. Jonathan G. Rosa, the AFA Kentucky state president and a USAF Outstanding Airman in 2004. An ANG combat controller, Rosa had his own firsthand knowledge of security challenges in Afghanistan, having been a member of the security guard for the country's President, Hamid Karzai.

USAF photo by Tom Pullin

AFA Board Chairman Bob Largent presents the AFA academic achievement award to SMSgt. Gary Wilhite, at the graduation ceremony for the Senior NCO Academy's Class 08-A at Maxwell AFB, Ala., in November. The award is named for former AFA Board Chairman James McCoy.

Letter to a Soldier

When a wounded soldier from the Front Royal, Va., area needed support, the **Northern Shenandoah Valley Chapter** put member Stephanie L. Davis on the project.

Davis teaches at Randolph Macon Academy in the town and heads the school's community service program. She encouraged cadets at the co-ed college-prep military school to write a letter not only to the wounded soldier but to other military personnel as well.

Davis told the cadets that the goal was to send a letter—and not necessarily to get a reply in return. So it was particularly gratifying when an ANG senior airman from Fort Collins, Colo., wrote back from Balad AB, Iraq.

"Your letter has brought a smile to every one of my fellow airmen," said the F-16 maintainer. He added that he would welcome questions about serving in the military. "No other job on earth will give you the same sense of pride," he wrote.

Chapter President Norman M. Haller said the cadets have sent out hundreds of letters to military personnel, and Jacob Skeith, who organized the processing and logging of letters at the school, recently received an AFA-Randolph Macon Academy scholarship, in part for his efforts on this project.

Quick Victory

At the **Col. H.M. "Bud" West Chapter's** executive council meeting in Tallahassee, Fla., in October, chapter member Elaine Combs suggested that the chapter support a Victory Box program. Victory Boxes are filled with donated items, packed by volunteers, and mailed to US military personnel in Iraq or Afghanistan. The service members then distribute the school supplies, clothing, and personal care items to local citizens.

The chapter council supported the idea, and Col. Jeffrey Spraggins, a council member and the head of Florida State University's Det. 145 in Tallahassee, volunteered his cadets to help on this project. Then, as Chapter President John E. Schmidt Jr. explained, "before the chapter members could react to our announcement of our participation in this project, the cadet corps had already filled 68 boxes, ready to be mailed."

Chapter members caught up to this quick victory by donating nearly $800 to cover the cost of mailing. One member alone gave $350, noted Schmidt. He added, "By the way, those cadets used their own monies to purchase and fill those boxes. That in itself is no small gesture of support by those young future officers."

According to its Web site, the Victory Box Program began in fall 2005, as an initiative of Mary Margaret Halleck of Colleyville, Tex., who had been sending packages to her stepson while he was stationed with the Army in Iraq.

The cadets' initial batch of Victory Boxes contained items for children—small toys, combs, toothbrushes, sandals,

candy, snacks, and school supplies—and were scheduled to be distributed to schools, hospitals, or orphanages. Schmidt said the chapter is planning for more Victory Box shipments.

From Military to Civilian

San Antonio's **Alamo Chapter** sponsored its first Defense Technology and Intelligence Career Day—a job fair at Lackland AFB, Tex., in November. It brought job-seekers together with potential employers.

A professional career-services company produced the event. It was aimed at those with a highly sought-after credential: a security clearance. The job fair was pitched to military and civilian personnel with IT, intelligence, scientific, or technical backgrounds, and especially those transitioning from the military to civilian life, but the positions to be filled included cooks, groundskeepers, and personal care givers, as well.

Chapter President Carlos H. Massiatte said 280 people attended the fair, with 19 employers manning booths, and the chapter expects to gain some Community Partners, as one result.

Been There, There, and There

A three-war veteran addressed the November meeting of the **Columbus-Bakalar Chapter** in Columbus, Ind.

Retired Col. John W. Lewis spoke mainly about his service during the Korean War, but his military career actually began with his 1942 enlistment for World War II. During that war, he flew P-40s, B-25s, and other airplanes, completing 69 combat missions. Recalled for active duty for Korea, he flew 50 combat missions in seven months, then returned to Indiana to join the Air Force Reserve. He was called again for the Cuban Missile Crisis and six years later for Vietnam. Lewis completed 51 combat missions in Southeast Asia, flying AC-119s from Tan Son Nhut AB, South Vietnam. He earned a Distinguished Flying Cross in each of the three wars.

Chapter Treasurer Owen D. Stickles had been a flight engineer in Lewis' unit, the AFRC 71st Special Operations Squadron, and had flown many times with him. Stickles suggested him as a guest speaker for the meeting. Chapter Secretary James Alvis said the group is considering inviting Lewis back—this time to cover his Vietnam War years.

Col. H.M. "Bud" West Chapter President John Schmidt (front row, right) and Daniel Lopez from AFROTC Det. 145 display one of the Victory Boxes that Florida State University cadets sent to Southwest Asia as part of a chapter project. Chapter member and detachment commander Col. Jeffrey Spraggins is at the top row, far left.

Medevac Briefing

A medevac nurse was the guest speaker for the November meeting of the **Tarheel Chapter** in Greensboro, N.C.

Lt. Col. Mary Jo Abernethy is chief nurse for the 932nd Aeromedical Evacuation Squadron (AFRC) based at Scott AFB, Ill. She recently returned from a four-month deployment to Ramstein AB, Germany, where she helped carry out air evacuations from Afghanistan. Abernethy, who is a chapter member, spoke about fatality rates from injuries incurred in all the conflicts from the Revolutionary War to today. Her PowerPoint presentation covered how aircraft were configured for medical evacuations, specialized equipment

needed, and some of the unique cases handled under difficult conditions.

The Tarheel Chapter also recently elected Joyce W. Feuerstein as its president. Outgoing Chapter President Gilbert M. Slack welcomed Feuerstein to the post by handing her an oversize homemade gavel. He told her she would need it to command chapter members' attention, but Feuerstein responded that she was up to the challenge: She said she would be using her "grown-up voice" just like the one she used to raise her three—now adult—sons.

More Chapter News

■ Is later better? To boost attendance, the **Strom Thurmond Chapter** in Clemson, S.C., tried a new format for meetings: It moved its November gathering's start time to 4 p.m., held it at a Community Partner's restaurant, and offered free "munchies." Chapter President Col. Lance S. Young said the old luncheon meeting meant chapter members had to break away from work at midday and spend time driving to the meeting. He said the new venue pleased the Community Partner, and attendees gave him "a huge thumbs up." He expects to sign up a couple of new members as a result. Donald R. Michels, the new AFA Southeast Region president, was guest speaker for this meeting.

■ The **Frank Luke Chapter (Ariz.)** has established a new award to recognize the best teamwork among the flights of airmen graduating from airman leadership school at Luke AFB, Ariz. Called the Team Spirit Award, the first recipients came from Phantom Flight, in Class 07-8: Senior Airmen Jennifer Barber, Ermenrene Barnett, Melvin T. Casler, Darryl Pruitt, Kyle Renbarger, Ricky Steelman Jr., Shelia Stoddard, Bryan W. Stowe, Angela M. Tate, and Stephen Wade. They were scheduled to receive a custom-designed Team Spirit commemorative coin and AFA memberships.

■ P-51 pilot Raymond Lepore spoke to fellow members of the **Southern Indiana Chapter** in Bloomington, Ind., in November. Chapter President Marcus R. Oliphant noted that Lepore flew 49 combat missions in World War II Europe before being shot down and becoming a POW. Oliphant said the audience was "spellbound" by Lepore's account of this experience. At the meeting, Chapter Treasurer Gerhard W. Gaiser received a national-level AFA Medal of Merit, presented by Indiana State President William R. Grider and Oliphant.

■ Seeking to learn more about AFA, the Marion County Civil Air Patrol organization in Florida invited Michael H. Emig, president of the **Red Tail Memo-**

AFA's National Committees for 2007-08

Executive Committee. Robert E. "Bob" Largent (Chairman), Judy K. Church, Peter J. Hennessey, Steven R. Lundgren, Lester L. Lyles, S. Sanford Schlitt, Joseph E. Sutter, Jerry E. White, James Hannam (ex officio), Michael M. Dunn (ex officio).

Finance Committee. Steven R. Lundgren (Chairman), David R. Cummock, Stephen J. Dillenburg, John J. Murphy, Jack G. Powell, Robert E. "Bob" Largent (ex officio).

Membership Committee. James R. Lauducci (Chairman), Nicholas Abate, Justin Faiferlick, W. Ron Goerges, Jerry Needham, Joseph E. Sutter (ex officio).

Constitution Committee. Edward W. Garland (Chairman), Joan L. Blankenship, William D. Croom Jr., Kevin Estrem, Judy K. Church (ex officio).

Strategic Planning Committee. James Hannam (Chairman), Julie Curlin, Paul W. Schowalter, Eric P. Taylor, Raymond Turczynski, Scott Van Cleef, Craig E. Allen (advisor), George K. Muellner (advisor), Richard B. Myers (advisor), Robert E. "Bob" Largent (ex officio).

Audit Committee. Charles A. Nelson (Chairman), David B. Poythress, Michelle Ryan, Charles G. Thomas, Carol Wolosz, Mark J. Worrick, Robert E. "Bob" Largent (ex officio).

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Hawaii Chapter President Timothy Saffold (right) helps dedicate a park at Hickam AFB, Hawaii, in August. Atterbury Memorial Park honors airmen who served in the Pacific. L-r: Col. J.J. Torres, 15th Airlift Wing commander; Chaplain Kordell Kekoa; and Gen. Paul Hester, PACAF commander. The chapter led the fund-raising to refurbish the park.

rial Chapter, to be guest speaker at a CAP banquet in Ocala in October. Emig spoke about AFA's history and its role today. He also presented an AFA award for Outstanding CAP Cadet to Heather Osborne.

■ The **Thomas W. Anthony Chapter (Md.)** received a Certificate of Appreciation in recognition of its support for the Joint Service Open House held at Andrews AFB, Md., last May. The chapter paid for and hosted a breakfast that was part of a mandatory safety briefing for the open house's air show performers. Several chapter officers also manned a display during the open house.

■ In October, the **Meridian Chapter (Miss.)** introduced its new officers at a luncheon meeting: Langford Knight, president; Larry D. Pace, vice president; Bradley Crawford, treasurer; and Tom Williams, secretary. At this leadership kickoff, Mississippi State President Roy P. Gibbens presented Knight with two AFA national-level awards that the chapter earned in 2006-07: a Jack Gross Award and a Community Partner Membership Gold Award. ■

Have AFA News?

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CMSgt. Jonathan Rosa, the Kentucky state president, cuts an Air Force 60th anniversary birthday cake with Lexington Chapter member John Hickey. The September chapter dinner meeting took place at the Aviation Museum of Kentucky. Rosa is an ANG combat controller. Hickey is a World War II veteran and retired colonel.

Reunions

reunions@afa.org

22nd FS. Oct 16-18 in Santa Fe, NM. **Contact:** Jim Wright (jwright633@aol.com).

36th TFW/525th TFS, Bitburg AB, Germany. Sept. 26-28 in St. Charles, MO. **Contact:** Dean Yarolimek (dyarolim@mail.win.org).

435th OMS Enroute Section. Oct 8-11, 2009, in Dayton, OH. **Contact:** Stan Miller, 7213 Avila Dr., Fayetteville, NC 28314 (910-922-4383) (flymiller@mindspring.com).

485th Tactical Missile Wing. June 5-8 at the Sheraton Great Valley in Frazer, PA. **Contact:** John Rudzianski (570-278-2482) (jrudz@epix.net).

494th BG (WWII). May 15-19 at the Crowne Plaza Hotel, 2200 Centreville Rd., Herndon, VA 20170. **Contact:** Marshall Keller, 7412 Vassar Dr. East, West Bloomfield, MI 48322 (248-626-3684) or John Loser, P.O. Box 24333, Louisville, KY 40224 (269-565-3124).

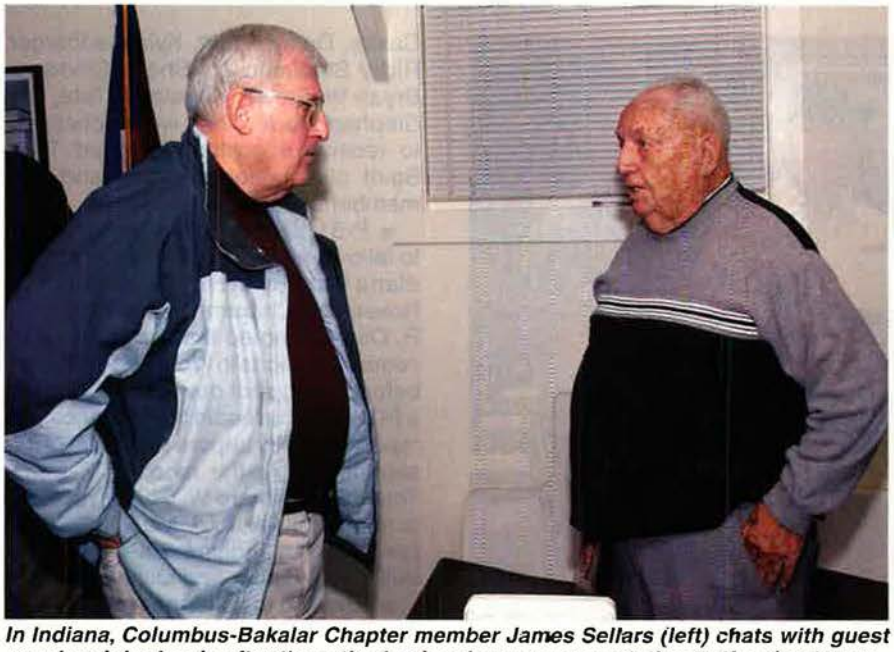
AF Public Affairs Alumni Assn., including present PA, broadcast and band personnel. May 14-17 at La Quinta Inn & Suites, San Antonio. **Contact:** Hal Smarkola, 18006 Keystone Bluff, San Antonio, TX 78258 (210-838-1681) (terinocom@earthlink.net) (halandpeggy@aol.com).

C-123s in Southeast Asia. May 5-9 in Dayton, OH. **Contact:** Bill Kehler (501-985-0547) (bbkehler@aol.com).

Mayaguez recovery-Koh Tang, Cambodia, veterans (May 1975), including Jolly Green, Knife, air control, and air support units. April 30-May 3 in Fort Walton Beach, FL. **Contact:** Dan Hoffman (803-647-9034) (dhoffman@sc.rr.com).

SHAEF/ETOUSA. October in Dearborn, MI. **Contact:** Jackie Voelkl, 17 Cedarlake, Irvine, CA 92614 (949-552-5246). ■

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.



In Indiana, Columbus-Bakalar Chapter member James Sellars (left) chats with guest speaker John Lewis after the retired colonel gave a presentation to the chapter on his wartime experiences.

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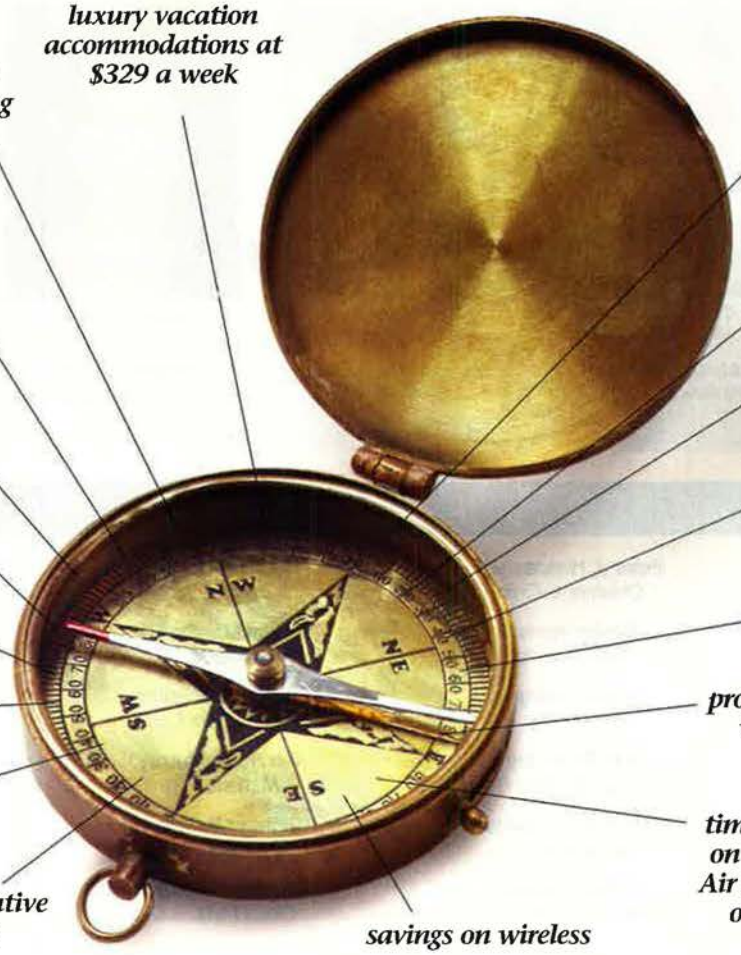

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Airpower Classics

Artwork by Zaur Eylanbekov

Il-2 Shturmovik

The Soviet Il-2 Shturmovik ground attack aircraft played a crucial role in World War II. It was a principal cause of German defeat on the Eastern Front. Indeed, Soviet dictator Joseph Stalin claimed the Red Army needed it "like the air it breathes, like the bread it eats." That demand brought production in huge numbers—more than any other combat aircraft ever.

Designed by Sergey Ilyushin, the Il-2 at first was a two-seater, but Stalin himself deleted the rear gunner position (reinstated in 1942). The key to the aircraft's success was the 1,540-lb armored steel shell around the pilot, engine, radiators, and fuel tank. Initial ground-skimming tactics were replaced by attacks from about 6,000 feet. Shturmoviks in line-astern formation would circle down in a 20-degree dive to attack, then rejoin the circle for another attack. The Il-2's cannon and rockets were not as effective as its other weapon, the 5.5-lb. anti-tank bomblet with a shaped warhead. Dropped in massive quantities, the bomblets were devastating to the upper surfaces of tanks.

When the Wehrmacht stormed into Russia on June 22, 1941, German pilots found the single-seat Il-2 an easy target, and soon the gunner's position returned. Even then, the Il-2's work was recognized as so hazardous that pilots received the Hero of the Soviet Union award after only 10 missions; those flying other aircraft needed 100 missions. Thanks to heavy armor protection, an Il-2 could take a great deal of punishment, and it has long been clear that they dished out more than they took. Many view it as the most decisive land-warfare aircraft of all time.

—Walter J. Boyne

This aircraft: Soviet Air Force Il-2 Type 3 Shturmovik—*#12*—as it appeared in April 1945 when assigned to 16th *Vozdushnaya Armiya* (Air Army) based near Berlin.

In Brief

Designed, built by Ilyushin ★ first flight Oct. 2, 1939 ★ crew of two ★ number built 36,163 ★ one Mikulin AM-38F 12-cyl engine ★ **Specific to Il-2M3:** armament two 23 mm cannon, two fixed 7.62 mm machine guns, one flexible 12.7 mm machine gun, up to 1,320 lb of bombs or four RS-82/RS-132 rockets ★ max speed 257 mph ★ cruise speed 195 mph ★ max range 450 miles ★ weight (loaded) 13,850 lb ★ span 47 ft 11 in ★ length 38 ft 1 in ★ height 13 ft 9 in.

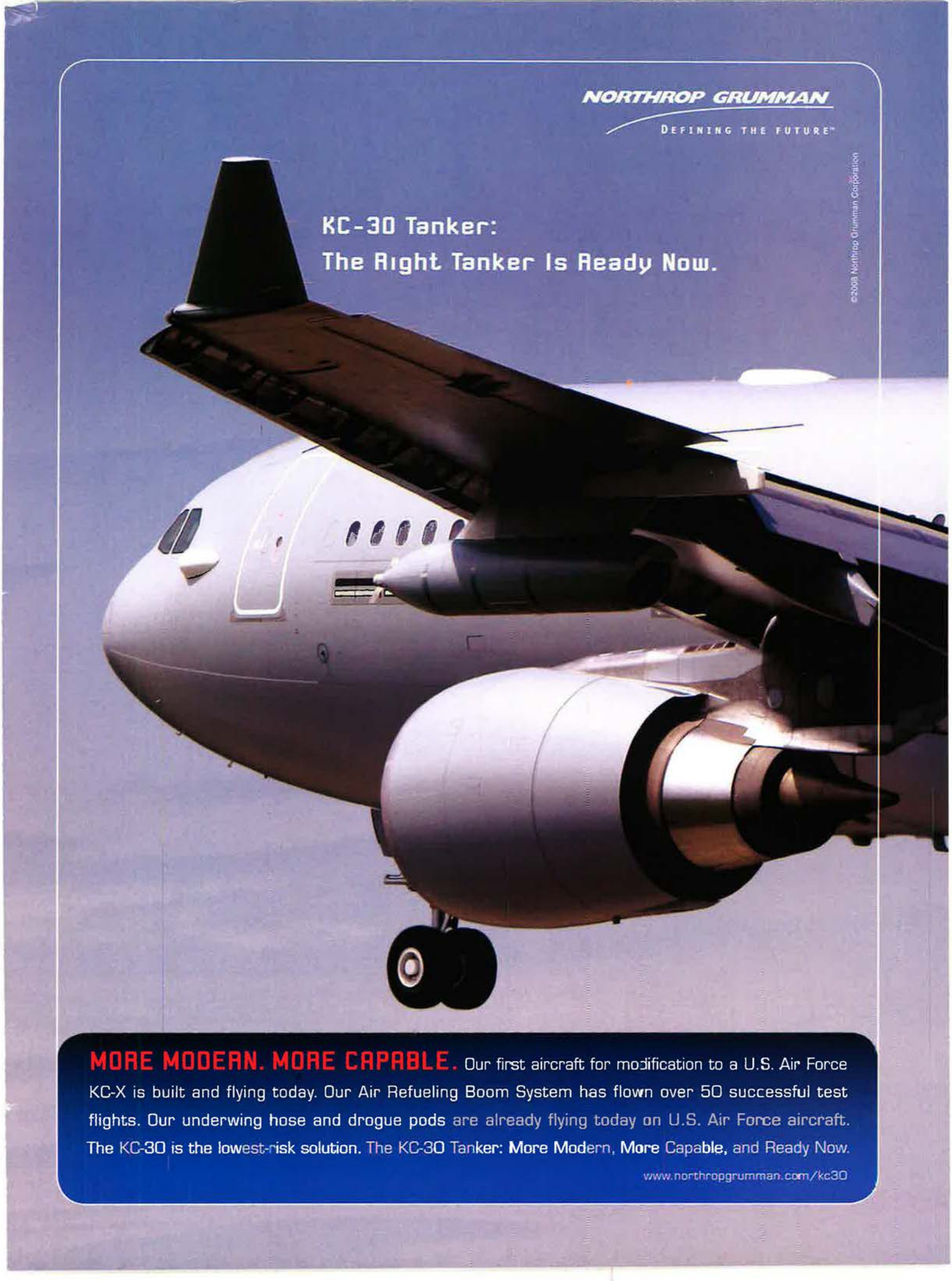
Famous Fliers

Aces: Many, including Talgat Begeldinov (seven kills), Ivan Drachenko (five) **Notables:** Georgiy Beregovoi, 185 missions, became cosmonaut on 1968 Soyuz 3 mission; Ann Yegorova, 277 missions; Nelson Stepanyan, 243 missions; Georgiy Alekseyenko, 223 missions; Musa Gareyev, 207 missions.

Interesting Facts

Third most-produced of all aircraft (behind Cessna 172, Polikarpov Po-2 ★ 20,000 lost in WWII (all causes) ★ name means "Assaulter" ★ nicknamed "Gorbach" (humpback), "Flying Infantryman," "Ilyusha" ★ given propaganda names "Black Death" and "Flying Tank" ★ called "schlaechter" (slaughterer) by Germans ★ averaged only 25 missions in combat ★ pilots sent into battle after six to eight hours of training ★ rear gunners killed at rate four times greater than that of pilots. (Special thanks to George Mellinger.)

Shturmovik in action.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