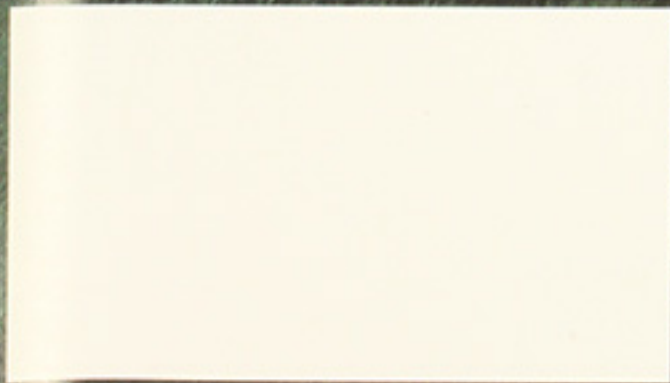
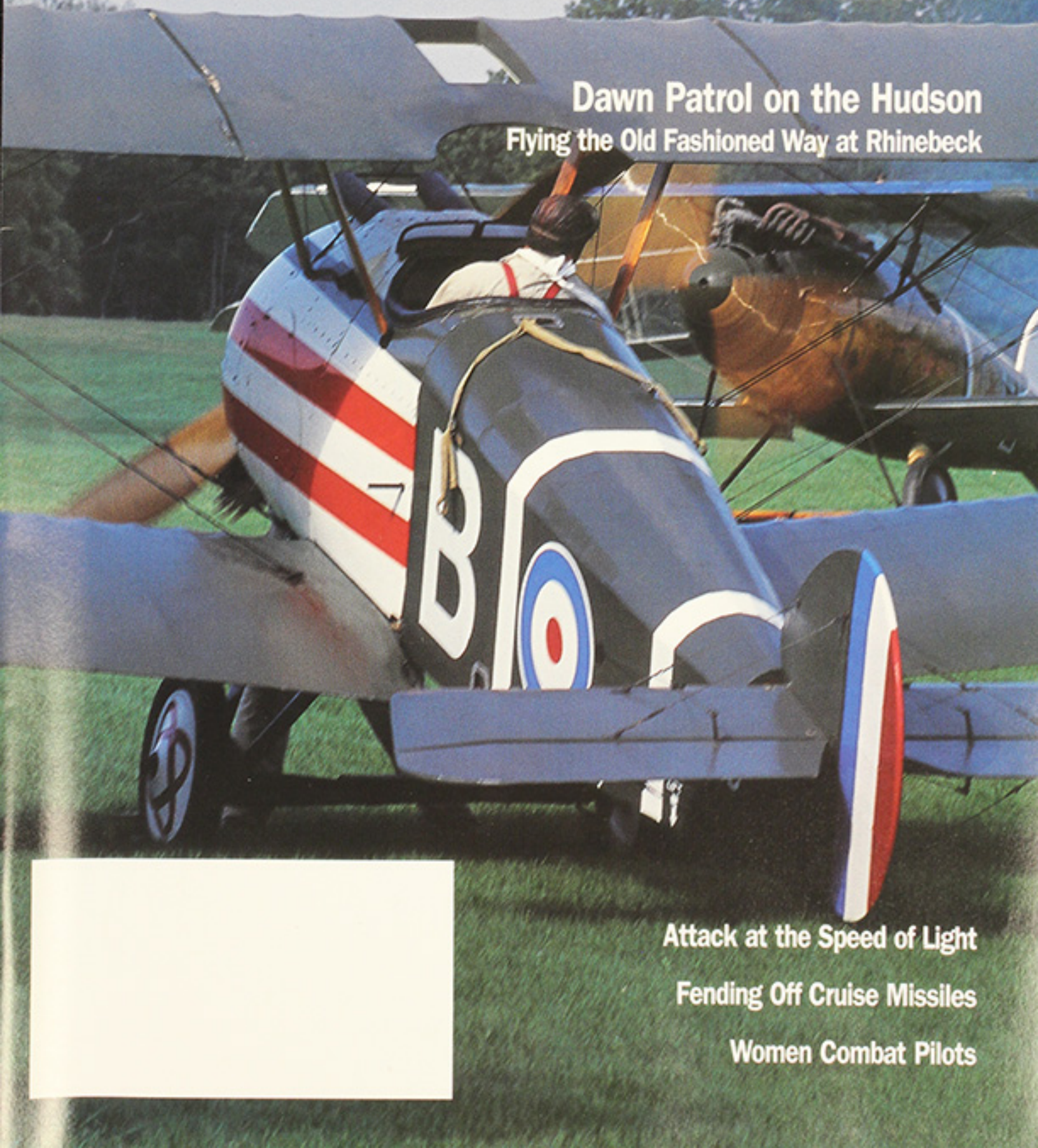


AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

Dawn Patrol on the Hudson
Flying the Old Fashioned Way at Rhinebeck



Attack at the Speed of Light
Fending Off Cruise Missiles
Women Combat Pilots

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AIR FORCE Magazine (ISSN 0730-6784) December 2002 (Vol. 85, No. 12) is published monthly by the Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Phone (703) 247-5800. Second-class postage paid at Arlington, Va., and additional mailing offices. **Membership Rate:** \$36 per year; \$90 for three-year membership. **Life Membership (nonrefundable):** \$500 single payment, \$525 extended payments. **Subscription Rate:** \$36 per year; \$29 per year additional for postage to foreign addresses (except Canada and Mexico, which are \$10 per year additional). Regular issues \$4 each. USAF Almanac issue \$6 each. **Change of address** requires four weeks' notice. Please include mailing label. **POSTMASTER:** Send changes of address to Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Publisher assumes no responsibility for unsolicited material. Trademark registered by Air Force Association. Copyright 2002 by Air Force Association.

By Robert S. Dudley, Editor in Chief

The War of Fog

ACCORDING to Sen. Edward M. Kennedy, the US has no right to launch a "preventive" military strike in self-defense. This would violate international law and amount to "21st century American imperialism," asserts the Massachusetts Democrat. He is seconded by Sen. Robert C. Byrd, Democrat of West Virginia. "America fights wars," he says, "but America does not begin wars."

Legalities aside, Boston University's Andrew J. Bacevich warns that US first strikes will "lower the bar" for pre-emption and give other nations—India? China? Israel?—new excuses for aggression.

On the far left, pre-emption argst runs high. "What was once the frothing of right-wing ideologies is now on the verge of becoming national policy," sputters *The Nation*. Even a few Republicans express unease; Nebraska Sen. Chuck Hagel notes "a dangerous arrogance and a sort of 'Pax Americana' vision."

As can be seen, the subject of pre-emption lends itself to hyperbole. We're about as close to having a New Imperium or Pax Americana as we are to having a dictatorship of the proletariat, but anguished and angry warnings keep coming.

Stirring the controversy is President Bush's "National Security Strategy of the United States," a 31-page paper made public Sept. 20. It asserts a right to forcibly disarm a state whose nuclear, chemical, or biological weapons could threaten us or our allies, or wind up in the hands of terrorists. It states explicitly that the US is not bound to wait to be attacked, but may choose to hit first.

Obviously, Iraq is the first test. It won't be the last, so it's worth considering what Bush's new doctrine does and does not mean.

The Sept. 11 attacks charged US strategy, but not all at once. Homeland security rose in priority. The President declared the "Bush doctrine," threatening to use force not only against terrorists but also against their state sponsors. Pre-emption is the latest piece of the strategic puzzle to fall into place.

This step reflects three realities, say officials. First, stateless terrorists can't be deterred. Second, there is an ever-present danger that terrorists could acquire weapons of mass murder from rogue nations. Third, terrorists using those weapons could kill millions.

The paper states: "The inability to deter a potential attacker, the imme-

Bush's pre-emption policy is easy to grasp, once you get past the critics' slogans.

diacy of today's threats, and the magnitude of potential harm ... [mean] we cannot let our enemies strike first." In sports parlance, that means the best defense is a good offense.

This is a clear statement, but it wasn't long before it had become enveloped in a fog of claims and counterclaims.

■ *Claim: US pre-emption is radically new and unprecedented.* When it comes to pre-emptive action, however, the US is hardly a virgin. It has engaged in such activity for decades. In 1962, President Kennedy imposed a "quarantine" on Cuba, though it had not struck the United States. Operations in the Dominican Republic in 1965 and Grenada in 1983 were meant to thwart Communist activity. Attacks on Panama in 1989 and Serbia in 1999 were unprovoked in any direct military sense. This list is not exhaustive.

■ *Claim: It is illegal to use armed force until attacked.* The right to self-defense is universally recognized, and self-defense doesn't have to be a post-attack event. The Congressional Research Service says pre-emption—an attack to thwart a clear, imminent threat—"has a home" in international law. Example: In 1967, Israel attacked

first and defeated a host of Arab forces drawn up for battle. Few contend that Israel wasn't justified in doing so.

■ *Claim: "Pre-emption" is legal, but "prevention" is not, and prevention is what Bush wants.* This matter turns on a threat's "imminence." Israel's 1967 attack was pre-emption because foes were ready to strike. Japan's 1941 Pearl Harbor attack was preventive, and thus morally wrong; America was not a threat, and Japan should have waited to see if it would become one. Bush officials see this as a distinction without a difference in today's world. Terrorists can use weapons of mass murder without giving any warning at all. "Prevention" is the only workable form of "pre-emption."

■ *Claim: The US will set a dangerous example around the world.* Alan J. Kuperman of Johns Hopkins University says US policies have exerted a restraining influence on India, which has thought about attacking Pakistan's nuclear force. Others claim Pakistan, China, Israel, and others might feel freer to act militarily. However, Bush officials note that none of these countries have been noticeably deterred from using military force when they feel their national security is at stake.

Adoption of pre-emption as a declared option marks an evolutionary, not revolutionary, change in US strategy. Time-tested concepts of deterrence and containment—which themselves sparked fierce criticism—are still available to a President.

The embrace of military pre-emption brings risks, no question. Washington must make sure it strikes the right target, even though intelligence is imperfect. There is a near-absolute requirement to succeed, because there will be no second chance.

These, however, are practical questions. The key theoretical question has been asked—and answered—by defense official Kenneth L. Adelman: "Who among us would not have attacked Osama bin Laden on Sept. 10, 2001? Is there any argument for not doing that? I can't see it in my wildest dream." ■



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The Hammer and The Nail

In October's "Long Arm of the Air Force" [p. 28], long-range strike is described as focusing on the desired effects rather than on the platforms. Given the wide variety of targets the Air Force may need to neutralize, we should have a range of warhead sizes, from two-pound bomblets up to 15,000-pound sinus-clearers, of various effect types, including energy effects. The types of targets should also dictate the guidance options and delivery methods. Using the wrong combination for the wrong target means ineffective sorties, wasting critical time, assets, and lives.

There's an old saying, "If all you have is a hammer, everything looks like a nail." Hopefully we won't limit our primary capability to GPS-guided small diameter bombs dropped from supercruisers. There may be nails out there for that hammer, but we need a fuller tool box if we're going to do the job right.

Paul J. Madden
Seattle

The Concurrent Receipt Issue

Anthony Principi says that the Administration's problem with concurrent receipt is that it will cost \$58 billion over the next 10 years. [See: "Principi's Honor," October, p. 63.] He states, "It's not that the President, or the Secretary of Defense, or I are opposed to military retirees getting their due. It's an issue of how do you fund that, given the constraints placed on spending?"

Indeed, most recently the media reported that President Bush vowed to veto any budget containing any provision for concurrent receipt on the same grounds. Principi does err in his figure, however. The CBO predicted that the potential cost of concurrent receipt was not a fixed \$58 billion but rather to be between \$30 and \$58 billion over the next 10 years. This argument for fiscal responsibility sounds quite plausible given the current level of deficit spending. What is not mentioned, however, is that President Bush has also threatened to veto the budget bill if he doesn't

get a \$30 billion contingency fund for his unlimited use for the next fiscal year.

So, the argument really isn't the level of spending at all but who gets the extra money. Not only does this give lie to the Administration's plea for frugality but also reveals the President's priorities. Clearly we disabled and retired veterans are not high on his list.

Samuel J. Wein
Los Altos, Calif.

Principi is fighting more than two battles. He fights [the] politics of an Administration which in many cases does not favor the veteran and the culture of the Department of Veterans Affairs itself. The number 700,000 has never been taken apart, just thrown out there.

If the current concurrent receipt legislation has a focus on 100 to 60 percent disability and the House has developed a phase-in plan, then the initial costs for phase-in are for those 50 to zero percent. The question is: Of the 700,000, how many of this number are in the latter category? Is it possible those in the 700,000 have claims pending or were turned down for lack of documentation? Remember the burden of proof is on the veteran; his word and condition are not enough.

If we look at additional cost(s), how much is included to update the National Records Center so documents can be found? How much has it cost the VA in tiger teams working with the records center to reduce the backlog? The current backlog was

the result of the underestimation of the response of aging veterans—officials had not done their homework.

Veterans do grow older, and we are better informed. Couple the response with the issue of documentation and the VA would have a problem. Yet of those 100 to 60 percent disabled, how many use Tricare Prime or Tricare for Life? Is this not an offset for the VA in time and dollars to help those who would otherwise use the VA, if it were not for these programs? The fear of a rush of claims is just that, a fear.

Look at the process a veteran must go through—if they know what to do. One does not get a response in two weeks.

The veteran cannot be reduced to dollars just because he or she served 20 years, nor can officials run around claiming the sky will fall. Service to the republic is more than dollars, it is a question of merit. Those who say it will cost too much have not served 20 or more years, and the majority never saw conflict.

What are we to tell young men and women when they go in harm's way: "Oh, I'm sorry, your records show issues, but take them to the VA for determination when you retire. Had you separated and established a second career, the 100-year-old law would not apply to you."

It's not 700,000, it's not a flood of claims, it's not medical service to those already 60 percent or more—it's wanting to do the right thing. The question is, does the Administration have the resolve to end the 100-year-old rule, establish a phase-in plan, and provide Veterans Affairs the tools and authority to solve the problem of records, claims, and service?

Warren L. Johnson
Alpharetta, Ga.

I believe Mr. Principi to be a man of honor and do not want to discredit him. His is a hard battle! I do, however, believe that our VA clinics need money but let funds from medical insurance companies lie untapped. I have Medicare, am eligible for Tricare,

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and have a private insurance company as well. They contribute nothing to the VA. However, because I am service-connected in category 1, my VA care is and has been excellent. My question is, why not tap those insurance sources (all other hospitals and doctors do)? Maybe we could give the vets better service and perhaps even get our President to consider concurrent receipt like all other political and federal employees receive.

Bill Ulrich
Destin, Fla.

Serve With Caution

Peter Grier's article "Disorder in the Court" [October, p. 36] prompts me to write. Given the history of the "irrelevant" United Nations, I find myself in a position I don't like. Youngsters look to me for advice concerning a military career because of my 21 years in the Air Force. I do the best I can, but I now must always present a caveat concerning the International Criminal Court.

I suggest to potential recruits to take their enlistment contracts (before signing) to an attorney and have a clause inserted that states that the United States government or any of its officers, either appointed or elected, will not require him to serve outside the continental US until the [International] Criminal Court is dissolved.

Maj. Robert W. Thompson,
USAF (Ret.)
Alpena, Mich.

There's More

"The Jet Generations" [October, p. 68] has a shocker on p. 73. In one sentence, years of round-the-clock jet operations, thousands of sorties, and effective nuclear deterrence all are dismissed: "Production models [of the B-45] deployed overseas suffered a variety of mechanical problems and had a short career." Ain't so.

In 1952, the 47th Bomb Wing, commanded by then-Col. David M. Jones, the Tokyo raider, deployed three squadrons of B-45s from Langley AFB, Va., to RAF Sculthorpe in East Anglia, UK. These were the 84th, 85th, and 86th Bomb Squadrons, later joined by a squadron of RB-45s, the 19th Tactical Reconnaissance Squadron. The 86th later moved to RAF Alconbury.

Each bomb squadron covered eight Soviet targets every night, under the control of SACEUR. This was the Cold War. The mission was secret and is little known today. The targets covered were Soviet forward airfields: If the Soviets had made the fateful decision to roll across the line westward—to capture Western Europe—

they would have needed to bring forward their massive tactical airpower to their bases in Poland, Czechoslovakia, and East Germany.

That's where the B-45s came in, at 37,000 to 41,000 feet, at night, in bad weather, with Mk 5 nukes, BOOM! One nuke, one airfield. The daylight, good weather task was assigned to the F-84s of the 20th Fighter Bomber Wing at RAF Wethersfield, carrying Mk 8s.

The Soviets knew the B-45s and the F-84s were there and did stay home. That's what the wonderfully successful American policy of "deterrence" was all about: "Stay home and you won't get hurt."

The B-45 and RB-45 were replaced beginning in 1958 by the B-66 and RB-66 and later by the IRBM [Intermediate-Range Ballistic Missile] Thor.

The B-45 operation at Sculthorpe was the poor man's Air Force, hard scrabble, hardworking, austere facilities, dirty fingernails (sometimes envious of those rich guys at the SAC bases). Like so many units where life was tough, the troops are still together today, a reunion every year. This year, the 50th anniversary reunion, at Sculthorpe, was attended by the original commander, Maj. Gen. Davy Jones, retired. The 47th Bomb Wing and the B-45 were honored by the local people—the Lord Lieutenant of Norfolk, in uniform, expressed the gratitude of the English people—and by the RAF.

Col. Eric Linhof,
USAF (Ret.)
Monument, Colo.

"The Jet Generations" brought [to mind] memories of my service at Langley Field, Va., during the late '30s. I enlisted in the Army Air Corps and was assigned to the GHQ [General Headquarters]. At that time, I remember the units stationed on the field: 2nd Bomb Group, B-10 and B-17 aircraft; 8th Pursuit Group, P-12 aircraft; 3rd Observation Squadron, a dirigible; and other assorted small aircraft.

There was a B-15 on the flight line. It was a huge aircraft parked in its own parking place. It was too large to fit in the flight line hangars. I often wondered, why was it built and did it ever fly? Maybe it was the forerunner of the B-29.

One incident that I will always remember was when I was down at base operations on a Sunday afternoon, waiting on a chum who was an operations clerk—we were going to dinner in the squadron mess hall. A P-12 landed and taxied up to operations ramp, and out jumped the pilot, dressed in his Air Corps leather fly-

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION MAGAZINE

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 Circulation audited by
Business Publication Audit

ing jacket, scarf around his neck, helmet, goggles, etc. [He] came into the operations building, took off his jacket and, lo and behold, he had a tux under his flying suit. Seems the second lieutenant was spending the weekend at MacDill Airfield, Tampa, Fla., and was returning to Langley after a weekend cross-country. Right then and there, I told my buddy I was going to be a pilot.

Col. John B. Connor,
USAF (Ret.)
Savannah, Ga.

In 1945 I was stationed in Brownsville, Tex., with a squadron which trained pilots for their combat training after they had graduated from cadets. We had the P-47. At the airport, far away from our operation with P-47s, General Electric had a very secret section that flew highly modified B-24s.

The P-47 pilots would come back from a flight and tell us mechanics they were flying at 30,000 feet in the P-47 and passed this B-24 flying at that altitude with all four engines feathered and black smoke coming out the bottom of the B-24. The B-24 undoubtedly had a J-33 engine mounted inside the bomb bay with an air scoop on top and an exhaust system coming out the bottom. Naturally, we mechanics saw the B-24 taxi out but knew nothing of jet engines in 1945.

CMSgt. James A. Prokopp,
USAF (Ret.)
Springfield, Ill.

Outrageous?

I could not believe my eyes when I read that Air Force pilots flying a combat mission in Afghanistan were being court-martialed for an accidental bombing that unfortunately took the lives of some allied troops. [See "Aerospace World: Air Force Charges Two Pilots in Deaths of Canadians," October, p. 19.]

This is absolutely the most outrageous action I could ever imagine and makes me think that some of our top generals or civilian leaders must have been infected with Clintonitis from the previous Administration. This type of action is the hallmark of a deskbound manager, one who despises the military. It is certainly not the action of a true leader, one who goes to the mat for his troops fighting a war.

Lt. Col. James V. Kelso III,
USAF (Ret.)
Peachtree City, Ga.

In the mid-1990s, two USAF fighter pilots deliberately shot down two US

Army helicopters in daylight in northern Iraq, believing them to be Russian-made choppers, with the loss of [26] lives, some not US nationals. No courts-martial action was taken against the two pilots or anyone else involved.

A USAF AC-130 gunship on a night mission in Afghanistan fired on a grouping of Afghan civilians, killing more than 50 people. [US Central Command] cleared the AC-130 crew of any wrongdoing. [See "Aerospace World: CENTCOM Report Absolves AC-130 Crew in Afghan 'Wedding Party' Deaths," October, p. 18.]

Earlier this year in Afghanistan, two Illinois Air National Guard F-16 pilots on active duty dropped bombs at night on a Canadian army unit, killing four Canadian soldiers, after they believed they were being fired upon from the ground. These two ANG pilots are now being held for courts-martial action.

It seems there is one discipline for Air Force personnel and a different discipline for Air National Guard personnel.

Brig. Gen. Richard B. Posey,
USAF (Ret.)
Camp Hill, Pa.

■ *Capt. James Wang, the AWACS mission commander during the Army Black Hawk helicopter shootdown, faced a court-martial and was acquitted. However, further actions by Air Force leaders effectively ended the careers of Wang, two general officers, and four other officers involved in the incident. Among the actions, the two F-15 pilots were grounded for three years, and Wang and two other AWACS officers were disqualified from their jobs for three years. (See "Aerospace World: Seven Careers Damaged in Black Hawk Review Action," October 1995.)—THE*

EDITORS

Honor Due

In reference to the article in October, "Air Force Posthumously Honors Pararescueman" ["Aerospace World," p. 11]: Your lead-in sentence states that "the Air Force awarded the Air Force Cross, the service's highest award, to SrA. Jason D. Cunningham." The Air Force Cross is not the highest award of the Air Force. The highest award that any member of the Air Force can earn is the Medal of Honor. Senior Airman Cunningham received the second highest award after sacrificing his life for his fellow crew members, who had been wounded in combat, so that they could be gotten back to medical facilities and live to see

another day. This young man deserves the award of the Medal of Honor.

This is similar to the award of the Air Force Cross to A1C [William H.] Pitsenbarger, a PJ [Pararescue Jumper] in Vietnam who gave his life in 1966 so members of an Army unit could live to see another day. His family finally received his Medal of Honor in December of 2000.

How long will it be before we hear that Senior Airman Cunningham's family received the Medal of Honor for his supreme sacrifice above and beyond the call of duty?

MSgt. R.W. Veigel,
USAF (Ret.)
Peoria, Ariz.

How Patriotic

With disgust I read the recent article that Harvard "patriotically" accepted military recruitment in order to continue receiving \$328 million in federal dollars. [See "Aerospace World: Harvard Law Finally Gives Up Military Recruiting Ban," October, p. 16.] The article quotes an unidentified associate dean [who says] the decision had less to do with warm feelings toward people who defend our freedom than with cold hard cash.

Why does the most heavily endowed and wealthiest university in America need federal aid? More particularly, why should such a liberal private educational institution receive tax dollars paid by other Americans, including those good servicemen already protecting the right of liberals not interested in serving their country?

Brig. Gen. Homer H. Humphries Jr.,
USAF (Ret.)
Jacksonville, Fla.

Include the Coast Guard

I was deeply disappointed that the Coast Guard Reserve was omitted from the chart "Leaning Hard on the Guard and Reserve." [See: "Chart Page," October, p. 8.] This omission is inexcusable since the USCGR, despite its end strength of 8,000, is by law one of this nation's reserve components. Moreover, immediately following the events of Sept. 11, the Coast Guard recalled to active duty over 2,800 reservists to assist in their largest homeland port security operation since World War II.

Ensign Jim Dolbow,
USCGR
Alexandria, Va

How About Proper Designation?

Two short items in the October issue convinced me that the US mili-

tary no longer uses a rational, standardized aircraft designation system. The articles refer to the F-22 and the F-35 programs. [See "Aerospace World: Once Just F-22, Raptor Now Is the 'F/A-22,'" p. 10, and "Aerospace World: It's Official: The Joint Strike Fighter Is the F-35," p. 20.]

The Army Air Corps developed an elegant, simple aircraft designation system in the 1920s. This system was adopted as the DOD standard in 1962 when the Navy and Army systems were abandoned. Existing Army and Naval aircraft were redesignated to conform to the former Air Force, now DOD, system. A primary reason for combining the Air Force and Navy systems was to simplify things by recognizing that the Navy F4H-1 and the Air Force F-110A, for example, are the same basic airframe. [F4H-1 became the F-4B; F-110A became the F-4C.]

The idea is a simple three-part designator: Mission-Design-Series (MDS). An example is C-130J, which means "Cargo (mission), 130th design, J series," or written another way, "the 11th variation of the 130th cargo design." When an aircraft is modified to perform another mission, the designator would receive a prefix, such as KC-130J, with the K referring to a tanker modification of the C-140J. An interesting foul-up of this concept was the FB-111, which literally means the fighter modification of the 111th bomber design. The designation said it's a bomber turned into a fighter, but it really was a fighter turned into a bomber.

A block number was added to the MDS to cater to lesser modifications and/or minor updates during a production run. Also, after the block number, a suffix was added, indicating the manufacturer. An example of a complete designator from World War II is B-24D-107-CO—Block 107 built by CO for Consolidated. Today's F-16 program seems to thoroughly abuse this block number concept. The F-16C-50 (Block 50) really should be an F-16E (or F, or G for that matter, to accommodate Block 30 and 40 variants).

This elegant system began to be really undone when the Hornet was designated. The Hornet was developed from the prototype YF-17. It would have made perfect sense to designate the Navy's then new fighter F-17A. The Navy insisted that there were sufficient differences between the prototype and the production aircraft to warrant a new designator, F-18A. Then the designator was soon changed to F/A-18A. The F/A is absolutely meaningless drivel but it stuck. Now, the F/A-18E Super Hornet

is more different from the F/A-18C than the F/A-18A was, compared to the YF-17. Given the Navy's logic at the start of the Hornet program, why is the Super Hornet not an F/A-24A or something else?

Two more abuses of the system came almost back-to-back in the Air Force's trainer programs. Why is the T-1 not a T-49 or T-50? Even if they wanted to restart the numbers, there was already a Navy T-1 from the 1962 revision of the system. Even worse is the T-6. It may be nice to honor that mid-20th century icon of flight training—the T-6 Texan. Even so, that's an abuse of the system. The next number would have been T-4 or T-5 (or T-50 or T-51). But it gets a little worse. The original T-6 was an advanced trainer analogous to today's T-38C. The new T-6 is a primary/basic trainer replacing the T-37.

Perhaps the silliest example of contempt for the exiting designator system is the so-called YAL-1. The AL seems to mean Airborne Laser. Never in the history of our Air Force/Air Corps has an aircraft been designated based on the weapon it carries—the mission, yes, the weapon or type of weapon, never. If an onboard weapon is the driving factor in aircraft designation, the AC-130U should be called the BAG-1C, with BAG meaning Big Airborne Gun. Now is the time to get with tradition and designate that marvelous laser-firing antimissile plane YAC-25B with production articles called AC-25Cs. The letter A has meant "attack" but can easily be interpreted as "armed." Adapt the heritage of Puffs, Shadows, and Spectres to the era of directed energy weapons.

A good example of modern day flip-flop in designator logic is found in the troubled Osprey program. All current, operational aircraft modified for special operations forces are designated with an M mission-modifier prefix, i.e., MC-130H, MH-47G, etc. An MH-53J is an Air Force special ops helicopter, while a CH-53E is a Marine transport helicopter. The M and C got reversed in the Osprey program. Apparently, for Osprey use, M means Marine and C means Air Force as in MV-22 and CV-22.

There are several cases of multiple MDSs applied to the same basic airframe such as the Boeing 707 also known as C-137/C-18/E-3/E-6/E-8. No, the C-135s are not 707s. They are based on the same Dash 80 prototype as the 707 but have very different fuselage and wing dimensions. Boeing originally gave the in-house design number 717 to the C-135 airframe.



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AFA's Mission

To advocate aerospace power and a strong national defense.

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

To promote aerospace education to the American people.

[On the F-35 Joint Strike Fighter], the next fighter number in line for all services is F-24, unless some black program took it. The next VSTOL designator in line is V-23 (after the V-22 Osprey), not V-9. If the VSTOL capability of the new fighter needs to be included in the designator it could be VF-35, but wait, V as a mission modifier refers to VIP as in the VC-25A ("Air Force One"). Incidentally, I don't think VSTOL or, in other words, the amount of runway needed should be a factor in fixed-wing aircraft designators any more.

The inexcusable change from F-22 to F/A-22, the meaningless leap from F-23 to F-35, the Osprey flip-flop, and so on, are all probably symptoms of a larger change in society. (This change also shows in the Navy's ship-naming shenanigans, by the way.) Part of the problem may lie in the fact that a newer generation of people in charge don't know or care how the system should work. Also, we apparently don't pay any attention to "no-cost" traditions that have served us well for decades.

Maybe it just doesn't matter anymore what an airplane is called. Just call it something. I can't wait to find out what the 767 will be called. I'd be astounded if it came out as a KC-41A, EC-41B, etc. Sometimes, change is just plain dumb.

Stephen M. Reeves
Wichita Falls, Tex.

It's depressing to receive confirmation that the Department of Defense is once again ignoring its own rules for the designation of military aircraft.

In late 1962, DOD introduced a new triservice system of designating military aircraft primarily to cut down on confusion between Air Force, Army, and Navy aircraft. Reportedly it resulted from Secretary of Defense [Robert S.] McNamara's confusion over the F4H-1 (Navy) and F-4A (Air Force) Phantom programs. Under the system, the next fighter number in the sequence is F-24 and that's where the Joint Strike Fighter should fit in. However, apparently we're taking the expedient approach (or maybe somebody in a back office of the Pentagon got powerfully confused) and are replacing the X with an F for the JSF. It's not the first time this kind of thing has happened.

Other recent examples are the T-1A (originally assigned in 1962 to the Navy's T2V-1 SeaStar) and the new T-6 Texan II, which jumped the T-4 and T-5 designations—the next

in line—apparently in an effort to sound right. I think Mr. Hebert made a valiant effort to explain this confusing situation, but he did add to the confusion by throwing in the Navy's Hornet and Marine Corps' Harrier; they are numbered properly in the F-series and the A-series. The next attack aircraft, if there ever is one, should be numbered A-13 following the Navy's canceled A-12 of a decade ago, although I'm already hearing rumblings that Boeing's X-45 Unmanned Combat Aerial Vehicle will become the A-45 if it enters production—which completely blows the entire designation system once again. By taking the easy road and designating the X-35 Joint Strike Fighter as the F-35, DOD and the Air Force are only adding to the confusion while displaying a lack of interest in or understanding of policy and tradition. It sure tends to drive this Air Force historian crazy, and I'd just as soon not even get into the "F/A" designation.

SSgt. Mark Morgan,
ANG
McChord AFB, Wash.

Apparently, bureaucratic wrangling takes precedence over Air Force and Navy instructions.

When a common designation system was adopted in 1962, all US services were supposed to follow the same rules. Thus, the Phantom II went from being the F-4H in the Navy and the F-110 in USAF to become the F-4 we all knew and loved.

Service and command rivalries and often political considerations continue to trump the system. These resulted in the FB-111, the F/A-18, and the SR-71, to name only a few of the deviations. The 1960s version of the new designation system did not allow for a B-for-bomber mission modifier, what would have been a BF-111, but SAC had to have a bomber. The Navy needed to emphasize the dual role of the Hornet, and AF-18 apparently didn't have the ring of F/A-18, so we are treated to a slash in the designation which is actually prohibited in the instructions. I love it when the name F/A-18 is used in casual conversation.

The SR-71 story has been told in these pages before. Now, because those in the lead feel that the jump from X-35 to F-24 is too confusing, we get the F-35.

[No] provision [was made] for the next number being reserved by any one service, despite what your article implies. The next fighter num-

ber, as you reported, should have been F-24. Nor does AFJL 16-401 make provision for design numbers to generally run sequentially. The instruction says, "Design numbers run consecutively." This is why some people are still searching for the real F-19. The F-35 designation seems to be a marketing ploy, a matter of convenience, or both.

So much for compliance with instructions being mandatory.

Lt. Col. Keith Svendsen,
USAF (Ret.)
Dayton, Ohio

First, let me say that I agree that the Joint Strike Fighter designation of F-35 is firmly in place, and it's too late to "correct" the apparent sequence miscue. (This does not justify Battlecreek's "rubber stamp.") I also agree that the variant model designations should include the A, B, C qualifiers.

Sometime in the early-to-mid-1960s the Air Force and Navy went to a combined designation numbering sequence. This is evident in the switch from the Navy F-4H to the F-4 Phantom II, and the Air Force F-110 to the F-4 Phantom II. Although it gets sketchy, the combined sequence continued with the Air Force's F-5, Navy's F-6 Skyray, F-7?, F-8, F-9?, F-10 Skyknight, and F-11?, Air Force's YF-12 and F-13, Navy's F-14, Air Force's F-15, F-16, and YF-17, Navy's F/A-18, and F-19/F-16J79/F-18L/F-117?, Air Force's F-20, Navy's F-21, and Air Force's F/A-22 and YF-23. The attack aircraft follow a similar combined sequence, with the A-1 (Air Force and Navy), A-2?, Navy A-3, A-4, A-5, and A-6, Air Force and Navy A-7, Marine Corps AV-8, Air Force YA-9, A-10, and A-11 Oxcart/Blackbird), and Navy A-12.

Therefore, the next logical sequence designation numbers for JSF prototypes should have been YF-24 (Boeing) and YF-25 (Lockheed), although early in the program, the project was sold seemingly as technology demonstrators (alas, the X-32, X-35). The development and production aircraft would have been the Air Force F-25A, F-25B, or the Marine Corps AV-14, and the Navy F/A-25C. What will the next military fighter/attack aircraft be "sequentially designated"—the UCAV F-45 or A-47?

As for the JSF name-the-airplane informal contest, my vote would call it the F-35A Avitar (defined as: embodiment of aviation concept).

Clarence W. Kohring
Beavercreek, Ohio

Aerospace World

By Suzann Chapman, Managing Editor

USAF Changes F/A-22 Leaders

Senior Air Force officials on Nov. 18 announced changes of both top managers for the F/A-22 fighter program. They cited increased program schedule demands and a need to align acquisition with "operational acumen" as the primary reasons for the change.

Brig. Gen. Richard B.H. Lewis will be the new program executive officer for fighters and bombers, replacing Brig. Gen. William J. Jabour. Lewis is currently director of the Joint Theater Air and Missile Defense Organization on the Joint Staff.

Brig. Gen. (sel.) Thomas J. Owen will become the new F/A-22 system program director. He replaces Brig. Gen. Mark D. Shackelford. Owen has been serving as the C-17 system program director.

Owen will work for Lewis, who in turn, reports to Marvin R. Sambur, USAF's assistant secretary for acquisition.

In a written statement, Air Force Secretary James G. Roche said, "The Chief of Staff and I have been involved personally in reviewing all aspects of this program, and when necessary, we've made changes to ensure [its] success." He added, "Generals Lewis and Owen have the right operational requirements expertise and technical backgrounds to bring the program into its next phase by the summer of 2003 with flying colors."

Gen. John P. Jumper, Chief of Staff, agreed, saying, "Due to the demands on our program schedule as well as our overall intent to align major acquisition efforts closely with operational acumen, [we] determined that new leadership was necessary to achieve our objectives."

Jumper praised the work of Jabour and Shackelford in bringing the F/A-22 program through "a very challenging period of testing and development."

F/A-22 Faces Potential Cost Overrun

Just over a week before announcing the F/A-22 management change,



USAF photo by SSgt. Shannon Collins

On the Watch. An F-16CG from the Ohio Air National Guard and two F-16CJs from Shaw AFB, S.C., queue up for aerial refueling during an Operation Northern Watch mission patrolling the northern no-fly zone in Iraq.

the Air Force revealed that development costs of the F/A-22 fighter program could increase by up to \$690 million.

In a Nov. 7 statement, service officials said this problem has no bearing on the advanced fighter's technology or performance. The F/A-22 "continues to perform superbly in all tests," said the statement.

The Raptor is on schedule for delivery in 2004 and initial operational capability in 2005, said USAF Chief of Staff Jumper.

"The F/A-22 is essential to America's security in the 21st century," said Jumper, pledging to get "to the bottom of this issue."

The service tapped a team of technical and financial experts from industry and the Air Force to determine the magnitude of the overrun and recommend ways to avoid any further problems.

Iraq Attack US Aircraft

Iraqi forces have continued to attack coalition aircraft enforcing the UN no-fly zones over southern and northern Iraq. They fired upon coal-

ition aircraft four out of five days since Nov. 8 when the UN issued Resolution 1441 demanding Iraq disarm. (See "Bush to Saddam: Go Ahead. Make My Day," p. 11.)

On Nov. 18, US Central Command officials said coalition aircraft responded by striking two air defense communication facilities and one air defense radar facility.

B-2s To Move Overseas

Air Force officials said the service is poised to set up its new deployable B-2 stealth bomber shelters at overseas locations as early as May.

"We are going to forward deploy this airplane," Col. Doug Raaberg, commander of the 509th Bomb Wing at Whiteman AFB, Mo., home of the B-2, told reporters in late October.

Four shelters will go to the British-owned Indian Ocean island Diego Garcia and one to RAF Fairford, UK. Each shelter can house two B-2 bombers. The Air Force has already established a special hangar at Anderson AFB, Guam, for the B-2.

The bomber long has been criticized for its lack of deployability. It

requires a special, climate-controlled environment for maintenance work on its low-observable coating, not for protection against the weather, said Raaberg.

Diego Garcia is about five hours from Baghdad. If war with Iraq does break out, the B-2s would be able to make several sorties every couple of days, instead of flying more than 40 hours round-trip for one sortie as they did for Operation Enduring Freedom in Afghanistan.

Tanker Lease in Final Stage

The Air Force proposal to lease 100 Boeing 767s modified to perform aerial refueling appears to have come together. Lawmakers and company officials said in mid-November that final negotiations were under way for a deal late this year or early in 2003.

A *Wall Street Journal* article said the deal was set at \$17 billion—much less than the original estimate of \$26 billion. The Air Force would not discuss specifics, but Boeing officials confirmed the amount.

The Air Force would lease the aircraft for six years each and take delivery from 2006 through 2011. Under the proposed plan, the service would be able to purchase all the aircraft for an additional \$4 billion at the end of the lease.

DOD To Revise Tooth vs. Tail

Pentagon leaders said they need to revisit what constitutes "tooth" and "tail" before proceeding with the next headquarters cuts.

Congress had mandated in the Fiscal 2000 defense budget a 15 percent cut in headquarters staffs

by the end of 2002. DOD was to cut the last increment—7.5 percent—this year.

However, that may not happen.

"I don't think we've done a very precise job in describing for the senior leadership the difference between the tooth and the tail," USAF Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff, told a Pentagon town hall gathering Nov. 12. "There's a lot of gray area."

In fact, Myers said there are many jobs that have been considered tail that "you can't go to war without." He said, "It turns out that's tooth and that includes some headquarters."

The terms that were used when the Pentagon began considering headquarters reductions are not relevant today, explained Myers.

Military To Get Smallpox Shots

President Bush is ready to order the use of smallpox vaccinations for military members, Administration officials said in mid-November.

Defense Secretary Donald H. Rumsfeld presented a plan to the President that calls for inoculating as many as 500,000 of the 1.4 million troops. The first doses would go to emergency support forces, such as some medical personnel, and to troops bound for the Middle East.

The issue was not a slam dunk, since the vaccine itself poses a risk.

Health officials estimate that 15 persons out of one million vaccinated for the first time will suffer serious complications and that one or two of those may die. Routine smallpox vaccinations in the US were stopped in 1972. The world has not seen smallpox cases since the late 1970s.

US intelligence officials reported in November that both Iraq and North Korea have unauthorized stocks of smallpox. The virus is highly contagious and kills about 30 percent of its victims. There is no known treatment once infected.

Rumsfeld Wants Shorter Tours for Military Chiefs

Defense Secretary Donald H. Rumsfeld is considering reducing the length of assignment for each of the military service chiefs from four years to two years. Under a proposed plan, first reported by the *Wall Street Journal* Nov. 5, Rumsfeld would have the option to extend their tours another two years.

The same arrangement exists now for the Chairman and Vice Chairman of the Joint Chiefs of Staff, as well as each of the combatant commanders.

Myers Says Taliban, al Qaeda Excel at Adaptation

As USAF Gen. Richard B. Myers looks back over the war in Afghanistan, he concludes that the bad guys have been better than the good guys at adapting to the pressures of war. And it has cost the US some "momentum" in prosecuting the war against the Taliban and al Qaeda fighters, said the Chairman of the Joint Chiefs of Staff.

"They have adapted," said Myers. "They adapt the way they talk to each other, the way they pass money." In general, added Myers, "they [enemy forces] have adapted their tactics, and we've got to adapt ours."

In fall 2001, at the start of Operation Enduring Freedom, "we caught them off guard [and] had a pretty successful several months," Myers said Nov. 4 at the Brookings Institution in Washington, D.C. "I think you could make an argument now that we're not thinking as fast as we need to think, that we're not inside the decision loop ... of the adversary."

He added, "We need to speed that up."

Myers said the initial war plan produced by Gen. Tommy R. Franks, the commander of US Central Command, "was bold," with "a large element of risk" built into operations. It was conducted in a way that the adversary clearly didn't know what was happening.

"They were confused," said Myers.

One cause of the confusion, said the Chairman, was that US forces were quicker on the draw. "Early on in Afghanistan," he said, "we were absolutely thinking faster than the adversary and therefore [were] very successful."

He explained that the US has "got to get back to the point where we can observe what they're doing and make some decisions about that—act and assess faster than they can do just the opposite to us."

Specifically, Myers continued, the "intelligence flow" has to be "a lot more exquisite."

In addition, he said, the US needs to use forces "to strike very quickly on intelligence that may not be 100 percent perfect or sure, but to take that kind of risk because the payoff is so important."

He said, "They've made lots of adaptations to our tactics, and we've got to continue to ... try to out-think them and to be faster at it." The American military can be either "good or bad at that," depending on the situation, according to Myers.

"In general, I think that's where we need to improve, and I think in a sense we've lost a little momentum there," he noted.

The services, for the most part, oppose the idea. They don't think it would give the chiefs enough time to make substantive changes.

This latest plan, like the recent switch in title from commander in chief to commander for those officers who head unified commands, is viewed largely as a means for Rumsfeld to demonstrate control over the military.

However, this plan, if formally proposed, would require Congressional approval.

Dorm Rooms To Grow Larger

The Air Force announced in November that service officials had developed a new dormitory standard—4+1—that would provide airmen with a private bathroom. Construction on the first new 4+1 dorm could begin this year.

In this new style, four airmen would share a common living area that has a kitchen and living room but would each have a separate bedroom and bathroom. Under the current DOD 1+1 standard, first implemented in 1996, two airmen share a kitchenette and bathroom and have separate bedrooms.

DOD recently changed its policy on the space allowed for each dorm room—from 13.2 square yards to 20.4 square yards. A caveat to the increase in space and move to individual bathrooms is that any new dorm building must cost no more than a 1+1 style building.

According to Kathryn Halvorson, USAF housing division deputy chief, the 1+1 dorms already built at USAF facilities will not be renovated, since they're still considered adequate under DOD policy.

"The 1+1 room was good because it was a private room, but it was small," said Halvorson. Both plans offer considerable upgrades to previous dorm standards, she added.

Eight bases have opted to construct 4+1 dorms under the Fiscal 2003 military construction budget. They are: Barksdale AFB, La., Davis-Monthan AFB, Ariz., Hurlburt Field, Fla., Nellis AFB, Nev., Osan AB, South Korea, Sheppard AFB, Tex., and Wright-Patterson AFB, Ohio.

Two F-16 Pilots Killed in Training

Service officials announced unrelated F-16 accidents that claimed the lives of two pilots. Both were flying out of Hill AFB, Utah, and both were US Air Force Academy graduates.

The first accident occurred Oct. 25 at 2:53 p.m. in the Utah Test and Training Range about 25 miles southeast of Wendover, Nev., when the

Bush to Saddam: Go Ahead. Make My Day

With the passage of a tough UN resolution on Iraq, President Bush swiftly took a hard line with Saddam Hussein.

Bush made it plain that, to disarm the Iraqi dictator, he was equally prepared for war or peace. "The United States prefers Iraq meets its obligations voluntarily," he said Nov. 8, "yet we're prepared for the alternative."

"The alternative" is code for a US-led military invasion, which had been made ready for launching at any time.

A few days later, the President went out of his way to declare "zero tolerance" for any Baghdad shenanigans in complying with UN demands.

"We're through [with] negotiations," said Bush. "There's no more time. The man must disarm."

The 15-member UN Security Council on Nov. 8 unanimously adopted a new resolution aimed at forcing Saddam to dismantle his nuclear, biological, and chemical weapons programs. It declared Iraq to be in "material breach" of earlier obligations to get rid of its weapons of mass destruction.

The resolution offered Saddam "a final opportunity" to meet Iraq's disarmament obligations, which stem from the 1990-91 Gulf War. And, it added, any obstruction will bring Iraq face-to-face with "serious consequences."

The United States had spent several months preparing and positioning in the Gulf region a large military force—that was headed toward 250,000 soldiers, sailors, airmen, and Marines—to administer such consequences.

UN Secretary-General Kofi Annan said Nov. 13 that Saddam had agreed to abide by the resolution.

Few, however, thought Iraq's grudging acceptance letter to Annan was anything more than the opening gambit from a dictator who had spent 12 years perfecting his game of "cheat and retreat."

In fact, the US almost immediately had to warn Iraq not to obstruct weapons inspectors who were set to return Nov. 18 after a four-year hiatus. The warning, issued by Secretary of State Colin Powell, followed a hint that Baghdad would challenge the UN resolution. "We expect co-operation," Powell warned.

The UN resolution required Baghdad to give UN inspectors a complete and accurate declaration of all aspects of its chemical, biological, and nuclear weapons programs and ballistic missile systems. The deadline for this task was set for Dec. 8. Baghdad quickly insisted it possessed none.

"False statements or omissions" in such declarations constituted "a further material breach" under the resolution.

Defense Secretary Donald H. Rumsfeld told Iraq not "to take or threaten hostile action" against US or allied aircraft enforcing sanctions over Iraq. In the US view, this, too, constituted a new material breach and provided a case for war.

It was not made clear who was to decide whether Iraq had met the terms of the resolution—Washington or the Security Council. The resolution removed an automatic "trigger" for use of force against Iraq, but Bush had said Washington was not bound to wait for UN approval to take military action.

Not everyone was pleased with the outcome at the Security Council. Commentators William Kristol and Donald Kagan, longtime advocates of "regime change" in Iraq, argued that there was a risk the United States would get bogged down in a welter of claims and counterclaims that would string out and eviscerate the current support for knocking off Saddam.

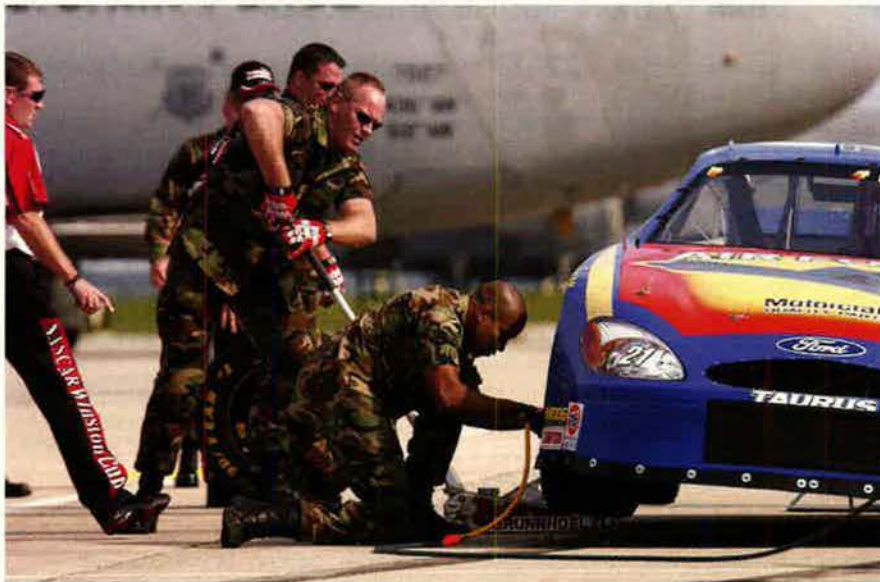
"There is no point in kidding ourselves," they wrote. "The inspections process on which we are to embark is a trap. It may well be one that this powerful and determined President can get out of, but it is a trap nonetheless. ... President Bush's own policy advisors have led him into an inspections quagmire from which he may have difficulty escaping."

The *Financial Times* reported from Paris that France was overjoyed that it managed to divert the resolution toward Iraqi disarmament rather than "regime change," as Bush had sought.

Another skeptic was Richard Perle, chairman of the Defense Policy Board, who earlier had expressed a complete lack of confidence in the head weapons inspector, Hans Blix.

Of Blix, Perle once said, "I wouldn't hire him for an Easter egg hunt. ... Very nice man, but put Hans Blix up against Saddam Hussein? Not a fair match."

USAF photo by William Plate Jr.



Pit Crew for a Day. Personnel from the 436th Airlift Wing, Dover AFB, Del., change a tire on the USAF-sponsored NASCAR during a demonstration pit stop on Dover's flight line. Members of the No. 21 Motorcraft race car team stand by.

Jumper Redirects Career Planning

The Air Force is embarking on "a new way of thinking" about career choices, Gen. John P. Jumper, USAF Chief of Staff, said in early November when he announced a new program called Force Development. Over the next six months, the service plans to redesign how the Air Force assigns its personnel to schools and jobs.

"We intend to open the aperture on what is considered beneficial education and training experience," said Jumper.

The program applies across the board to officer, enlisted, and civilian members, although initial changes focus on active duty officers.

One significant move in this new way of thinking will eliminate, for most officers, the requirement to acquire an advanced degree to be competitive for promotion to lieutenant colonel.

Jumper said that there will not be one "set solution" for success in all cases.

For instance, some individuals may bypass traditional Professional Military Education to pursue a different degree program—if it makes more sense for the individual and the Air Force, said Lt. Gen. Richard E. Brown III, USAF's top personnel officer. He added that those non-PME opportunities will be considered equally valuable to professional growth.

To ensure that equality, the Air Force intends to change officer career brief forms. The forms currently have separate boxes for PME and advanced academic degrees, but in the future, they will have only one box "to more accurately reflect career development," said Brig. Gen. Richard S. Hassan, director of the Air Force Senior Leader Management Office.

Another major change will enable officers to skip what is termed career broadening—but with a caveat.

According to Hassan, if officers are happy being pilots, scientists, engineers, or other specialists, then they do not have to pursue development beyond their primary specialty. The Air Force, he said, values technical knowledge and functional skill.

"However, they have to be realistic about their chances for promotion to colonel or general," Hassan noted. "It's great that we have people who are experts in a particular field at the tactical or operational level, but at the strategic level we need senior leaders with much broader perspectives and knowledge."

Officials said other initiatives under the Force Development program will be announced in the coming months.

F-16 piloted by 1st Lt. Jorma D. Huhtala collided with another flown by Capt. David Roszmann. Huhtala was killed. Roszmann ejected safely.

Both pilots were with the 4th Fighter Squadron, part of the 388th Fighter Wing, at Hill.

The second accident took place Nov. 13 about 2 p.m., also over the training range, when the F-16 piloted by Lt. Col. Dillon L. McFarland crashed. McFarland, a commercial pilot, was with Air Force Reserve Command's 419th Fighter Wing at Hill. He had more than 3,000 flying hours in the F-16.

Officials said boards are investigating both accidents.

ACP Extends to Navs, ABMs

USAF officials said the service has expanded its Fiscal 2003 Aviator Continuation Pay program to include bonuses not only for pilots but also for certain groups of navigators and Air Battle Managers.

ACP bonuses are not entitlements, said Maj. Edward Ford, USAF's chief of rated force policy for combat forces. "We review the ACP program every year and adjust it accordingly."

To take advantage of the Fiscal 2003 ACP, navigators must have at least 15 years of aviation service and 18 or more years of total active military service. The amount of the bonus varies with the length of service commitment they accept—three years, five years, and through 25 years—and the number of years they have left for aviation service. The minimum is \$10,000 per year, and maximum is \$15,000 per year.

ABMs who have completed their initial aeronautical rating active duty service commitment are eligible for an ACP bonus. There are various stipulations on length of agreements, based on number of years of aviation service. The minimum and maximum bonus amounts are the same as for navigators.

The ACP program for pilots is similar to last year's, said officials. Pilots have options for three-year, five-year, and up to 25-year agreements. The minimum bonus is \$15,000 per year, and the maximum is \$25,000 per year.

There is a change in the amount of money pilots can take up front, said Ford. The service is offering partial lump-sum payments of 50 percent for first-time eligible pilots but has dropped options to take smaller percentages.

USAF considers ACP an "appropriate and cost-effective" means to

work through its rated personnel shortages, Ford said.

"It will be years before the Air Force fully recovers from the rated production cuts made during the mid-1990s," predicted Ford. "Until then, ACP is the best tool we've got to improve the retention of these highly trained personnel."

Yeager Breaks Sound Barrier Once More

On Oct. 26, retired Brig. Gen. Chuck Yeager, 79, broke the sound barrier once again as he opened the air show at Edwards AFB, Calif. He said it was his last time, as he ended a 60-year military flying career.

Yeager was the first person to officially break the sound barrier, some 55 years ago. In 1947, he flew alone in the rocket-powered Bell X-1 to Mach 1.6. In 2002, he flew an F-15 to 30,000 feet at Mach 1.45. Lt. Col. Troy Fontaine, a test pilot at Edwards, was in the back seat.

"Now is a good time," Yeager said about giving up military flying. "I've had a heck of a good time and very few people get exposed to the things I've been exposed to." He added that he would keep flying P-51s and the light stuff.

Smart Tankers To Debut in May

The Air Force plans to field its first smart tanker—an air refueling aircraft with a communications relay system—in the spring and 39 other modified aircraft by fall 2003. USAF successfully tested its first modified tanker Oct. 23.

Air Force Chief of Staff Gen. John P. Jumper first broached the possibility of using aerial refuelers to serve as airborne nodes for a warfighter communications network shortly after the Sept. 11, 2001, terrorist attacks. He said that because tankers are always there, close to danger zones or flying intercontinental air bridges, they make perfect platforms to handle communications.

The Oct. 23 demonstration featured a KC-135 tanker outfitted with the Roll-on Beyond-Line-of-Sight Enhancement. Using ROBE, the tanker relayed data while flying from Eglin AFB, Fla., to Hanscom AFB, Mass.

ROBE is the first in a family of Scalable, Modular, Airborne Relay Terminals that will be used aboard tankers. The SMART system could also be used on other platforms, such as unmanned and ground- or sea-based vehicles, said USAF officials.

Initially ROBE will be a data relay that will allow line-of-sight/beyond-line-of-sight communication among network members. Officials said the

Anthrax Shots Continue To Rile ANG, AFRC

In the battle to retain top Air National Guard and Air Force Reserve Command pilots, anthrax vaccination is a major problem.

So claims the General Accounting Office, a Congressional watchdog agency. In a recent survey, GAO investigators found that many experienced, highly trained ANG and AFRC pilots faulted the vaccination program for their decision to leave service.

GAO in 2000 randomly surveyed Guard and Reserve pilots about their reasons for separating. The key finding:

"While many factors can and do influence an individual's decision to participate in the military, a significant number of pilot and aircrew members cited the required mandatory anthrax immunization as a key reason for reducing their participation or leaving the military altogether in 2000."

Anthrax is an acute infectious disease that has been weaponized by Iraq, among other nations.

The Pentagon, which has been trying since 1997 to vaccinate all troops, challenged the report. It said, for one thing, that the data do not uphold GAO's findings on the reason for rates of separation by pilots. It said GAO did not consider normal turnover rates in its conclusions.

Another potential problem is whether the surveys were indeed random. GAO said it mailed out 1,253 surveys and received 843 responses, indicating that the participants were, to some degree, self-selected.

Rep. Dan Burton (R-Ind.), chairman of the House Government Reform Committee, requested the survey.

"Anthrax is a serious threat that our soldiers might face on the battlefield," said Burton. "At the same time, this vaccine has been controversial, and it has caused serious reactions in some individuals."

Hundreds of thousands of US troops have received vaccines to protect them against anthrax, particularly during the Persian Gulf War. After a long pause in the inoculation program, the pace of vaccinations was accelerated last month, officials said. Some veterans and researchers believe the vaccine is partly responsible for illnesses reported by Gulf War veterans.

According to the GAO survey:

From September 1998 to September 2000, 16 percent of all Guard and Reserve pilots left the military, moved to inactive status, or transferred—in most cases to nonflying units. What's more, 18 percent of reservists assigned to a unit said they would leave soon. Anthrax vaccination was a major factor in each case.

Half said they might return to duty if the Pentagon made the vaccinations voluntary.

For years, a number of members of ANG and AFRC have held out, refusing to receive the vaccine.

US military health officials have claimed that the vaccine is safe and effective and that many reluctant military members are being frightened by outdated and inaccurate information.

Pentagon officials say anthrax would be the biggest near-term biowar danger for US troops. It is cheap, easy to produce, and easy to load into a weapon.

objective is to connect battle directors in an air and space operations center with those en route to or in a theater of operations.

Moose Is ANG Officer

Charles Moose, the Montgomery County, Md., police chief who led the high-profile manhunt for the snipers

who terrorized the Washington, D.C., region recently, is also an Air National Guard officer.

Moose was the leader and national spokesman for the multijurisdictional sniper task force that included members of the FBI, Secret Service, US Marshals, and other police forces. They spent three weeks tracking down



“Bird of Prey” Stealth Aircraft Revealed, Headed for USAF Museum

A one-of-a-kind, top-secret stealth technology demonstrator built by Boeing is headed for display at the US Air Force Museum, service officials announced.

The “Bird of Prey” project, which ran between 1992 and 1999, was conducted by McDonnell Douglas to demonstrate its ability to quickly design and build prototype stealth aircraft. (Boeing acquired McDonnell Douglas in 1997.)

Air Force Chief of Staff Gen. John P. Jumper, who attended an unveiling ceremony at Boeing’s St. Louis plant Oct. 18, said the aircraft could be declassified because the technologies it explored have made their way into many other projects that are now out in the open.

The aircraft—roughly the length of an F-16—flew at “various locations” and made 38 flights over three years, Boeing pilot Joe Felock said.

The Bird of Prey was never intended to go into production and carried no payload. It served as a test bed for technologies that were later applied to Boeing’s Joint Strike Fighter concept demonstrator and the company’s X-45 Unmanned Combat Air Vehicle, to which it bears some resemblance.

The airplane “will now go to our Air Force Museum at Wright-Patterson [AFB, Ohio],” Air Force Secretary James G. Roche said at the unveiling ceremony. He said it will be placed near the Tacit Blue secret experimental aircraft, which was a pathfinder for the B-2 bomber program.

Only one example of the Bird of Prey was built. Despite its exotic and rakish appearance, it did not employ a fly-by-wire digital flight-control system and could not exceed 299 mph airspeed. Its operating ceiling was just 20,000 feet.

The program proved that Boeing could compete with rivals Lockheed Martin and Northrop Grumman in the stealth aircraft business, Boeing Vice President George K. Muellner asserted. The entire \$67 million project was paid for by Boeing; the Air Force contributed flight-test support facilities and personnel. To limit cost, Boeing used some parts from other aircraft, such as landing gear from a Beech Super King Air, an ejection seat from an AV-8B Harrier, and an engine from a Cessna Citation business jet.

Muellner described the program as “highly successful,” helping the company design its Joint Strike Fighter candidate with a “very competitive” degree of stealthiness. Together with experience obtained from Boeing’s tailless X-36 unmanned research aircraft, the Bird of Prey led directly to the X-45 UCAV, Muellner said.

Other technologies explored in the project included manufacturing processes for large, single-piece composite structures, three-dimensional virtual reality design and assembly, and disposable tooling. The single-piece composite structures have proved key in design of modern stealth aircraft because they eliminate a large number of seams, fasteners, and other discontinuities in the skin that could offer a radar signature.

The aircraft was dubbed Bird of Prey because of its resemblance to a similarly named spaceship on the “Star Trek” TV series, Felock reported.

No announcement has been made as to when the aircraft will be displayed at the museum.

—John A. Tirpak

the two suspects, arrested Oct. 24. The snipers killed 10 people and wounded three others.

As an ANG major, Moose is commander of the District of Columbia ANG’s 113th Security Forces Squadron, based at Andrews AFB, Md. He has led the 60-person unit since May 2000.

“He worked around the clock for two or three weeks after the terrorist attacks on Sept. 11, 2001,” said CMSgt. Bobby Spear, the senior enlisted member of the 113th SFS. “He would work all day at Montgomery County [Md.] and then come to Andrews and work with us late into the night, making sure we had everything we needed to keep our planes and our part of the base secure.”

Spear added, “The admiration that he’s received from the national and international media and communities comes as no surprise to us.”

Select Careers Gain GI Bill Help

The Air Force will offer enlisted and officer personnel in certain critical career fields a new Montgomery GI Bill education benefit—transferability to a family member. The goal of the test program, slated to begin next year, is to boost retention.

Air Force members in certain specialties will be able to transfer up to 18 months of the MGIB benefits to their spouse, children, or a combination of both. First, though, they must sign on the dotted line.

Enlisted members must re-enlist by Sept. 30, 2003. They must also have between six and 12 years of time in service and already be eligible for the GI Bill. Officers must also have the same time in service and agree to a four-year active duty service commitment.

Enlisted specialties eligible for the program include linguists, firefighters, and computer system programmers. For officers, the eligible fields include civil and developmental engineers and scientists.

USAF plans to survey those personnel taking advantage of the test program to determine to what extent the GI Bill special incentive influenced their decision to remain in the service. If the results are positive, the service may continue the program beyond 2003.

The New Way of Taps

DOD announced in late October that it had developed an innovative way to improve military funeral honors—using a digitally enhanced bugle.

Using the bugle, an honor guard member who is not a musician can "play" Taps.

The ceremonial bugle, said a DOD statement, "is intended to be a dignified alternative to prerecorded Taps played on a stereo." It will not replace a musician, said DOD, if one is available.

A small electronic device, inserted deep into the bell of a bugle, plays a high-quality rendition of Taps "virtually indistinguishable from a live bugler," according to DOD. An honor guard member would simply push a button and hold the bugle to his lips.

DOD officials said the entire military has only 500 buglers, while some 1,800 veterans die each day. That number of deaths "precludes us from having a live bugler at every service," said Mark Ward, DOD's senior policy advisor on casualty and mortuary funeral honors.

"If we can get a live bugler, that's our first priority," said Ward. "Absent a live bugler, though, our ceremonial bugle is an alternative to the boom box CD player."

The Pentagon began a six-month test of the new ceremonial bugle in Missouri Nov. 7. It plans to survey those who choose to use the ceremonial bugle, instead of a CD player, to determine whether to expand the program.

DOD and VA Join Forces in North Chicago

Administration officials announced a new agreement between the Defense Department and Veteran Affairs to provide health care to military members and veterans in the North Chicago-Great Lakes area.

Under terms of the agreement:

- The Navy will construct a new ambulatory medical facility for outpatient services.
- The North Chicago VA Medical Center will provide comprehensive surgical care.
- The Navy will use the North Chicago VA Medical Center for its surgical and inpatient needs.
- Navy surgical teams will work at the VA center.

Vietnam-Era Pilot Buried

Capt. Jefferson S. Dotson, an Air Force fighter pilot missing in action during the Vietnam War, was buried at Arlington National Cemetery Oct. 25.

Dotson was listed as missing following a mission on Aug. 9, 1969, when he and fellow pilot Capt. Lee Gourley flew an F-100F along the Ho Chi Minh Trail to gather intelligence.

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Beware the Unprecedented Power of the "Weak State"

The following remarks are excerpted from a Nov. 4 address to the Brookings Institution by USAF Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff:

"Since the time of Thucydides, the premise of conflict between nations is that the stronger states could defeat the weaker ones. That was the common wisdom.

"In the past 200 years, that's been roughly true about 70 percent of the time, but as we saw in Vietnam, and the Soviets saw in Afghanistan, great powers can fail because there's a mismatch in interest. What is a peripheral issue to a powerful state may be a core issue of survival to a weaker state.

"This disparity of interest, then, can get translated into a disparity of commitment. It's one reason a weak power can overcome a stronger nation's designs.

"Since 1980, one political scientist reports, this trend for the weaker to succeed has actually increased as the weaker states have come out on top almost half of the time in the last 20 years.

"And now, if you add weapons of mass destruction to the equation, you have a case where relatively weak actors may have access to lethal power that rivals what the strongest nations have. Weak actors can potentially inflict unprecedented devastation on a great nation.

"With weapons of mass destruction, they can hold at risk large portions of societies.

"During the Cold War, of course, we faced the threat of nuclear conflict with a superpower, but deterrence contained that threat, because we placed at risk something the adversary held very dear—that was, in essence, their very existence.

"Today, if a weak power is a terrorist network with weapons of mass destruction, deterrence won't work most of the time. When they're willing to commit suicide to further their agenda, what do they value that we can place at risk?

"This dilemma, I think, reflects an unprecedented nature of today's security environment."

PA&E Indicates C⁴ISR Systems May Prosper at Other Programs' Expense

Early this month, top defense officials planned to send to the President recommendations on what changes must be made to major acquisition programs to further DOD's transformation efforts for the Fiscal 2004 budget. Early indications were that some high profile programs, such as USAF's F/A-22 Raptor, would be trimmed to make way for other systems.

Several major programs underwent reviews spearheaded by Stephen A. Cambone, director of DOD Program Analysis and Evaluation. The reviews were mandated in the classified Defense Planning Guidance and were intended to evaluate exactly what benefit systems bring to joint warfighting.

The systems most prized by Defense Secretary Donald H. Rumsfeld include Command, Control, Communications, and Computers and Intelligence, Reconnaissance, and Surveillance programs, according to Cambone's deputy, Rear Adm. Stanley R. Szemborski. It is up to Rumsfeld to determine "what types of capabilities he would like to emphasize and what types of capabilities he would like to de-emphasize," the admiral told the Fletcher Conference in mid-October.

Szemborski noted that the Fiscal 2003 budget made some initial moves toward improving C⁴ISR capabilities—but that further work was needed in these areas.

The Pentagon needs to "continue on the development of C⁴ISR [and] transformational communications," said Szemborski. "This will enable us to move enormous quantities of information over very long distances and enable the kind of networked forces that we think will be the hallmark of the future." He added, "We also need to continue to leverage our technology for conducting space operations and space control."

Cambone also touted joint C⁴ISR capabilities as a likely growth area. "We are looking to focus first and foremost on the contribution that any given program or platform is going to make to joint operations," he said earlier this year.

DOD "looked after C⁴ISR in last year's budgets," noted Cambone in a Sept. 18 news briefing. "And now there's more still on C⁴ISR." He also cited special operations capabilities, space, and satellite linkages and networks as areas where "we have got to put more emphasis and importance."

The flip side of the equation is that with a finite budget, reductions will have to come from somewhere. Szemborski emphasized that the current reviews are not budget drills. Traditional PA&E program evaluations such as these have focused on affordability.

Cambone said the reviews recognized that DOD might be willing to "accept increased risk" in areas of distinct

US advantage, such as tactical airpower, to provide more funds for C⁴ISR and other top Rumsfeld priorities.

Both Cambone and Szemborski cited cuts to the Air Force's B-1 bomber fleet and the cancellation of the Army's Crusader heavy artillery system as examples of "key decisions" that have already been made.

Cambone looked at the F/A-22 with an eye toward reducing the planned buy of 339 down to as few as 180. The question posed to the Air Force was whether 180 Raptors would be enough to meet joint requirements. The Air Force answer: No. In fact, service officials pushed to increase the number to 381 to ensure USAF could field one squadron per each of its 10 Aerospace Expeditionary Forces.

Other programs under evaluation included:

- Army's Future Combat System.
- Army's RAH-66 Comanche helicopter.
- Army's Stryker interim armored vehicle.
- Navy's CVN(X) next-generation aircraft carrier.
- Joint electronic jamming options (replacement for the Navy/Marine Corps EA-6B aircraft).
- V-22 Osprey tilt-rotor.

The V-22 had been considered an easy mark for elimination because of technical and safety hurdles. However, in November, Rumsfeld said he was unlikely to rush to judgment on the tilt-rotor aircraft, given that the program had been redesigned and is in the midst of testing.

"Why in the world would you put in place a test program if you didn't want to know what the outcome might be," he asked rhetorically.

Press reports this fall indicated that the Army might take the brunt of the programmatic reductions, with the Comanche, Stryker, and Future Combat System all facing significant cuts or delays. And, although funds from the Army's canceled Crusader were to be used by the Army for other systems, DOD officials made no guarantees that funds cut from service accounts under the current reviews would go back into the same service's budget.

"In my time at OSD, I have not heard the words 'traditional allocation' used once," said Szemborski. He added that Rumsfeld will either say he wants to emphasize a capability or de-emphasize it. Rumsfeld has not said "if it is de-emphasized, then the service will get that money back," the admiral continued.

As the steward for most of the C⁴ISR systems that could gain priority in the 2004 budget, the Air Force could find itself overseeing a larger share of the overall defense budget.

—Adam J. Hebert

Dotson officially was declared dead on April 26, 1976.

Remains believed to be those of Dotson were discovered in December 2001 and subsequent DNA tests confirmed the identification.

USAF Opens Special Duty

The Air Force has opened the job

of missile facility manager as a four-year special duty assignment. There are some 200 positions available.

Three years ago, service officials removed the position from its special duty list. Instead, it made the job part of the missile maintenance career field.

It was a controversial move, according to MSgt. Larry Dunbar, su-

perintendent of ICBM operations at Air Force Space Command, Peterson AFB, Colo., because the small career field couldn't support the additional requirements.

The facility manager job is relatively stable because there are no deployments. A major drawback, though, is the commute to work.



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Hanging Around. A CV-22 is suspended in the Benfield Anechoic Facility at Edwards AFB, Calif., where it is undergoing tests of its integrated radio frequency countermeasures system.

CENTCOM Faults AC-130 for Death of US Soldier

On Nov. 8, US Central Command officials released results of the investigation into the March 2 incident involving US and Afghan military forces and a USAF AC-130 gunship. The conclusion was the AC-130 crew mistakenly identified the US and Afghan forces as enemy troops and fired, killing Army Chief Warrant Officer Stanley L. Harriman and two Afghan personnel and injuring another three US and 14 Afghan personnel.

The report cited equipment problems, specifically with the aircraft's navigation systems, that contributed to the incident.

On March 2, the AC-130 was providing armed escort and reconnaissance for a ground convoy. The AC-130 broke contact with the convoy to respond to calls for fire support from other ground units, stated the investigation report's executive summary. It continued:

"While away, an element of the convoy, led by CW2 Harriman, separated from the main convoy to proceed to a preplanned position. When the AC-130 returned to its primary mission of convoy escort, they [the aircrew] miscalculated their position relative to the ground and identified CW2 Harriman's element as enemy vehicles and personnel, believing them to be located in front of the main convoy's line of travel and positioned to attack the convoy. The AC-130 requested permission to engage and, upon receipt of permission, fired multiple rounds."

The report stated that when the AC-130 broke off from the convoy to respond to a ground unit requesting fire support, the crew had difficulty navigating to the location, and the ground unit had to direct them to the site, where the AC-130 fired on the enemy force. The AC-130's navigation systems continued to malfunction, and when the gunship tried to return to the convoy, it had to use ground reference points to fix the location the convoy designated for the AC-130 to observe. "In actuality, the crew had misidentified the ground reference points with another area that had very similar features," said the summary.

The AC-130 crew returned to their base, believing they had fired upon enemy forces. "Initial reports all attributed the attack on the [Harriman] element as coming from enemy fire," stated the summary.

Some managers must travel about 160 miles to reach the missile facility. Once there, the manager, who must be a jack-of-all-trades, stays for three days. A plus is that the manager only works about 12 days per month.

The job entails maintaining the power supply, water treatment, supplies, publications, equipment, and housing arrangements for the missile alert crew, the transient maintenance crew, and security forces at the facility. The manager might also have to provide emergency medical help or remove snow.

Besides being independent-minded, applicants for the positions must be staff sergeants to senior master sergeants. The assignments are advertised on USAF's Equal Plus.

New DACOWITS Members Named

Defense Secretary Donald H. Rumsfeld selected the Fiscal 2003 appointees for the Defense Department Advisory Committee on Women in the Services—the first under the group's revamped operating agenda.

The group now comprises only 13 civilians from throughout the US who have experience with the military or with women's workforce issues. Previous boards had 22 members.

The chair of the new group is retired Marine Corps Lt. Gen. Carole A. Mutter, who had served as head of manpower for the Marines. She said the group will "be more focused" and collect recordable information. "This should make it easier to spot actual trends and discount what are anomalies," Mutter added.

The other committee members are: Catherine Aspy of Keizer, Ore., Lynda Davis of Great Falls, Va., J.P. Duniphan of Rapid City, S.D., Bonnie Fuller Ford of Albuquerque, N.M., Julie Hamre of Bethesda, Md., Constance Horner of Washington, D.C., Susan Patane of Loma Linda, Calif., retired Army Reserve Col. Darryl Ladd Pattillo of Austin, Tex., Margaret Robson of Washington, D.C., Virginia Rowell of Vienna, Va., retired Air Force Reserve Col. Vance Shaw of McLean, Va., and Rosalie Silberman of Washington, D.C.

Hump Yields C-46 Crew Remains

A 14-man search and recovery team returned to Hawaii in October with what they believe will be the remains of four US service members whose C-46 transport aircraft crashed in the Tibetan Himalayas in March 1944.

The team from the US Army Cen-

tral Identification Lab, based at Hickam AFB, Hawaii, found the aircraft wreckage in a cliff face above a ravine. Team members spent two months excavating the site, working out of a base camp at 15,500 feet altitude.

The C-46, which was based at Sookerating, India, was reported missing during a return flight from Kunming, China. The crew may have become lost and the aircraft ran out of gas.

Lab officials said identification of the remains can take anywhere from several months to several years.

Bush Signs Appropriations Bills

President Bush signed the \$355.1 billion Fiscal 2003 defense appropriations bill Oct. 23. It marks a \$37 billion increase over Fiscal 2002 spending.

Its provisions include:

- A 4.1 percent pay raise for service members.
- A \$5 billion increase for operations and maintenance, though this fell short of the President's request.
- An \$11 billion increase over last year's procurement budget.
- Plus, \$7.4 billion for the national missile defense system.

The Administration did not get the unlimited \$10 billion contingency fund it had requested for conducting the war against terrorism overseas; however lawmakers said that could be covered in supplementals.

The President also signed a \$10.5 billion military construction bill.

NCO Garners Pitsenbarger Honor

TSgt. Navid Garshasb won the 2002 Pitsenbarger Award for his actions during Operation Enduring Freedom.

He is a "real live American hero," said Lt. Col. Kevin Wooton, commander of the 25th Information Operations Squadron, Hurlburt Field, Fla.

Garshasb, who is a linguist and superintendent of scheduling in the 25th IOS, helped prevent a hostile incident with Afghans when the MH-53 helicopter he was on crashed in a combat zone in Afghanistan. As some 15 Afghans began to approach the downed helicopter, the crew prepared their weapons. However, Garshasb, who decided the Afghans did not necessarily appear hostile, put down his weapon and advanced toward them to talk.

He was suffering from two fractured vertebrae, a fractured rib, and hypothermia, but he was finally able to make the Afghans realize they were endangering their own lives and should return to their village. It was an "interesting situation in an inter-

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esting place," Garshasb said. "I was just doing my job."

The Air Force Sergeants Association presents the Pitsenbarger Award annually to an Air Force enlisted member for heroic acts.

GAO: Depot 50/50 Data Lacking

According to the General Accounting Office, DOD's depots really can't show how much work they contract out vs. what they perform in-house. It's not a new problem, said GAO in a report released in late October.

The issue is the 50/50 rule. Congress mandated that DOD depots must perform 50 percent of the DOD depot maintenance workload, while the other half can be handled by private contractors. With the poor state of the depot data, said GAO, there is no way to determine if the services are complying with the law.

GAO cited examples from each of the services of either understating, not reporting, or faulty assumptions. For example:

- The Air Force counted twice some component repairs—about \$500 million worth—and failed to report some facility modifications performed by contractors.
- The Army erroneously reported

workloads at two commands in millions of dollars rather than thousands.

- The Navy did not report some \$200 million in repair work.
- The Marine Corps also understated more than \$100 million.

DOD Speeds Battle Plan Updates

Combatant commanders recently received guidance from the Pentagon to revamp battle plans—a process that normally takes place over a two-year period—within six months. This is just a first cut, said Marine Gen. Peter Pace, JCS Vice Chairman.

"Rather than look for a two-year cycle on war plans, [Defense Secretary Rumsfeld] has directed them to come in within six months with their first cuts on changing the major battle plans for the nation," Pace said at the Fletcher Conference in October.

Rumsfeld's contingency planning guidance, said Pace, requires combatant commanders to update plans that may have been on the shelf for the past five to 10 years. The goal is to lay out exactly what assets they need to accomplish their missions.

"A new part of the puzzle is what we are calling an operational avail-

ability study," said Pace. "Put simply, how much of the nation's combat capability do we want to be able to deliver anywhere in the world and in what time?"

Pace said that most of the preliminary reviews of the war plans done over the past few months have left unanswered the question of whether commands are scaling war plans to fit the resources they have rather than the resources they really need to accomplish a mission.

DOD Unveils Memorial Finalists

Pentagon officials said more than 1,100 people submitted designs for the memorial for those killed in the Sept. 11 attack on the Pentagon. Of those, a panel selected six finalists.

The 11-member panel included

artists, designers, family members of those killed in the attack, and two former Secretaries of Defense. The panel took three days to review the 1,126 qualified entries, which came from within the US and overseas.

Artists' renderings of the six final proposals are online at <http://memorialcompetition.pentagon.mil>.

The memorial will be located outside the Pentagon near the point of impact. Officials expect to decide on a final design this month.

News Notes

■ The Senate confirmed Gen. James L. Jones Jr. as commander of US European Command and NATO's Supreme Allied Commander. Jones, who will be the first Marine to hold the positions, will replace USAF Gen.

Joseph W. Ralston in January. Gen. (sel.) Michael Hagee is to replace Jones as Marine Corps Commandant.

■ The Air Force Academy is looking for a logo and motto for its 50th anniversary celebrations, slated to start April 1, 2004, and continue to 2009. Submissions are due by Jan. 31. They can be mailed to HQ USAFA/PA, 2304 Cadet Drive, Suite 320, USAF Academy, CO 80840 or e-mailed to action.line@usafa.af.mil.

■ On Nov. 4, Air Combat Command said improper maintenance procedures were the primary cause of a May 15 B-2 mishap that injured five airmen at Whiteman AFB, Mo. A B-2 bomber collapsed when one of the five maintenance personnel working on it "improperly removed a landing gear safety pin and then pushed the

Pacifist Professor Feels Blowback From Comments

A professor at Saint Xavier University wound up in hot water for accusing USAF of "baby-killing tactics," among other things.

Peter N. Kirstein, 56, taught for 28 years at the small Catholic college in Chicago. In November, he received an e-mail from an Air Force Academy cadet seeking help publicizing a campus event. He fired back by calling the cadet a "disgrace to this country."

The college subsequently received thousands of angry calls, prompting Kirstein and President Richard A. Yanikoski to issue apologies and clarifying remarks. Kirstein was publicly rebuked and disciplined.

At right are the relevant statements:

1. Text of Kirstein's E-Mail to Cadet

You are a disgrace to this country and I am furious you would even think I would support you and your aggressive baby-killing tactics of collateral damage. Help you recruit. Who, top guns to reign [sic] death and destruction upon nonwhite peoples throughout the world? Are you serious sir? Resign your commission and serve your country with honour.

No war, no air force cowards who bomb countries with AAA, without possibility of retaliation. You are worse than the snipers. You are imperialists who are turning the whole damn world against us. September 11 can be blamed in part for what you and your cohorts have done to Palestinians, the VC, the Serbs, a retreating army at Basra.

You are unworthy of my support.

Peter N. Kirstein,
Professor of History,
Saint Xavier University

2. Kirstein's Subsequent Explanation

I would like to apologize to every person who is offended, burdened, distracted and hurt by my e-mail to an Air Force Academy cadet. My e-mail, while motivated from a pacifist perspective, was not professional in tone and totally at variance with my usual interaction with students and colleagues.

I am opposed to war and the use of violence in resolving international conflicts while understanding many believe it is appropriate as a last resort. I believe pacifism is a noble calling and should be part of the national dialogue concerning war, peace, and justice. I recognize individuals who serve in the military deserve respect both for their service and their viewpoints. It is wrong for me or anyone to blame an individual serving in the military when the debate is over national policy. I know as a member of the academic profession that one should be respectful and not disparage a person without careful examination of fact. I have paid a great price for my lapses and I have learned from my errors. ...

I deeply regret the hurtful way I communicated to the cadet and it will never happen again.

Peter N. Kirstein, Ph.D.

It Flies. Capt. Jim Alexander, who is an MC-130P Combat Shadow pilot with the 9th Special Operations Squadron, Hurlburt Field, Fla., flies a replica of the Wright brothers' 1902 glider off the sand dunes near Nags Head, N.C. Alexander and Maj. Dawn Dunlop, an F-15 pilot assigned to the Pentagon, both got to fly the glider as part of re-enactments of the flight during which the Wrights perfected their control system. The Wright Brothers Aeroplane Company, a nonprofit organization based in Milton, Ohio, built the glider.



USAF photo by TSgt. Erain Gonzalez

3. The President's Statement

Richard A. Yanikoski, Ph.D.
President, Saint Xavier University
November 15, 2002

During recent weeks Saint Xavier University has attracted national attention because a tenured professor of history sent a young Air Force Academy cadet some e-mail containing inflammatory, anti-military comments. Professor Peter N. Kirstein, an avowed pacifist, quickly apologized to the cadet and to the Air Force Academy for his e-mail message, but in the meantime thousands of other interested parties have taken offense.

From the beginning of this incident, Saint Xavier University has worked to achieve four objectives: (1) to make things right with the cadet and the Air Force Academy; (2) to respond compassionately to the anger and anguish aroused in so many quarters; (3) to counsel and discipline Professor Kirstein in appropriate ways; and (4) to ensure that teaching and learning at the University will continue unimpeded.

The following actions have been or will be taken to make things right with the cadet and the Air Force Academy: (1) Professor Kirstein sent a personal apology to the cadet and to the Air Force Academy. Subsequent correspondence between them has been open and respectful. (2) The University extended an official apology to the Academy's Superintendent, and as president of the University, I have agreed to accept an invitation to visit the Academy within the coming year. (3) Saint Xavier University will send a delegation to the Air Force Academy's upcoming Academic Assembly. (4) Campus officials have attempted to respond to all cadets, parents, and members of the Academy staff who telephoned or wrote to the University. Any omissions in this regard have been unintentional.

To respond compassionately to the large number of men and women who somehow received copies of Professor Kirstein's e-mail and thereby came to feel demeaned by his intemperate criticisms of the military, the University has done the following: (1) Faculty, staff, and administrators throughout the University have fielded telephone calls during the past two weeks, in each case listening sensitively to complaints and advice. (2) We answered hundreds of e-mail messages personally, until the rising volume of correspondence made

individual responses impossible. (3) We cooperated with the press in an ongoing effort to ensure accurate and responsible coverage. (4) We used web-page updates to summarize the University's response to this emerging situation. (5) We consistently admitted that Professor Kirstein's e-mail message was unwarranted and unbecoming a scholar.

By far the topic of greatest interest to most people has been the University's response to Professor Kirstein. After careful deliberation, I have decided to take the following actions on behalf of the University:

1. Effective on the afternoon of November 11, 2002, Professor Kirstein was relieved of his teaching responsibilities for the current semester and reassigned to other duties.
2. An administrative reprimand will be delivered to Professor Kirstein and placed in his personnel file.
3. While on sabbatical leave during the spring semester of 2003, Professor Kirstein will submit his teaching, scholarship, professional development, and service record to peer evaluation within the norms of the University's procedures for periodic review of tenured faculty. Professor Kirstein volunteered to have this review conducted earlier than it otherwise would have been.
4. Any future faculty contract(s) extended to Professor Kirstein will include a binding addendum specifically requiring him to adhere both to institutional policies and to the norms of the American Association of University Professors in matters relating to the proper exercise of academic freedom and extramural activities.

No additional information will be released by the University with respect to the above actions or other personnel matters concerning Professor Peter Kirstein. This is in accord with University practice.

Professor Kirstein and the University community deeply regret the incident that began this chain of events. Saint Xavier University remains committed to the pursuit of teaching and learning in a campus community where all are treated with respect, caring and justice and where academic freedom is enjoyed for purpose of promoting quality teaching, careful research, critical analysis, thoughtful discussion, and programs of direct service to metropolitan Chicago and beyond.

locking assembly into an unsafe position," said an ACC report. "Without hydraulic power, the aircraft collapsed under its own weight."

■ On Oct. 30, DOD recognized three Air Force units at its annual maintenance awards ceremony. They were: 354th Fighter Wing (large unit category), Eielson AFB, Alaska, 18th Maintenance Squadron (medium unit), Kadena AB, Japan, and 510th Fighter Squadron (small unit), Aviano AB, Italy.

■ An accident report released by Air Combat Command Nov. 6, on the March 30 breakaway of an Air Force surveillance aerostat from its tether near Rio Grande City, Tex., said high winds, turbulence, and sharp object damage were the cause. The aerostat drifted more than 300 miles before coming to rest on private land near Burnet, Tex. Along the way, the remains of its tether damaged power lines, interrupting power in several Texas counties. Crews had tried to recover the aerostat after a sudden windstorm developed. The aerostat is used for counternarcotics surveillance.

■ Northrop Grumman announced Nov. 7 that it had received a \$34.2 million contract from USAF for the first phase of the B-2 pathfinder program, a multiyear effort to design and integrate a new radar antenna on the stealth bomber.

■ Capt. Elizabeth M. Tandy, a dentist at Wilford Hall Medical Center, Lackland AFB, Tex., won the nation's highest graduate research award for periodontology—the Balint Orban Memorial Research Award from the American Academy of Periodontology. Her research focused on how estrogen can affect bone cells and how those cells adapt to a periodontal implant surface.

■ The last C-5 aircraft had a Traffic Collision Avoidance System installed on Oct. 31, according to program officials at the Aeronautical Systems Center, Wright-Patterson AFB, Ohio. The TCAS is part of an overall upgrade program designed to keep the giant transport flying until 2040, said Lt. Col. Darrel R. Watsek, the C-5 Avionics Modernization Program manager.

■ Moody Air Force Base in Georgia received its first T-38C with modified ejectors, engines, and inlets last month. Officials said these propulsion modernization upgrades will extend the life of the T-38 through the year 2020. More than 500 aircraft and 1,200 engines will be modified.

■ USAF recently selected 561 senior master sergeants for promotion

US Bishops Raise Questions About War With Iraq

Though snarled in a pedophile-priest scandal, US Catholic bishops found time to offer moral guidance on war with Iraq.

The US Conference of Catholic Bishops pronounced it "difficult to justify the resort to war against Iraq" because it found no "clear and adequate evidence" that Iraq was about to launch "an imminent attack of a grave nature."

The Nov. 13 statement expressed "serious concerns" and "questions." It emerged from the bishops' four-day conference in Washington, D.C. The vote was 228-14, with three abstentions.

The statement did not flatly declare any US attack unjust, but it came close. The official conference press release pointed disapprovingly to what it called "the rush to war with Iraq."

In an unlikely development, the war issue became entangled with the sex-abuse scandal, which resulted from failure of some bishops to discipline priests who sexually abused children.

Cardinal Bernard Law of Boston, a key figure in the scandal, also presided over the shaping of the war statement. Boston-area Catholics called for his resignation because he had transferred a known pedophile, John Geoghan, from parish to parish.

At the conference, Catholic lay groups voiced objections to the choice of Law to be a moral spokesman on the war issue.

Despite the complaints, the conference plunged ahead with the statement. The bishops' conference has often taken stands on war and peace. It condemned the Vietnam War in 1971.

The most famous act came in 1983, when the bishops issued a pastoral letter protesting President Reagan's nuclear arms policies and questioning the morality of nuclear deterrence.

Deterrence, it said, is the result of "political folly," adding, "We cannot consider it adequate as a long-term basis for peace." The bishops called for "accelerated work for arms control reduction and disarmament" and "efforts to develop nonviolent means of conflict resolution."

In Washington, the bishops raised their questions inside the framework of Roman Catholic "just war" theory:

■ **Just cause?** "We are deeply concerned about recent proposals to expand dramatically traditional limits on just cause to include preventive uses of military force to overthrow threatening regimes or to deal with weapons of mass destruction."

■ **Legitimate authority?** "In our judgment, decisions concerning possible war in Iraq require compliance with US constitutional imperatives, broad consensus within our nation, and some form of international sanction."

■ **Probability of success and proportionality?** The bishops raise concerns that a war against Iraq "could have unpredictable consequences not only for Iraq but for peace and stability elsewhere in the Middle East."

■ **Norms governing the conduct of war?** War in Iraq could result in "incalculable costs" for the civilian population.

The bishops were content, for the moment, to make do with raising questions and expressing concerns. Even so, it is clear that many would like to seek outright condemnation.

"We are on the brink of war," declared Bishop Walter F. Sullivan of Richmond, Va., "and I think we have to be very, very clear that all of us are against the war in Iraq. We need to be strong. We need to be forceful and not equivocate."

—Robert S. Dudley

to chief master sergeant. The selection board considered a total of 2,815 individuals and promoted 19.93 percent, said officials. The rate of selection is significantly above the objective of 13 percent. Last year's rate was 20.06 percent.

■ Pentagon officials said high-level defense consultations with China are slated to resume this month after a two-year lull following the incident between a Chinese fighter aircraft and a US Navy EP-3 surveillance aircraft.

■ The Navy's F/A-18E Super Hornet made its first combat appearance in early November, according to US Central Command officials. The fighter participated in coalition strikes against Iraqi surface-to-air missile systems and a command-and-control communications facility in response to attacks by Iraqi forces on coalition aircraft covering the no-fly zone in southern Iraq. The Super Hornet flew from USS *Abraham Lincoln*.

■ North Carolina Sen. Jesse Helms, who spent 30 years in the Senate, received the DOD Medal for Distinguished Public Service from Defense Secretary Donald H. Rumsfeld in a ceremony Oct. 30. The citation reads: "For exceptionally distinguished service over three decades in the US Senate and as Chairman of the Senate Foreign Relations Committee from 1995 to 2001. From his service in the Navy during World War II, to his service in the US Senate, Jesse Helms has been a devoted friend and determined advocate for the men and women of America's Armed Forces."

■ USAF accident investigators determined that human error caused the May 17 crash of an RQ-1 Predator Unmanned Aerial Vehicle during Operation Enduring Freedom. An Oct. 30 report said that the incorrect assembly of the right tail plane control servo by the manufacturer was the sole cause of the accident. No one was injured.

■ Air Force Capt. Christopher Juarez won the 27th annual Marine Corps Marathon in Washington, D.C., on Oct. 27. His time was 2:25:01. Juarez is a contracting officer at Nellis AFB, Nev. This was his third time to run in the event, which, this year, had more than 14,600 runners.

■ The Air Force Team, including Juarez, won the Armed Forces Marathon Championship by 50 seconds. Individual scores of a team's top three men and the team's top woman are added to determine the championship team. In addition to Juarez, the team's top finishers were Maj. Mark Cucuzzella (2:34:46) of Buckley AFB, Colo., Maj. Jon Scheonberg



The First 1,000. On Oct. 30, Maj. Gary MacLeod, a former Marine Corps pilot who is now an Air Force instructor pilot with the 558th Flying Training Squadron, Randolph AFB, Tex., became the first pilot to exceed 1,000 hours in the new T-6A Texan II trainer.

UN Weapons Inspectors Enter Baghdad

Chief United Nations weapons inspector Hans Blix and a 30-member support team entered Baghdad Nov. 18 to begin, once again, the process of checking the status of Iraq's Weapons of Mass Destruction.

Blix, who was to leave Nov. 20, outlined the process at a meeting with reporters Nov. 15. He said the support team would remain to set up operations for the inspection team. The first group of inspectors is slated to arrive in Iraq Nov. 25 and begin inspections Nov. 27.

The inspectors have 60 days, said Blix, to update the UN Security Council.

On Dec. 8, Iraq is supposed to submit a declaration of its Weapons of Mass Destruction to the UN.

"When [the declaration] gets here [UN headquarters], we will have all of our people analyzing it and comparing it with the knowledge we have from the past," said Blix. It will serve as an important basis for verification, he said.

Blix added that inspectors will not make the call about what constitutes a material breach of the UN's tough new resolution. Instead, he said, "We will report factually on what has happened, and then it is for the Security Council to assess."

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Lockheed Martin photo by Bob Jacob



By the Numbers. Lockheed Martin chief test pilot Bret Luedke flies the F/A-22 Raptor No. 11, one of eight production aircraft, on its first flight. On Oct. 23, the company officially delivered to USAF Raptor No. 10, the first production aircraft (called a production representative test vehicle).

(2:40:00) of Ft. Meade, Md., and Capt. Brenda Schrank (3:04:39) of Wright-Patterson AFB, Ohio.

■ Lockheed Martin's Atlas V 500 series solid rocket motor built by Aerojet successfully test fired Oct. 30. The first Atlas V 500 version is scheduled to launch next year. The first Atlas V 400 series successfully launched Aug. 21, 2002.

■ Air Force reservists who serve on active duty in a combat zone on or after Nov. 11, 1998, may qualify for VA medical benefits, according to Air Force Reserve Command. For most

conditions, eligible members receive two years of free VA medical care from the date of discharge from active duty. Veterans who served in combat before Nov. 11, 1998, must prove that a medical problem is connected to their military service, or they must have relatively low incomes to receive free care for that condition. Locations of VA facilities may be found online at www.va.gov or by calling 1-877-222-8387.

■ An RQ-1 Predator UAV crashed into the side of a mountain in the Nevada Test and Training Range near

Indian Springs AFAF, Nev., on Oct. 25. The Predator, from the 11th Reconnaissance Squadron, was on a training mission. There were no injuries.

■ DOD's Federal Employees Health Benefits Program Demonstration Project ends Dec. 31. Beginning Jan. 1, 2003, demonstration project beneficiaries will resume coverage under Tricare, said officials. Congress mandated the FEHBP demonstration for three years. The Tricare Management Activity planned to mail information about future health care options to all demonstration participants. They may also call 1-877-363-3342 or go online at www.tricare.osd.mil/fehbp for more information.

■ Next year, the Navy is moving its weapons training from Vieques, Puerto Rico, to Florida, following a wave of protests on the use of Vieques after a civilian security guard was killed by an errant bomb in 1999. The Navy plans to use ranges at sea and at bases on both Florida coasts for its exercises.

■ In late October, Russia declassified its defense budget for the first time, revealing a significant increase in military spending. The 2003 budget calls for about \$10.9 billion, with some 35 percent of that to be spent on weapons. For comparison, Russia's defense budget in 2001 was calculated at roughly \$7 billion, and this year at \$9 billion.

■ On Oct. 30, Australia and the US signed an agreement for Australian participation in the Joint Strike Fighter program. Australia is the eighth partner in the program. It will invest \$150 million in program development costs, thus gaining the right for its contractors to compete on the program.

■ USAF's latest remedy for airfield bird and other wildlife problems is a dog. At least two Air Force bases, Little Rock AFB, Ark., and Dover AFB, Del., are using working dogs to help deter wildlife from crossing onto their airfields. Little Rock recently leased Colin, a two-year-old border Collie, for one year. Airmen take Colin around the flight line three times a day or when needed to address a specific threat. The dog urinates in areas where he detects the scent of other animals. It appears to be working.

■ In an Air Combat Command report released Oct. 23, investigators found that a design flaw in a high-frequency antenna assembly caused \$5 million in damages to an E-4B aircraft May 13. A KC-135 boom operator refueling the E-4B noticed the antenna lashing the rear portion of the fuselage. The E-4B returned to

Senior Staff Changes

RETIREMENTS: Lt. Gen. Paul K. Carlton Jr., Maj. Gen. Robert A. McIntosh.

NOMINATIONS: To be Lieutenant General: John D.W. Corley. To be AFRC Major General: Richard C. Collins, Scott R. Nichols, David A. Robinson, Mark V. Rosenker, Charles E. Stenner Jr., Thomas D. Taverney, Kathy E. Thomas. To be AFRC Brigadier General: Ricardo Aponte, Frank J. Casserino, Charles D. Ethredge, Thomas M. Gisler Jr., James W. Graves, John M. Howlett, Martin M. Mazick, Hanferd J. Moen Jr., James M. Mungenast, Jack W. Ramsaur II, David N. Senty, Bradley C. Young.

CHANGES: Lt. Gen. (sel.) John D.W. Corley, from Mission Area Dir., Global Power, OSAF, Acq., Pentagon, to Principal Dep. Asst. SECAF (Acq.), USAF, Pentagon ... Lt. Gen. Glen W. Moorhead III, from Vice Cmdr., USAFE, Ramstein AB, Germany, to Cmdr., Allied Air Forces Southern Europe, NATO, Naples, Italy ... Brig. Gen. Gregory L. Trebon, from Dep. Commanding Gen., Jt. SOCOM, SOCOM, Ft. Bragg, N.C., to Cmdr., SOCOM Pacific, PACOM, Camp H.M. Smith, Hawaii ... Brig. Gen. Donald C. Wurster, from Cmdr., SOCOM Pacific, PACOM, Camp H.M. Smith, Hawaii, to Spec. Asst. to Cmdr., SOCOM, MacDill AFB, Fla. ■

its base at Offutt AFB, Neb., without incident, but the aircraft had sustained extensive damage to its tail, crown skin panels, and windows.

■ For the first time DOD presented its Distinguished Civilian Service Award to a civilian below the grade of GS-15. In a presentation Oct. 23, Isaiah Ravenel, GS-11, chief of Det. 2, Air Postal Squadron, Yokota AB, Japan, and Sarah Tuckett, GS-14, chief of professional staff management at Air Force Materiel Command, Wright-Patterson AFB, Ohio, received DOD's highest civilian service award.

■ DOD announced successful deployment of its new regionalized human resource system—the Defense Civilian Personnel Data System. It reached full operational capability earlier this year, completing a phased deployment begun in 1999. According to DOD, DCPDS is the largest known automated human resources system in the world. It encompasses more than 500,000 business rules and 490 database tables containing 5,000 data elements. It can process 1.75 million pay and benefits transaction combinations.

■ The 43rd Fighter Squadron, the first F/A-22 squadron, officially stood up at Tyndall AFB, Fla., Oct. 25. The commander is Lt. Col. Jeff Harrigan. Tyndall, the training base for F-15 and F/A-22 fighter pilots, is slated to receive its first F/A-22 in spring 2003.

■ Boeing announced on Oct. 25 the opening of the new F/A-22 maintenance training facility at Tyndall. The facility includes five fully automated electronic classrooms and two maintenance training labs.

Obituary

Retired Air Force Maj. Gen. Richard Carr, former chief of chaplains, died Nov. 9 at his home in Springfield, Va. The 76-year-old Carr had leukemia.

Carr, who was the Air Force Association National Chaplain for 14 years, was born in El Centro, Calif., in 1925. He began his military career in 1943, serving as a B-24 radio operator/gunner in the South Pacific. He left the service three years later, but was recalled in 1951 for the Korean War. He was released the following year and completed graduate studies in theology in 1954.

He was recalled to active duty once again in 1955, this time as a chaplain, and served until his retirement in 1982. He then became an advisor and consultant to humanitarian agencies overseas and founded two aid agencies in the States. ■

Confusion Grows Over Anaconda Commander's Air Support Complaints

Exactly what Army Maj. Gen. Franklin L. "Buster" Hagenbeck meant in his wide-ranging criticisms of USAF close air support during Operation Anaconda in Afghanistan remains in question, as the general now says his remarks were taken out of context.

In an interview with *Field Artillery* Magazine, Hagenbeck leveled a series of complaints against the Air Force. Hagenbeck, the head of the 10th Mountain Division and commander of the Anaconda operation, said Air Force smart weapons took too long to program, were ineffective against fleeting targets, and USAF pilots were reluctant to fly below a certain altitude floor. (See "Aerospace World: After Leaving USAF Out of Anaconda Planning, Army General Blasts Air Support," November, p. 14.)

Gen. (sel.) Charles F. Wald, USAF's deputy chief of staff for air and space operations, subsequently told *Inside the Pentagon* that he'd spoken to Hagenbeck about his concerns.

Hagenbeck "told me personally that he was taken out of context" in the *Field Artillery* piece, Wald told reporter Elaine Grossman.

But according to editor Patrecia Slayden Hollis, *Field Artillery* (an Army journal) gave Hagenbeck the opportunity to review his comments prior to their publication. Further, a 10th Mountain Division spokesman told *Inside the Pentagon* that Hagenbeck "didn't think *FA* journal misquoted him. ... However, his remarks may have been misinterpreted."

Exactly what Hagenbeck disliked about his air support remains unclear, as a request from *Air Force* Magazine for clarification went unanswered.

Hagenbeck said in the *Field Artillery* interview, "The Air Force had to work through airspace management—aircraft were stacked up to the ceiling and [because of the small target area] could only be flown in, in a few numbers."

Navy and Marine Corps pilots, on the other hand, "routinely flew as low to the ground as they could to achieve the effects, even when it was below what was deemed minimum safe distance. They were *terrific*."

The comments created a storm of controversy. Operationally, Hagenbeck had waited until the 11th hour to bring the Air Force into the planning for Anaconda. Politically, Air Force Chief of Staff Gen. John P. Jumper heard of Hagenbeck's criticisms only after they were repeated and widely disseminated by the newspaper *Army Times*.

Jumper immediately ordered a high-level review of the Air Force's performance in Anaconda. However, he told *Inside the Pentagon* he had talked with Army leadership and said, "This is not the consensus of the leadership of the United States Army."

Wald, who was tapped to head the review, explained that the altitude parameters set up during operations in Afghanistan called for aircraft to stay above 15,000 feet unless they needed to fly lower. The rule applied to all joint force aircraft.

"The rule was always [that] you'll always go down to whatever altitude you need to, ... particularly if there's a US person down there," Wald told *ITP*. "And they did."



Soon, US combat forces will begin to field lasers as weapons.

Attack at the

WITHIN two years, the Air Force will attempt to shoot down a ballistic missile with a laser beam. In about the same amount of time, the Army expects to be well on its way to fielding a vehicle system offering laser defense against rockets, artillery rounds, and cruise missiles, while the Navy will be trying out similar defenses for its ships at sea. Gunships will be flying with experi-

mental tactical lasers by mid-decade, and by the end of the decade, fighter aircraft with laser pods or turrets could be in test flights.

The age of laser weapons has nearly arrived.

When the Administration unveils its Fiscal 2004 budget for the Pentagon in the next few months, expect to see significant increases in money to support near-term deployment of laser systems, some of which will be

By John A. Tirpak, Executive Editor



USAF's Airborne Laser (at left) on its maiden flight last July, was the catalyst for military laser development. Above, the YAL-1A, as it appears in its USAF livery.

Speed of Light

field operational before 2010. Expect also to see substantial increases in science and technology funding for basic laser research that could enable whole new classes of small laser systems with tactically significant power before 2020.

No science fiction here: Lasers as weapons are in the final stages of development, and plans for their integration into combat forces are proceeding.

"We've spent 25 to 30 years developing the technology," said Col. Ellen M. Pawlikowski, USAF's program director for the Airborne Laser. "Now is the time for the engineers to take what those smart physicists and scientists have done and put it in the field."

In the mid-1990s when the Air Force decided to proceed with the Airborne Laser, the other services saw lasers as still in the embryonic

stage: good for targeting weapons and as range finders but with little near-term potential as destructive weapons in themselves. That has changed.

The services now expect lasers to become a class of weapon able to deliver a quantum leap in capability, epitomizing the Pentagon buzzword "transformational."

A Defense Science Board task force conducted a comprehensive

review of existing high energy laser programs to determine their promise, the technical challenges they faced, and realistic prospects for their fielding. The conclusion of the task force: Laser technologies have matured to the point that a family of applications is feasible before 2020.

Lasers offer "speed-of-light attack, unique damage mechanisms, greatly enhanced multitarget engagement, and deep magazines, ... low cost per shot (or per kill), and reduced logistics footprint," said the task force in its 230-page report, published in August 2001.

Besides instantaneous attack capacity, a practically unlimited number of inexpensive shots, and the ability to switch targets rapidly, lasers can be tuned to the level of destruction desired—from a little to a lot. Switching lasers for, say, bombs or missiles would also expand the range and time on station of the platform using them. With no heavy ordinance to carry, since light—the medium of destruction—is weightless, aircraft could go farther on the same amount of fuel.

Such weapons offer the US a unique "technological advantage," one in which the American military is well ahead of any competitor, according to the task force.

The DSB group strongly recommended a funding increase of \$150 million a year to aggressively pursue laser technology for both near-term systems and basic research that

would enable more widespread applications over the next 20 years.

Anthony J. Tether, the head of the Defense Advanced Research Projects Agency, agrees that the enabling science of laser weaponry is well in hand.

Tether, in a roundtable discussion with reporters in October, acknowledged that laser weapons are no longer a futuristic technology but one that is being mainstreamed with the armed services. He pointed out that DARPA began working on lasers in the early 1970s and is poised to advance the technology even further.

Tether said efforts are under way to "really allow us to increase the average power output of lasers" and to package them more compactly. Packaging lasers into a size small enough "that a helicopter might be able to carry it" has drawn Army interest, said Tether, since such a laser—in the hundreds of kilowatts class—would be capable of tremendous heating of an object miles away.

"It'll be a big deal," he said. The capability is probably five or six years away, but "the Army is so excited about it, they want us to sign up to a [Memorandum of Agreement] right now," said Tether.

The Catalyst

The Airborne Laser program was a major catalyst driving all the services to get involved in laser weaponry, according to Col. Mark Neice,

chief of the Laser Division at the Air Force Research Lab's Directed Energy Directorate, Kirtland AFB, N.M.

"That really focused people on looking at directed energy across the [defense] community and [at] various applications, both strategic and tactical," Neice said. "That has spawned a lot of the other work we're doing right now in laser development."

Deformable optics—a key breakthrough in the ABL program—is one of the chief technological innovations that has made laser weapons possible. The use of deformable optics—a mirror whose face can be altered hundreds of times per second to correct for turbulence in the air—enables the laser emitter to hold a steady, high-quality laser beam on a target, despite the natural air turbulence between the laser emitter and the target.

Beam control systems and special optical coatings have also played an important role in putting, as Pawlikowski said, "photons on target."

There are three kinds of lasers being prepared for combat duty: chemical, electric, and free-electron lasers.

Chemical lasers—those whose energy comes from the mixing of chemicals, producing a high energy effect—are in hand now and will be the first combat lasers deployed. The Airborne Laser uses a chemical laser, as does the Army's Tactical High Energy Laser (a ground-based system for use against short-range rockets). Another new chemical system, the Advanced Tactical Laser, will go on AC-130-style gunships.

Chemical lasers offer very high power—in the megawatt range. A drawback is that they require large platforms to haul the large quantity of chemicals needed and the laser modules themselves, as well as the beam control mechanism. The Airborne Laser platform is a specially configured 747 widebody jetliner. The Army's THEL currently requires three vehicles the size of semitrailers, although it is described as "transportable." The Advanced Tactical Laser will be housed in a wheeled module that can be loaded into the cargo bay of a C-130-type aircraft.

Electric, or solid-state, lasers, use electricity as their power source. To be small enough to be useful for combat operations, they would be



The Air Force is developing another chemical laser system—the Advanced Tactical Laser—to be installed in the cargo bay of C-130s, such as this AC-130 gunship.

limited to about 25 kilowatts. However, Neice said AFRL has set a goal of five years to develop a 100-kilowatt solid-state laser.

The Air Force has already identified its first potential platform for an electric laser—the F-35 Joint Strike Fighter.

The research lab struck an agreement with Lockheed Martin to explore the possibility for the F-35, although the agreement could extend to other fighters. Neice said the service chose the F-35 initially because both it and the electric laser are still being defined.

“We are looking at this in terms of technology insertion,” he said. “I would love to see it as a Spiral 1” system, or one that would appear on the first F-35s. He admitted it’s too soon to tell if that will happen. The more likely timing for a directed energy weapon on that aircraft will be in Spiral 2 or Spiral 3, said Neice.

Industry officials are even looking beyond fighters now in development. They have a new class of “fotofighter”—small combat jets that would employ laser weapons exclusively—already on the drawing boards.

Fighter aircraft make ideal platforms for solid-state lasers because fighter engines can produce huge amounts of electricity as a by-product of producing huge amounts of thrust.

For the F-35, Lockheed Martin is considering either an internal configuration with the laser beam directed through ports around the perimeter of the airplane, a belly turret, or a pod carried in the weapons bay.

The goal is to develop an “efficient packaging of a laser in the kilowatt class,” Neice said. “It could be a chemical laser, it could be a gas laser, it could be a solid-state laser. We tend to lean toward the solid-state laser in that application because there is a big empty shaft bay” in the F-35 that could house a laser weapon system. Also, the engine “produces 27,000 shaft horsepower,” he said, adding, “And that is a tremendous electrical generating device.”

In early versions, these fighter-mounted lasers would be used to spoof or blind incoming missiles, especially those that are heat-seeking or optically guided. Offensively, they could be used against another fighter’s vulnerable spots.



The F-35 Joint Strike Fighter is USAF's first choice for a potential electric laser weapon system platform. Fighters are ideal for an electric laser because they produce huge amounts of energy as a by-product of producing thrust.

For example, Neice explained, “We could target specific items on an airborne platform to heat up, such as fuel tanks, missiles, flight controls, those types of things, that would render the aircraft incapable of continuing in the fight.”

“We would have the ability to reach out and touch [an aircraft] at a significant distance,” he said, noting that a fighter-sized laser would achieve a hit anywhere between 30 miles and 155 miles away. The range of lasers would be affected by weather conditions and the presence of obscurants, such as smoke or airborne dust.

Neice said the Air Force Research Lab has modified F-16 simulators at the Theater Air Command and Control Facility, also at Kirtland, to begin familiarizing fighter pilots with the capabilities of lasers.

“We’ve been exposing the operational F-16 fighter pilots to the capabilities of directed energy,” he explained. “One of the efforts I’m trying to work right now is to get that included into the curriculum out at the fighter weapons school [at Nellis AFB, Nev.], where I can get America’s best and brightest fighter pilots looking at these capabilities and then helping to develop a concept of operations for use of directed energy weapons in a tactical fighter application.”

Those pilots who have used the laser-capable F-16 simulators are “very excited ... when they realize that this capability is something

which is within the realm of possibility in 10 years,” he reported, adding, “The time to work on tactics and techniques is right now.” He wants today’s young fighter pilots to “grow up with it a little bit” because those in the fighter weapons school now will be the commanders when the system becomes operational.

“Those are the kinds of guys we need to get energized and enthused on it, so that when that capability comes to them, they’ll know how to use it,” he said.

The third type laser system—**free-electron lasers**—might be the “dark horse” technology that could be the compact laser weapon of the future, according to the DSB panel. Free-electron lasers use superconducting radio-frequency accelerators to create a tunable beam of electrons. Rapid advancement in superconductivity may make free-electron lasers competitive with or superior to electric, or solid-state, lasers as the technology progresses.

Pawlikowski observed, however, that there are no huge breakthroughs in laser technology expected in the next few years. “I think that laser technology is moving quickly but not at a breakthrough speed at this point,” she said. The technology is undergoing incremental improvements as scientists and engineers refine the state of the art.

A “dramatic breakthrough” in the Chemical Oxygen-Iodide Laser, or COIL, at the heart of the ABL sys-



A large ball turret on the nose of the Airborne Laser will house the system optics. The full-up laser will be installed in the airplane in early 2004. Test shots against a Scud-type target are scheduled for summer 2004.

tem, might come in the form of a gas-phase laser, but “I would consider that five to eight years down the road,” she added. (A gas-phase version of an iodine laser would employ chemical gases—lighter and easier to transport, maintain, and store than COIL liquids, one of which needs constant refrigeration.)

The Aim of the ABL

The ABL program was launched as a way to shoot down Theater Ballistic Missiles while still in the boost phase of their flight. The idea is to spot and track the missile and focus a high energy laser on its skin, weakening it enough that the dynamic forces of flight cause it to rupture and explode.

The debris of the exploded missile—and its warhead—would fall back on the nation that launched the weapon.

The ABL is slated to shoot down a Scud-type missile during 2004, Pawlikowski noted. The schedule is tight, but she believes the program will get there in time. The ABL aircraft made test flights last summer, with the large nose turret that will house the system optics but without the laser system or optics onboard. Those will be brought on and integrated over the course of the next two years.

The ABL system is being assembled in components, which Pawlikowski said are being built and tested separately before they are integrated on

the airplane. She said the “first successful, full-up test of a laser module” took place in January.

“We got 118 percent of the power we expected out of it,” she reported, “so it was a very successful test.”

The ABL is being integrated at Edwards AFB, Calif., which Pawlikowski said is rapidly becoming the center of the universe for ABL and its associated efforts. It is at Edwards that the pieces will all come together, including support systems like chemical storage and draining facilities.

The full-up laser will be installed in the airplane in early 2004 and test-fired on the ground at Edwards, Pawlikowski said. Test flights will begin soon after. During the summer of 2004, test shots will be made against a Scud-like, instrumented target, suspended from a balloon, followed by additional tests to demonstrate tracking ability. If all goes as planned, the ABL will intercept its first missile before the scheduled date of Dec. 31, 2004.

Right now, the ABL is slated to make its first true intercept of a ballistic missile by the end of 2004. However, that date may slip, according to Lt. Gen. Ronald T. Kadish, director of the Missile Defense Agency.

“This is crunch time for the ABL,” Kadish said at an October discussion with defense writers in Washington, D.C. “Now all the hardware is getting delivered. And when hard-

ware gets delivered, there are all of the inevitable problems; you get things not working as expected.”

Kadish said he won’t have high confidence of a TBM shutdown by the end of 2004 until the all-up ABL aircraft has all its parts, is fully integrated, and starts shooting its laser next spring.

He quickly added, though, that while meeting the schedule is a challenge, “the good news here is ... there will be a lot of people showing up at Edwards Air Force Base in Palmdale [Calif.] in the next few days to work intensely on putting [the ABL] together.”

Although initially encouraged to broaden the application of the ABL to other target sets, such as cruise missiles, the program is no longer being asked to do so, Pawlikowski reported.

Air Force Chief of Staff Gen. John P. Jumper “definitely sees the potential of directed energy weapons and has told me repeatedly how important this program is to the future of directed energy and the potential of using this airplane for lots of other things,” Pawlikowski said. “But I believe that the current Air Force position is, ‘Let’s get that first mission down, and then we’ll look at the others,’” she said.

When DOD’s Missile Defense Agency took over the ABL program last year, the focus of the program changed, said Pawlikowski. ABL is seen now as part of national missile defense, not just theater missile defense, which will eventually have strong implications for the number of aircraft built and how they are deployed.

“We are no longer a single-weapon system that essentially stands alone,” she said. “We are part ... of a layered approach to missile defense. ... We are the air-based, boost-phase component.”

The Bush Administration requested a 25 percent increase in funding for ABL in the Fiscal 2003 budget. Pentagon officials said such an amount would help keep the program on track after funding volatility in previous years. The program is expected to cost \$11 billion overall and produce seven operational airplanes in 2010.

Other Potential Combat Lasers

Another Air Force chemical laser venture is the Advanced Tactical

Laser, which might appear on AC-130 gunships in just a few years.

"We are building a palletized system that will be mounted inside of a C-130," Neice said. How the beam would be fired—through an aperture or turret—has yet to be decided.

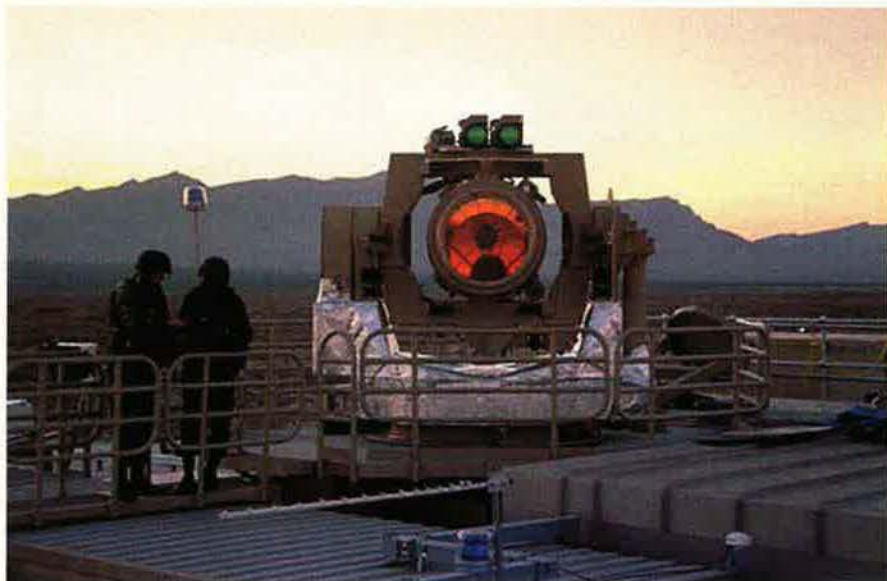
"We have a test C-130 at Eglin [AFB, Fla.]," he said. "Right now we're looking at integration of this system in the 2005 time frame and then flight test in the 2006 time frame."

The program will focus on improving beam quality, reducing the size of the chemical laser, and a quick transition to the field.

Neice said the stated goal from Air Force Special Operations Command is to be able to attack both vehicles and standing structures. "What we're looking for is an ability to stop a vehicle from moving, ... to prevent it from continuing with its intended purpose," he said. "This is not [about] blowing up a building."

Against fixed structures, the laser might be used to disable a radio tower, dish antenna, or other building feature to disrupt it from functioning, not to destroy the edifice itself. A moving vehicle might be stopped "either by overheating the engine or burning a hole in the engine—any number of means of stopping the vehicle," Neice explained.

AFRL's part of the effort is funded at roughly \$10 million over the next four years, he added.



The Army's Tactical High Energy Laser is technically transportable but comprises three vehicles the size of semitrailers. A version suitable for movement by a C-130-sized aircraft could be fielded in about 2007.

The Army, in cooperation with Israel, has developed THEL as a means of defending against rockets—specifically, the Katyusha rockets that Palestinian guerillas have used to attack border towns in Israel. The system, powered by a chemical laser, has succeeded in shooting down 25 Katyushas in experiments. In early November, THEL shot down an inbound artillery shell.

THEL currently consists of three vehicles. One carries the laser fuel, one houses the tracking and guidance system, and another houses the laser and beam control gear. The

Army is hoping to scale the system down to something comparable to the Patriot missile defense system, which consists of smaller separate vehicles for tracking radar and the actual missile launchers.

In 2003, the THEL program will focus on making the equipment suitable for movement by transport aircraft, said a spokesman for TRW, which is building the system, to be known as Mobile THEL, or MTHEL. A version, for use only by the US Army, could be fielded in about 2007.

According to Patrick P. Caruana, TRW vice president and former vice commander of Air Force Space Command, the classes of threats MTHEL could be used against has been broadened. "We are doing the analysis associated with artillery rounds, ... [Unmanned Combat Air Vehicles], and also cruise missiles," he said.

The Navy, which briefly pursued high energy lasers as potential weapons during the days of the Strategic Defense Initiative, has shown renewed interest this past year. In March, Vice Adm. Dennis V. McGinn, the service's requirements and programs chief, outlined a new concept of operations that will look at high energy lasers as a means to defend against anti-ship cruise missiles and UCAVs.

A Pentagon official said the Navy elected to "jump back in" because it was apparent that technology was advanced enough to make "workable systems that would be suitable



On Nov. 5, the THEL chemical laser system shot down an artillery shell in a test over White Sands Missile Range, N.M. Army officials said the event was the first such shootdown and marked a paradigm shift in defensive capabilities.



The ABL program gained funding at the expense of the Space Based Laser effort, now seen as unlikely to produce an operational system within two decades. Officials say the technology is still promising, though.

for the maritime environment.” At the same time, Navy concerns about ship vulnerability to a mass attack of cruise missiles demanded a response other than Gatling guns and other anti-missile technologies.

The Navy is also evaluating laser systems for use by surfaced submarines. Since nuclear submarines have abundant onboard electrical power, solid-state lasers are favored over chemical lasers, the by-product of which—spent chemicals—would have to be stored until the submarine could put back into port. The advantage of using lasers on board submarines is that they are a munition that would be stealthy, Navy officials reported.

“You can surface, hit a target miles away with a laser, and no one knows you were ever there,” a Pentagon official observed. Ideal would be a system that could be fitted on the sub’s conning tower or periscope, so only a fraction of the vessel would have to be above the waterline to conduct an attack.

The possible naval applications are varied. Ship- and sub-based lasers could breach the skin of an enemy vessel at the waterline, blind its optics, or disable its communications by damaging antennas.

Space Lasers and Beyond

One area that will not see lasers deployed anytime soon is space. Congress drastically cut funding for the Space Based Laser in the Fiscal

2003 budget, and the Bush Administration has elected not to try to pursue the effort for now.

The SBL program was to produce an experimental capability around 2012 but perished from a combination of politics, shifting treaty realities, and technical challenges related to the system. The experiment would have cost “billions to put up, and it would not have offered an operational capability,” according to an industry official closely associated with the effort.

“Also, it was conceived at a time when we were still following the ABM treaty, ... and there were opponents in Congress who wanted something in exchange for the increases in other parts of the defense program last year,” he said.

However, the SBL project also faced some huge technical challenges. In its report, the DSB panel said the system envisioned for eventual operational use—a large chemical laser—was expected to weigh in at 80,000 pounds and require a fairing more than 26.4 feet in diameter. The panel observed that no existing rocket could lift such a payload, nor is one even on the books.

Moreover, the SBL would have needed a five- to eightfold increase in power over the proposed experimental version to be operationally useful against ballistic missiles. Given the long list of engineering breakthroughs necessary to make an operational system workable by 2020,

the DSB rated the SBL a “high risk” project.

Congress shifted some \$30 million from the SBL to the ABL in the Fiscal 2003 budget.

Basing lasers in space holds a lot of appeal because it “solves a lot of the geography problem that we face,” according to Kadish.

However, “as we looked at our priorities and the difficulties of Space Based Laser activity, we decided—collectively with the Congress—that we should put it at the technology stage and not even do the experiment that we were planning,” he said.

In today’s missile defense priorities, “Space Based Laser is a ... very promising technology effort,” Kadish asserted. “We will do the technology as aggressively as we can, but it won’t be focused on putting an experiment in space in the near term.”

He reported that the program office for what had been termed the “Integrated Space-Based Experiment” has been disbanded, and its constituent elements will be consolidated under the Airborne Laser project.

Space applications for lasers are not confined to lasers actually in space, however. The Air Force Research Lab is considering lofting into orbit mirrors that could reflect the light of a laser fired from the ground or air toward targets either in space or within the atmosphere. The program is called Evolutionary Aerospace Global Laser Engagement System.

A handheld “death ray” laser will likely not be available to US troops in the foreseeable future, but the advent of smaller and more powerful laser weapons will certainly work a change in how US forces operate.

For the coming decade, “I really see laser weapons becoming truly transformational,” said Caruana. “We’re talking about operations at the speed of light, ... about precision in a very focused application of energy, which I believe will give the battlefield commanders opportunities to be very selective in how and what they target.”

Right now, Caruana said, the US “has the right kind of [laser] technology development going.”

“If we stay on that continuum,” what is now the state of the art in the laboratory will become “a little bit more routine” in day-to-day operations, he said. ■

Verbatim

By John T. Correll, Contributing Editor

War Is Last Choice

"The use of force is not my first choice, it's my last. But my first choice, as well, is not to allow the world's worst leader to blackmail, to harm America with the world's worst weapons."—**President George W. Bush, speech in Manchester, N.H., Oct. 5.**

A Hole in the Criticism

"One striking feature of the criticism of President Bush's Iraq policy is the absence of suggested alternatives."—**Washington Post editorial, Oct. 2.**

The Question Tells Us a Lot

"Russia Wondering What It Gets for Backing US Against Iraq"—**Headline, Washington Post, Oct. 4.**

Iraqis Impress Bonior

"Well, the Iraqis that we have talked to have said basically that [the UN inspectors] will have that unrestricted ability to go where they want to to inspect. And they will open up their inspections, I suspect, to even you, even to the media, to see."—**Rep. David E. Bonior (D-Mich.), after being toured around Iraq by the Iraqis, along with fellow Reps. Jim McDermott (D-Wash.) and Mike Thompson (D-Calif.), "This Week," ABC TV, Sept. 29.**

McDermott's Choice

"I think you have to take the Iraqis on their face value. ... I think the President would mislead the American people."—**McDermott, appearing with Bonior on "This Week."**

Baghdad Jim?

"Not since Jane Fonda posed for photographers at a Hanoi anti-aircraft gun has there been anything like Rep. Jim McDermott."—**Columnist George F. Will, Washington Post, Oct. 1.**

How To Be More Popular

"The Koreans hate us. Now the Germans—you know that's one against Germany. You know what? ... If we had a foreign policy that tried to get people to like us as opposed to irritating everybody in the damn world, it

would be a lot better thing."—**James Carville, Democratic political operative, "Crossfire," Sept. 23.**

Spoiling It for Objective Reporters

"The war correspondent as we know him—as an objective, independent person trying to find out what is going on—is finished. This is a new era in the relationship between government and the military and the media. Do you think they will let CNN show pictures of Iraqi kids being incinerated? They want to portray this as a clean, surgical war."—**Phillip Knightley, former journalist and author of The First Casualty, quoted in International Herald Tribune, Oct. 3.**

Problem No. 1

"If you are worried about terrorists getting weapons of mass destruction or their components from countries, the first candidate you must worry about is Iraq."—**House Minority Leader Rep. Richard A. Gephardt (D-Mo.), in a statement to Congress Oct. 10.**

It Rhymes in New Jersey

"Who knew the World Trade Center was gonna get bombed/Who told 4,000 Israeli workers at the Twin Towers to stay home that day/Why did Sharon stay away?"—**Poem published by Amiri Baraka (formerly the playwright Le Roi Jones), official poet laureate of New Jersey, who refused a demand from the governor that he resign, Associated Press, Oct. 2.**

New Principle of World Government

"No member nation has the right to take unilateral military action without the approval of the UN Security Council."—**Jim Winkler, general secretary of the United Methodist Church General Board of Church and Society, quoted in Wall Street Journal, Sept. 26.**

The March of Justice

"It's a grand mess-up."—**Justice Department official, after federal prosecutors mistakenly turned over**

48 classified FBI reports to Zacarias Moussaoui, accused accomplice in the Sept. 11 terrorist attacks, New York Times, Sept. 27.

Our Own Fault

"You know, you cannot exercise your powers to the point of humiliation for the others. ... That is what the Western world—not only the Americans, the Western world—has to realize. ... And I do think the Western world is going to be too rich in relation to the poor world, and necessarily, you know, [we're looked] upon as being arrogant, self-satisfied, greedy, and with no limits. And Sept. 11 is an occasion for me to realize that it's even more."—**Canadian Prime Minister Jean Chretien, in a July interview with Peter Mansbridge for the documentary "Untold Stories."**

So Why Come Back?

"It makes me feel ashamed to come from the United States. ... The atmosphere in my country is poisonous, ... so thank you for inviting me to this festival and allowing me to get out for a few days."—**Actress Jessica Lange, denouncing US policy on Iraq at a film festival in Spain, quoted in South Africa Cape Times, Sept. 26.**

"House Slave" Powell

"In the days of slavery, there were those slaves who lived on the plantation and were those slaves that lived in the house. You got the privilege of living in the house if you served the master. ... [Secretary of State] Colin Powell's committed to come into the house of the master. When Colin Powell dares to suggest something other than what the master wants to hear, he will be turned back out to pasture."—**Singer Harry Belafonte, KFMB radio, San Diego, Oct. 8.**

One-Shot Ari

"The cost of one bullet, if the Iraqi people take it on themselves, is substantially less [than going to war.] ... Regime change is welcome in whatever form that it takes."—**White House Press Secretary Ari Fleischer, news briefing, Oct. 1.**

Women pilots who fly Air Force fighters and bombers have made their mark and earned respect.

USAF photo by SSgt. William Greer



The Quiet Pioneers

BAJA, Combo, Spycy, Shooter, Shock: They're all call signs of mission-qualified fighter and bomber pilots, and the only unusual thing about them is that these monikers of warrior-group bonding belong to women.

April 2003 will mark 10 years since the Air Force changed its policy to permit women to take up combat assignments as fighter and bomber pilots. Since then, dozens of female officers have completed rigorous training to become proficient in flying fighters and bombers.

Critics predicted they'd never integrate smoothly. Two women pilots spurred negative attention early on. Media interest surged when Navy F-14 pilot Lt. Kara S. Hultgreen died in a carrier landing in October 1994. Accusations of improper Navy training procedures followed. Air Force B-52

By Rebecca Grant

pilot 1st Lt. Kelly J. Flinn made headlines in 1997 when she was discharged from the Air Force for disciplinary issues. Commentators labeled the issue of women in the cockpit as social engineering and predicted readiness would suffer.

Meanwhile, from Stateside training bases to deployed locations all over the world, the cadre of female fighter and bomber pilots flourished.

Lifting the Ban

Congress removed the legal ban on women in combat aircraft by passing Public Law 102-190 in December 1991. But Department of Defense policy still prohibited women from taking up combat aircraft assignments. Secretary of Defense Les Aspin lifted the policy ban on April 28, 1993.

The Air Force had already been contemplating how to respond, and nothing brought the matter to a head more clearly than the case of a young lieutenant named Jeannie M. Flynn. Flynn was commissioned through ROTC and received a master's degree in aerospace engineering before heading off to pilot training. Flynn had graduated first in her Undergraduate Pilot Training class in 1992. Air Force rules called for newly minted pilots to select their weapon system based on merit and cockpit availability. The early 1990s were the days of banked pilots and dwindling choices for assignments. Typical pilot training classes competed for one or two fighter seats. Flynn earned the right to choose first, and she selected the plum: an F-15E assignment.

With the policy restriction still in place, the Air Force could not comply and sent Flynn to be a First Assignment Instructor Pilot, teaching students to fly the T-38. Meanwhile, Flynn's case wound its way through the bureaucracy, ultimately to be reviewed by Air Force Secretary Donald B. Rice, who found his hands tied by Pentagon policy.

Flynn's case pointed out the discrepancy between the exclusion policy and the Air Force's standards. Fighter pilots are trained, not born. Flynn made the grade by objective standards but found her options limited by a policy suggesting women would get in over their heads.

Aspin's 1993 decision came just in time for Flynn. As a highly skilled young female pilot, Flynn's next option after the FAIP assignment most likely would have been to KC-10s, the cream of the crop of flying assignments outside the fighter and bomber communities. Tanker and airlift crews welcomed an earlier generation of women such as Col. Pamela A. Melroy, commissioned in 1983, who flew KC-10s in Desert Storm and then moved on to Air Force Test Pilot School and from there to NASA, where she is an astronaut with two shuttle missions under her belt.

The Air Force looked back over the records of two years' worth of Undergraduate Pilot Training classes to find women whose class rankings would have qualified them to select a fighter or bomber at the time they graduated. The hunt also factored in how many fighter and bomber slots were available to each class, sometimes a number as low as one. Based on these criteria, the Air Force identified three pilots who would have been sent to fighters or bombers had the ban not been still in place. These included Flynn and then-Capt. Martha McSally. By the end of 1993, seven women were in training to fly fighters.

Women Pilots in Combat

Flynn went to four weeks of fighter lead-in training in T-38s and on to the schoolhouse for F-15E training, then at Luke AFB, Ariz. In February 1994, Air Force Chief of Staff Gen. Merrill A. McPeak introduced Flynn to the press as the Air Force's first mission-qualified female fighter pilot.

"She didn't ask for anything from anybody," said McPeak. "Nobody gave her anything, and she went right through that course just like everybody else. Everybody in the squadron had very high respect for her. And in her opinion, the F-15E is the world's greatest airplane."

Flynn and the F-15E were indeed a good match. She went on to log more than 2,000 hours in the F-15E by the end of 2002, including 200 hours of combat time in Operation Allied Force. She was the first female fighter pilot to graduate from the USAF Weapons School at Nellis AFB, Nev., and is currently assigned as an F-15E instructor at the school—

Nearly 10 years ago, USAF changed its policy to permit female fighter and bomber combat pilots. The measure of merit is performance.

once again, the first woman to hold that post.

By 1994 the Air Force had seven female fighter pilots—including Flynn—and two bomber pilots.

In 1995, McSally became the first Air Force female pilot to fly a combat aircraft into enemy territory—the no-fly zone mission over Iraq. McSally was an athletic Air Force Academy graduate who'd had to get a waiver to fly because at five feet three inches she was one inch under the regulation height. She made Air Force history flying the A-10.

While the Air Force worked women into the fighter and bomber squadrons with few hiccups, the numbers of women in combat cockpits did not grow fast. In 1998, there were still only eight bomber pilots and 25 fighter pilots, a tiny fraction of the overall force. But the numbers were on the rise. Fueled by accessions from the Air Force Academy, a new group of women who'd never experienced the combat exclusion ban were making it through Undergraduate Pilot Training with high marks.

Three Air Force female combat pilots agreed—a little reluctantly—to be interviewed for this story. The big news? They love flying. They love the Air Force. They talk just like the guys.

An F-15C Pilot

"Since I went to the academy, I know a lot of female fighter pilots," said 1997 graduate Capt. Samantha

A. "Combo" Weeks, who is now an F-15C pilot with more than 700 hours at the 94th Fighter Squadron at Langley AFB, Va. Weeks had two things in common with legions of fighter pilots before her. She came from a military family, and her determination to fly sprouted early.

"My father was a master sergeant in the Air Force, so I grew up in it," Weeks explained in a recent interview. "We were stationed in [RAF] Lakenheath [UK]. When I was about five years old, and we were flying back from England on a KC-135, we refueled F-15s over the Atlantic. I decided I had to do that."

Her parents were skeptical at first. "I was just patted on the back, 'Girls don't do that,'" said Weeks. "And I just kept saying, 'Nope, I'm gonna, I'm gonna, I'm gonna.'" Soon her parents were "definitely supportive of it. Initially, they're like, sure she'll change 20 times; next week she's going to want to be a hairdresser. But I didn't."

The desire stayed and in junior high school, Weeks asked a startled guidance counselor for a book on the Air Force Academy and never looked back. Years later at Tyndall AFB, Fla., when "I went solo to the tanker, my life had come full circle," she said. "Rather than being the five-year-old little girl who was laying in the boom watching them refuel the F-15s, I was now the fighter pilot in the F-15 getting refueled."

There were role models to follow.

Weeks recalled then-Capt. Jeannie Flynn coming to the academy to address the cadets. At Undergraduate Pilot Training at Laughlin AFB, Tex., "it was the exact normal pilot training experience for anybody," said Weeks. Her class of 30 started out with five women. One washed out, and Weeks was the only one selected to split to the fighter-bomber track in T-38s. Once on the track, Weeks found it to be smooth sailing.

"There was no 'oh gosh, a girl's coming,'" she said. Then at Tyndall, "I actually had as one of my instructor pilots the very first female F-15C pilot [then-Capt. Maria "Baja" Randolph], so it wasn't a big deal at all."

A B-1B Pilot

Capt. Kimberly Dawn Monroe, a B-1 pilot, had a story typical of this new generation. "I was always interested in flying, ever since I was about five years old," Monroe said. Flying first captivated her on an airline flight to visit her grandparents. "I thought I always wanted to be a stewardess, but once I got into high school, they were offering a ground school course for a private pilot's license for free, and so that really interested me," she said. "I took that, and then my grandparents gave me my flying lessons as a graduation present. I got my private pilot's license right out of high school."

Monroe's college counselor steered her toward the Air Force. "When I first started, I didn't even know what ROTC was," explained Monroe. "I thought I'd let them pay for college, then once I got out, maybe join the airlines somewhere down the road, but getting involved in ROTC and the Air Force way of life, I actually found out I love it." Monroe graduated from Angelo State University in Texas in 1996, attended UPT at Laughlin, and went from the T-38 to the B-1 schoolhouse at Dyess Air Force Base, also in Texas. "I'm a west Texas home girl," Monroe confirmed. Why the B-1? "I started to make a decision that I liked the crew mentality," she said. "At that point in time, we were able to deploy from home and do long sorties, and then come right back. The B-1 sounded the best option for me."

An EC-130 Pilot

Capt. Kristin Goodwin, now a B-2 pilot at Whiteman AFB, Mo., had a

USAF photo by SSgt. William Greer



An F-15E crew from RAF Lakenheath, UK, prepares to take off on a mission during Operation Enduring Freedom. Some women pilots also patrol the no-fly zones over Iraq.

slightly different experience starting out in the EC-130 community. Goodwin graduated from USAFA in 1993 and went to pilot training in 1994. She said she remembered hearing about the Air Force opening cockpits to women, but “being young and excited to go to pilot training, I wasn’t following that as closely.”

Goodwin’s dream was special operations. “I heard things were opening,” she said, “but then I still found out that we weren’t allowed to fly MC-130s, which is what I wanted to fly. I wanted to do special ops.”

Goodwin made up for it with an assignment to the EC-130s at Davis-Monthan AFB, Ariz. The tour later included Airborne Battlefield Command and Control Center aircraft missions over Bosnia and flying the EC-130 for special operations “in places I can’t talk about,” she said. As a young copilot, brand new to the squadron, her place on a dedicated EC-130 crew raised questions when “the issue came up that I was a woman.” Women weren’t part of the special operations arena. As Goodwin recalled, “My squadron commander at the time was hesitant to approve that, and this captain at the time fought for me, because I was only a lieutenant and he said he wanted me and stuck by his guns, and the commander finally gave in and let me be on the crew.”

The bottom line was about performance, not gender. “They were looking for a pilot,” commented Goodwin. “That’s how it’s been for me ever since, that I’ve been treated as a pilot, not necessarily as just some woman.”

On to Combat

Experience made the women combat pilots. Weeks first logged combat time in Operation Northern Watch. She had been in the squadron about six months and had about 150 hours in the F-15C when she deployed to Turkey. “Definitely, the first day that I taxied out in a jet, with live missiles, the young lieutenant, it was a big deal,” said Weeks. “But I understand what my job is, and I’m proud to do my job.”

No-fly-zone patrol duty had its memorable moments. “There was some triple A that was shot at us,” recalled Weeks. She saw “a big black airburst off my left wing. It was lower in altitude, so I wasn’t like



Lt. Col. Martha McSally in 1995 became the first woman to pilot a combat aircraft into hostile military airspace. She flew an A-10 attack aircraft, such as the one above, into the no-fly zone over Iraq.

right there. It was kind of cool because I saw it, and I got to call it.”

Later on that same deployment, Weeks and her flight lead “actually had somebody who was crossing the northern no-fly zone,” she said. “We got to commit out on that Iraqi plane, and that was awesome because you’re going to do the job you trained for every single day. A big part of our life is always being in the right place at the right time.” They did not get authority to shoot, but the chance to commit was exciting: “For an F-15C pilot that doesn’t come about too often,” Weeks said.

“It’s good that it kind of becomes a little routine and monotonous,” Weeks summed up the no-fly zone experience. Over the past year, she also flew combat missions in US skies as part of Operation Noble Eagle.

Monroe logged 18 combat missions in Operation Enduring Freedom from January to May 2002. Deployed with the B-1 to a base in the Middle East, she lived in a tent with five other female officers. Long training missions in the B-1 and a deployment with Aerospace Expeditionary Force 4 a year earlier accustomed her to the expeditionary way of life.

Flying over Afghanistan itself was a surprise. “I thought it would look like the planet Mars or something,” said Monroe. “The terrain is varying—it’s got desert, and then mountains, and then some parts are really

lush and green, with lakes and rivers—so some parts are actually very beautiful.”

Monroe and the three others in her crew swung into the new rhythm of providing massed, precision Joint Direct Attack Munition strikes on call. “They gave us as much gas as we could take to hold up in the skies for as long as we can,” she said. “We were just up there waiting for the call.” She added, “Once they had a target, they would just pass it off to us and then we would do the job accordingly.”

The weapon of choice was JDAM. “You feel better shacking your targets anyway with that sort of a weapon,” Monroe said.

She recalled that her first combat mission was, “of course, a little scary” but added that she was eager for it. “We were well-trained and well-prepared, so I was kind of anxious and ready to go and actually apply what I’ve learned to do the mission and do it well.” Long missions were familiar fare in the B-1, and she described the endless aerial refuelings as “definitely good training.”

Like Weeks and Monroe, Goodwin found worldwide deployments routine in Air Force life. Her squadron flew EC-130H Compass Call aircraft used for communications jamming and information warfare. “We would get called constantly,” Goodwin said. “You always had to be ready to go.”

At a stopover for a joint exercise in Shaikh Isa, Bahrain, she was the



Lt. Kristin Bass, the 188th Fighter Wing's first female combat pilot, is strapped into her F-16C by crew chief TSgt. Kevin Jones. Women comprise less than four percent of all USAF pilots.

only female officer deployed there at the time. "That wasn't a problem at all," Goodwin said. "It was just interesting. It was more educational, me talking to the local guys and letting them know that, hey, I'm just a pilot just like anybody else."

Later she was loaned to the 42nd Air Control Squadron to fly the ABCCC on a deployment to Bosnia. "It was something that was ever-changing and you just had to kind of be on top of it, just ready for anything," she said of those missions. One vivid memory was shutting down an engine in flight, with weather closing in. Goodwin noted that inside the area of responsibility she was faced with a lot of challenging decisions and added, "I had an amazing crew."

Out of the four years she was stationed at Davis-Monthan, Goodwin quipped, "I feel like I was deployed for two years." The combat-oriented EC-130 and ABCCC missions left her with a taste for more. Following two years at the Pentagon, Goodwin was accepted to train as a B-2 pilot.

"Looking at the B-2, it was a mission that was very different than anything I've done so far," Goodwin explained. "It brought in weapons, weaponeering, dropping bombs, and just a different platform, a different community." She was also enticed by the chance to fly T-38s. "Flying two planes, I found that very inviting," she said. (B-2 pilots fly T-38s to maintain proficiency.)

Goodwin and a fellow female pilot were the first two women selected to fly the B-2 when they arrived at Whiteman in June 2001. Goodwin remembered she wanted to put her best foot forward. She is now mission-qualified in the B-2 with the designator "Spirit 279," marking her entry into the elite ranks of B-2 pilots. "I really am excited still even after a year and really honored to be here," Goodwin said. "Every time I get to fly I can't believe it."

Some adjustments have been necessary. In the fall of 2001, McSally, now a lieutenant colonel, attracted widespread support for her successful fight to overturn the policy requiring US military women to wear the head-to-toe Muslim abaya when on Saudi streets. Republican Sen. Bob Smith of New Hampshire said of McSally's case: "What makes this particularly bizarre is that we are waging a war in Afghanistan to remove those abayas, and the very soldiers who are conducting that war have to cover up."

Today, women combat pilots are a fact of life. The Air Force deputy chief of staff for personnel no longer assigns an action officer to track

"female pilot" issues, as was done in the early 1990s. Statistically, however, they remain scarce. The Air Force counted 15 female bomber pilots and 47 female fighter pilots in the year 2002, out of a total of 462 active duty female pilots in all aircraft and 12,177 active duty male pilots. Thus, female pilots make up only 3.7 percent of all USAF pilots, while women officers account for 17.8 percent of the officer force. The trends do not point to a dramatic upswing anytime soon.

Women serving today have no major complaints. Weeks said that "99.99 times out of 100" she receives the same level of support from commanders and peers that her male counterparts within the squadron receive. She is treated as an equal, although she joked that "people on the radios still say sir" and added, "That's quite alright. I don't get excited." Goodwin noted she is proud to be part of the 325th Bomb Squadron, which is named "The Cavemen."

What does the future hold for these pilots? Flying—and more flying. "I would love to stay in 20 years and then be a career officer," said Weeks. "That's always been my goal." B-1 pilot Monroe said, "Right now, I'm starting instructor school and I'll upgrade to instructor hopefully by the end of the year."

At Whiteman, Goodwin echoed the same goals. She said, "I'm really in the moment and I just want to make sure that I do my job right, and I hope to be an instructor in this platform and become more of an expert in it."

The occasional commentator may still rail against women who fly in combat, but the reality is the Air Force's female combat pilots are seasoned professionals, serving their country well. By relying on high training standards and shunning the limelight, the Air Force has created a warrior environment regardless of gender. Asked if she'd ever experienced bias as a woman pilot, Monroe answered succinctly: "Not inside the Air Force." ■

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Grass Cutting



At Kitty Hawk, N.C., an XB-15 makes a low pass—sometimes called “cutting the grass”—near the monument to the 1903 Wright brothers’ flight. The Boeing aircraft was a one-of-a-kind and first flew in October 1937. Its innovative features included a sleeping area for the crew and a flight engineer’s station, as well as enough room in the wings for the aircrew to access the engines in flight.

The XB-15 could carry a heavier load (more than 31,000 pounds) to higher altitude (8,200 feet) than any aircraft at the time. Other aircraft soon outperformed it, so the bomber didn’t go into production. The XB-15 nevertheless served as a transport in World War II and is considered the ancestor to the B-17 and other heavy bombers.



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Devastating cruise missile attacks on US cities? The danger, for years a back-burner issue, now gets high-level attention.

Cruise Control

Two of the most powerful lessons learned from the Sept. 11 terrorist attacks are that enemies don't always attack in predictable ways, and sometimes, the Defense Department is looking for the wrong thing. The ballistic missile threat is well-publicized and has long been a factor in Pentagon planning, but US vulnerability to cruise missiles has only recently come to the forefront.

Cruise missiles are considered ideal platforms for delivering Weapons of Mass Destruction. The concern is that enemies could, with little difficulty, cobble missiles together from parts readily available in the commercial aviation market.

These missiles could be hidden aboard container ships lying just offshore, then uncovered and launched without warning. In a worst-case scenario, they would carry biological or chemical warheads and would surprise US defenses.

The threat has caught the eye of Defense Secretary Donald H. Rumsfeld. According to press reports, Rumsfeld sent a classified memo to the White House in July, calling attention to the growing cruise missile threat. Two months later, he went public with a related warning by noting that ballistic missiles can be moved within range of key US targets by concealing them aboard inconspicuous commercial ships.

At "any given time, there's any number [of nondescript vessels] off our coast, coming, going," Rumsfeld explained at a Sept. 16 Pentagon press briefing. Enemies on ships equipped with a hidden Scud-type

launcher could "simply erect it, fire off a ballistic missile, put it down, cover it up," he asserted. The modus operandi for a cruise missile would be similar.

According to a report issued in July by the Congressional Research Service, "Cruise missiles have many attributes that could make them attractive to terrorists, who may use them in ways that we currently can't foresee."

Cruise missiles are problematic because they are inexpensive, accurate, easy to conceal, and hard to detect and defeat. Intelligence and military experts believe the threat of a cruise missile attack on the United States will continue to grow over the next decade, as the technology needed for these weapons proliferates and potential enemies become more appreciative of their capabilities.

Especially troubling is the prospect of a large-scale cruise missile attack that could overwhelm air defenses focused on finding and tracking larger, high-flying aircraft. Limited cruise missile defenses are in place, but many missiles might get through in a mass attack. Fortunately, intelligence assessments predict such an attack is unlikely in the next few years.

There is some evidence that enemies are pursuing advanced engine and guidance technologies. These components could be used to develop longer-range, accurate cruise missiles.

Cruise Missile Club

The CIA's latest unclassified threat assessment noted that 24 nations will "probably" possess land attack cruise

Adam J. Hebert, Senior Editor

missiles by 2015. These will be acquired “via indigenous development, acquisition, or modification of such other systems as anti-ship cruise missiles or unmanned aerial vehicles,” according to the CIA’s national intelligence estimate. While these land attack cruise missiles will have limited range, the CIA pointed out, they will still possess “sufficient range to be forward deployed on air- or sea-launch platforms.”

“From a technical standpoint, cruise missiles are a better alternative” for “launching from forward areas” and may therefore be seen as “advantageous” for an attack on the United States, the CIA assessment concluded.

“The most plausible alternative for a forward-based launch would be a covertly equipped commercial vessel,” it added.

Sept. 11 brought to light “lots of ways to deliver lethal damage to the United States,” Rumsfeld observed. One method—the potential use of a remotely piloted helicopter—was detailed in a manual found in an al Qaeda safe house in Afghanistan in the early days of Operation Enduring Freedom.

The low cost of acquiring cruise missiles is also a concern. An enemy with \$50 million to spend could buy one or two advanced tactical fighters, or 15 theater ballistic missiles with three launchers, or “100 off-the-shelf, ready-to-fire cruise missiles, each potentially carrying a Weapon of Mass Destruction warhead,” said a DOD report.

Terrorists have shown favoritism toward low-cost, high-impact attacks, a point not lost on CIA Director George J. Tenet. In testimony before the Senate last spring, Tenet noted that the US increasingly faces enemies intent on causing “pain and suffering” rather than defeating the US militarily.

According to DOD, land attack cruise missiles can be delivered by land, sea, or air and are more accurate and mobile than tactical ballistic missiles—but with the same Weapons of Mass Destruction payloads available.

Despite the looming problem that land attack cruise missiles pose, Sen. Daniel K. Akaka (D-Hawaii), who chairs the governmental affairs subcommittee concerned with weapons proliferation, said June 11 that de-



Photo courtesy of General Dynamics

The utility of US cruise missiles, such as this Navy Tomahawk, may have generated interest among potential adversaries. Nations that once focused on acquiring ballistic missiles see an alternative.

fense against cruise missiles is “often an afterthought.”

Watch and Learn

Ironically, it may have been the Pentagon’s use of cruise missiles that legitimized them to adversaries. Traditionally, ballistic missile programs were pursued throughout the Third World partly as a sign of prestige. Ballistic missiles were seen as symbols of national power, despite the limited effectiveness of the most common, Scud-type systems.

But analysts note that heavy and devastating use of Tomahawk land attack cruise missiles and conventional air launched cruise missiles, beginning in the Persian Gulf War, has not gone unnoticed. Although the United States and its allies still possess the best technology and best missiles, advancing technology is steadily lowering the threshold needed to build effective cruise missiles.

Estimates vary depending on how cruise missiles are defined and measured, but according to DOD, there are currently 19 nations manufacturing cruise missiles and 12 exporting them. Further, the Congressional Research Service said 22 nations are “threshold manufacturers” that could begin programs in short order.

Many of the closest US allies are among the current cruise missile manufacturers, but the list also includes China, India, Iran, Iraq, North Korea, and Russia.

In his testimony, Tenet noted that “Russian entities continue to provide ... technology and expertise applicable to [chemical, biological, and nuclear] ballistic and cruise missile projects. Russia appears to be the first choice of proliferant states seeking the most advanced technology and training.”

The CRS list of threshold manufacturers is a fairly benign group of advanced industrial nations, but the large number of nations that could make the weapons, if they so desired, illustrates that the technology needed to begin a program is within reach of much of the world.

Two developments in recent years have made the cruise missile a more viable weapon, experts say. In the past, guidance and propulsion limitations hindered the ability of most nations to pursue effective land attack cruise missiles, according to Steven J. Zaloga, senior missile analyst with the Teal Group defense consulting firm. But now, these “two big stumbling blocks” are being overcome.

First, the Global Positioning System has revolutionized flight control systems and is useful for both cruise missile guidance and commercial autopilot systems.

“The advent of [GPS] has probably done more to draw attention to cruise missile proliferation than any other event,” noted Christopher Bolkcom, CRS national defense analyst, at the June Senate hearing on the cruise missile threat. “Today’s standard GPS

signals offer global accuracy of better than 10 meters [33 feet].”

Second, highly efficient turbofan engines designed for business-jet use are becoming widely available. These engines also make effective cruise missile propulsion systems. Customers buying business-jet engines and commercial GPS guidance systems on the open market likely won't attract much attention.

Bolkcom described the problem as technology that hides in plain sight because of the market for these dual-use capabilities.

Once missiles get into circulation, analysts caution, there may be very little warning of an impending attack. Even if the intelligence community feels the threat is still some years off, there are concerns the US may be surprised by a cruise missile attack. A September Pentagon briefing by a senior defense official noted that there have been repeated and significant intelligence lapses in recent years.

In addition to the Sept. 11 attacks, the US was surprised by how advanced the Iraqi nuclear program was after the Gulf War, by the state of the North Korean missile program when a Taepo Dong missile overflew Japan in 1998, and by how advanced al Qaeda's WMD work was when discovered in Afghanistan.

Bolkcom testified that, in 1998, many were caught off guard when the French sold “an accurate, long-range, potentially stealthy” variant of their Apache cruise missile, called

Black Shahine, to the United Arab Emirates. Experts call the Apache missile the cruise missile weapon of choice.

There was concern in 1998 that the UAE sale would spur similar sales of advanced Chinese and Russian cruise missiles, but so far this has not occurred.

Limited Countermeasures

The Defense Department has limited cruise missile defenses in place today, with better capabilities on the way. Sensor and air superiority aircraft, terminal defenses, and command-and-control systems offer some protection, though largely as a by-product.

The Air Force's most prominent cruise missile defenses reside in Alaska, where 18 F-15Cs at Elmendorf Air Force Base are equipped with advanced radars capable of tracking and targeting multiple incoming cruise missiles.

These Eagles were upgraded by Boeing in 2000 with Active Electronically Scanned Array radars. The upgraded AESA radars, called the APG-63(V)2, allow the F-15 to take full advantage of its air-to-air missiles and can simultaneously guide Advanced Medium-Range Air-to-Air Missiles to multiple targets.

The Elmendorf F-15s are the first aircraft in the world to employ AESA technology for combat. This capability will be the foundation for future Air Force fighter upgrades.

The radar upgrade also included improved Identification, Friend or Foe capabilities, viewed as critical for cruise missile defense. There is little time to determine whether a radar blip is a cruise missile or a Cessna—and less room for error when deciding whether to engage the target.

Both the F/A-22 and F-35 Joint Strike Fighter will employ advanced AESA radars, and cruise missile identification and tracking is also one of the missions envisioned for the Air Force's upcoming multisensor command and control aircraft.

Sensors, speed, and weapons make the F/A-22 “the one fighter in the joint air component optimized for cruise missile defense,” according to Rebecca Grant, president of IRIS Independent Research in Washington, D.C.

The US ability to detect cruise missiles has benefitted from overall air defense improvements in the wake of 9/11. For example, analysts say the improvements North American Aerospace Defense Command made to its radar coverage of the United States by integrating radars and linking to civil systems also enhanced the ability to detect and track cruise missiles.

Additionally, DOD will be improving cruise missile detection capabilities through better sensors aboard Air Force E-3 AWACS and Navy E-2C Hawkeye surveillance aircraft and a new Army-led program called the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System, according to the CRS report.

Systems integration is seen as an important stepping stone, stated the report. “Integrating air and missile defense systems may have the greatest payoff in designing and fielding an effective cruise missile defense.”

The USAF Link-16 data link system for fighter aircraft will also be helpful, because Link-16 will improve tactical communications and give pilots better information on possible targets.

The Army favors a system of tethered aerostats for the JLENS program. They would provide low-cost, over-the-horizon cruise missile detection. Incoming missiles could be detected at longer ranges by using aerostats to elevate sensors to altitudes up to 15,000 feet.

JLENS would work in conjunction with fixed-wing aircraft and ground-

AP photo by Michel Lipchitz



France sold a stealthy variant of the Apache cruise missile, pictured here, to the United Arab Emirates. Analysts say the Apache remains the likely “weapon of choice” on the international market.

based systems. The Army expects a full capability design by 2005.

The JLENS program will fill a void in missile detection. According to DOD, current systems that could offer a cruise missile defense capability are not optimized to handle that threat.

The JLENS program office noted that the Air Force, "while unquestionably the best air force in the world against fixed-wing aerial threats, possesses limited capability against low-flying land attack cruise missiles." That leaves the Army's Patriot air defense missile system as the primary terminal defense system. However, when set up for ballistic missile defense, the Patriot system "cannot provide adequate protection against low-flying threats," according to the JLENS program office. Land-based Patriot sensors in their ballistic missile role have "limited ability to see and engage a target approaching at an elevation of 100 meters [330 feet]." With JLENS sensor data, the Patriot could increase its "effective battlespace by over 700 percent."

Vulnerability to cruise missiles has long been recognized, but the problem may have been written off as "too hard," one official said. The "cost-exchange ratio was not in our favor," he said, and to this day, if you look for a budget line item for cruise missile defense "you won't find one." So far, it is only sophisticated systems such as the F/A-22 and Patriot that have been proposed to counter cheap cruise missiles.

Whether a Patriot missile costs \$5 million "or the desired \$2 million per copy, the figure compares unfavorably with either a \$200,000-per-copy cruise missile or large saturation attacks of \$50,000-per-copy modified airplanes," Dennis M. Gormley, senior fellow with the International Institute for Strategic Studies, told Akaka's Senate panel in June.

Negotiating Limits

For that reason, some believe arms control measures offer the least expensive way to protect the United States from advanced missiles—by keeping quality missiles out of enemy hands. This will be difficult, given the commercial availability of key components.

One such measure, the Missile



A handful of F-15s based in Alaska with advanced radars can track and destroy cruise missiles. USAF's ability to defeat incoming missiles could grow as the F/A-22, and later the F-35, come online.

Technology Control Regime, an informal export control agreement among 33 nations, attempts to halt the spread of advanced missile-related equipment. According to the Arms Control Association, MTCR is designed "to stem the spread of ballistic and cruise missiles capable of delivering a 500-kilogram [1,100-pound] payload 300 kilometers [186 miles] or more" by setting export guidelines and naming restricted items.

One of the problems with MTCR, however, is the ability to "trade off" capabilities. Missiles that are technically OK for export can sometimes be modified—with a boosted range or payload to create a more useful weapon.

Nonetheless, MTCR has slowed proliferation of advanced ballistic missiles, Gormley testified, with "the major consequence ... that the ballistic missile technology that has spread thus far is largely derived from 50-year-old Scud technology, a derivative itself of the World War II German V-2 missile program."

Gormley argued that cruise missile technology will inevitably continue to spread, but if MTCR can be used to control land attack cruise missile technology, US defenses "can conceivably keep pace with evolutionary improvements."

Vann Van Diepen, a State Department nonproliferation official testifying at the same hearing, agreed it is important to slow the spread of

technology. Although there have been well-publicized developments, such as Iraq's conversion of Czech L-29 trainer aircraft into unmanned aerial vehicles "for probable CBW [Chemical and Biological Weapon] use," export controls have helped deny access to the best technology, he testified. Enemy acquisition of cruise missiles is therefore "slower, more costly, and less effective and reliable."

Van Diepen said the US is attempting to stay ahead of the problem by pushing for the necessary export controls and—when necessary—using interdiction, sanctions, or the threat of military action to interrupt transfers. "Good intelligence is central to nonproliferation," he said, and these tactics have made cruise missiles "a less attractive option for our adversaries to pursue."

Tightening the export controls is problematic. Aerospace exports are a major source of US industrial strength, and controls on GPS systems, efficient jet engines, and flight control systems would likely harm legitimate users more than adversaries. Akaka, who hosted the June hearing, noted that "similarities make it difficult to inhibit cruise missile proliferation without impacting the aircraft industry."

The unanswered question is whether commercial technology has already let the cruise missile cat out of the bag. Some analysts believe the threat has now reached a critical point. ■

With a new base-closing round set for 2005, communities have begun to mount aggressive defenses.

First Skirmishes in the Battle of the Bases

By George Cahlink

PENTAGON plans for sending troops overseas are not normally of much interest to state governors, but a recent decision to send about 600 military and civilian personnel from US Central Command in Florida to an air base in Qatar caught the attention of Florida Governor Jeb Bush.

Fueling his concern was immediate media speculation that the deployment was the first step in a Pentagon plan to permanently move the CENTCOM headquarters from its MacDill AFB, Fla., location closer to the command's area of operations.

Central Command officials tried to defuse the situation by issuing a statement in mid-September, saying flatly that the command was not moving and the deployment was merely to conduct a long-planned exercise.

However, a few days later, Defense Secretary Donald H. Rumsfeld actually endorsed the possibility of moving the command when he told reporters, "The European Command is in Europe, the Pacific Command's in the Pacific, and the Central Command is in Tampa." He then asked rhetorically, "Why is that?"

Those words set off alarm bells in the state capital in Tallahassee.

The Florida governor quickly fired off a letter to Rumsfeld that said Central Command "personnel are an integral part of our community." Bush said he understood the need for having military commanders in the region to

oversee the war on terrorism but wanted to emphasize the importance of the command to the state. He added that about 84 percent of the 1,300 military and civilian personnel employed at Central Command live in the Tampa Bay area and generate \$387 million annually for the state's economy.

Florida's rapid response put Rumsfeld on notice that it will not allow the uncontested removal of military facilities and employees from the state. Florida's actions reflect a growing trend across the nation, as states and local communities become increasingly aggressive in fighting to keep jobs at their bases.

With another round of military base closings set for 2005, communities with military facilities are spending millions of dollars on upgrades to infrastructure surrounding military bases, hiring lobbyists in Washington, D.C., to determine if their bases are vulnerable, forming partnerships with the military, and touting the value of their installations every chance they get.

The Pentagon had a tough job convincing Congress to allow more base closures. An even harder job could

be fighting states and local communities over what bases can be closed.

"The easiest decisions were made before, and now everyone understands the game so it will be tougher for [the Pentagon to close bases]," said William Jefferds, a retired Army general officer who directs California's efforts to keep its bases open.

Starting Early

According to Paul McManus, chairman and chief executive officer of the Spectrum Group in Alexandria, Va., a consulting firm that represented 18 communities during the last round of closings, communities are being proactive about protecting their bases much earlier than they were in the previous rounds. Even before last fall's Congressional approval of a new round of closings, the Spectrum Group was hired by Florida and Arizona to determine what bases might be most vulnerable, he added.

Ever since the last closure action, held in 1995, Pentagon officials had been arguing for additional closures, saying the facility cuts had not gone far enough. They maintained the military services had more bases than needed and money was being wasted on maintaining facilities that could be better spent on weapons or upgrading key installations.

Rumsfeld, who went before Congress last year to press for a new closure round in 2003, said, "Most people you talk to who are knowledgeable about it believe we are carrying something like 20 to 25 percent more base structure than we need for our force structure."

Pentagon leaders stated that since 1990, military forces had been cut by 40 percent—but US bases had only been pared back by 21 percent (including overseas bases, 26 percent). Four previous rounds of military base closures held between 1988 and 1995 shuttered or realigned about 97 of the military's nearly 500 major bases in the United States. Thus far, those closings have saved about \$15 billion and will continue to save another \$6 billion per year through reduced operating and maintenance costs, according to DOD.

The General Accounting Office confirmed those savings in an April 2002 independent report, "Military Base Closures: Progress in Completing Actions From Prior Realignment



USAF photo by SSgt. Patricia Bunting

CENTCOM members meet in Egypt during a 2001 exercise. Some speculate that DOD wants to move the command's headquarters, now at MacDill AFB, Fla., closer to its area of operations.

and Closures." The GAO said the Defense Department "has generated substantial net savings from the prior four closure rounds and expects those savings to grow on an annual basis."

According to Rumsfeld, additional base closings should generate another \$3.5 billion in annual savings.

Despite the savings, closing bases is a politically sensitive topic for many lawmakers who fear losing thousands of federal jobs in their home states and districts. After the 1995 round, Congress repeatedly rejected requests from the Clinton Administration to consider any new closure efforts because lawmakers claimed the process had become politicized when, during the 1995 round of base closings, President Clinton ordered Air Force depots in voter-rich Texas and California to be privatized rather than shut down and their work sent to other states.

Last fall, with a new Administration in place, lawmakers no longer could make that argument. However, following a lengthy debate, Congress approved a single round, but delayed the action until 2005.

Like previous base closure rounds, an independent panel, appointed by the President and requiring Senate confirmation, will be responsible for deciding what bases should be closed or realigned. The panel will hold public hearings on a list of the Pentagon's proposed closings and then come up with its own recommendations.

In previous rounds, similar commissions concurred with about 85 percent of DOD's recommendations.

The commission list will then be sent to the President, who has 15 days to either reject or accept the list in its entirety. If the President approves the closings, Congress then has 45 days to reject or accept the list without any changes, as well. A significant change in this round over previous base closings is that DOD will have the option of mothballing bases on the list for possible future use rather than taking the properties off its books permanently.

The Pentagon and the individual military services have yet to begin formal planning. However, during the coming year, the Pentagon will issue criteria to the services that will outline how to judge what bases could be shuttered. The services would then spend most of 2004 determining which facilities they will recommend for closure. The Pentagon will review and finalize those recommendations before sending them to the commission in the spring of 2005.

Public hearings would be held in mid-2005, before the list goes to the President, then Congress.

Digging In

States, such as a California, Florida, Georgia, and Texas, with the greatest number of bases have been the most aggressive in trying to preserve their military facilities, which have become

billion-dollar industries for them. These states have funded full-time offices dedicated to preventing closings and have not stopped promoting their bases since the 1995 closings. Even states with far fewer military bases have recognized a need to protect their facilities. Across the nation, nearly every local community with a military installation has an organization for promoting and protecting their role in national security.

In Florida, Dale Ketcham is director of space and defense programs for Enterprise Florida, a public-private office dedicated to improving and promoting military communities throughout the state. He said Florida, in recent years, has awarded nearly \$10 million in grants to make upgrades to and around military bases and to come up with ways to keep bases open. In 2002, Florida will spend \$4 million on infrastructure improvements and another \$1 million on community defense grants. For example, a Miami-area economic development organization has been awarded a \$135,000 community defense grant to improve coordination between the county, a local Coast Guard facility, and an Air National Guard base. Meanwhile, Florida will spend \$770,000 to upgrade hangars at Cecil Field in Jacksonville, Fla., for the Army National Guard's 111th Aviation Regiment.

Ketcham said Florida's effort does not focus just on the economic impact of bases but also on the state's

strong support for military communities and the fact that many retired military personnel live in the state. Success in fending off closures would be limited, said Ketcham, if the state only addressed parochial economic interests.

"There is heightened concern among our communities because the low-hanging fruit has already been picked [in previous closures]," he said. "But that will also make it harder to close more bases."

California has 61 bases left to defend, after having 29 bases closed over the past decade. Jefferds said state budget woes prevented California from spending any additional money on defending bases in 2002 and even forced him to cut back hours for the eight full-time workers assigned to protecting bases. Still, he said, efforts that got under way last year, including award of \$50,000 grants to help communities protect their bases and promote key weapon systems, will continue. For example, the city of Lancaster is using the money to study the cost and design of instrumentation and calibration systems that would be used in testing the Joint Strike Fighter at Edwards AFB, Calif.

Additionally, California and the Defense Department are sharing the cost of a \$920,000 study that will examine civilian encroachment at the state's military facilities and what state and local planners can do to help alleviate the problem. Encroach-

ment refers to the impact increased public development around bases has on the ability of those facilities to conduct their missions. Increasingly, military bases, especially those conducting flying operations, find their ability to train has become more limited as civilian housing developments have sprung up near military facilities or under flight paths.

"Encroachment has become a part of the base closure debate," says Jefferds.

In New Hampshire, the Seacoast Shipyard Association has been fending off closures at Portsmouth Naval Shipyard since the 1960s by emphasizing the yard's unique repair capabilities. In a Kansas community adjacent to the Army's 100,000-acre Ft. Riley, the Chamber of Commerce tracked the Pentagon's Quadrennial Defense Review and watches ongoing transformation efforts because chamber officials realize Ft. Riley will be in jeopardy if the Army eliminates divisions.

Quick Action

In 1995, the Pentagon marked Kirtland AFB, N.M., for closure, but the base closure commission ended up removing the New Mexico base from the list after community activists pointed out DOD had underestimated the costs of shutting down the base by about \$250 million.

Local community groups can have a major influence on decisions made by base closings commissions, said Charles Thomas, a former wing commander at Kirtland, who now serves as chairman of the Kirtland Partnership Committee. The local community group spends about \$100,000 annually to promote the interests of the base that lies adjacent to Albuquerque and generates about \$4 billion annually for the local economy.

Thomas said the group emphasizes the base's multiple missions and more than 200 tenants from across the federal government. A glossy 50-page brochure, called "The Sky's The Limit," says the base could take on additional missions because land is available and there are no encroachment concerns.

Late last year, the Energy Department's Sandia National Laboratories, with its primary facilities at Kirtland, invited Homeland Security Director Tom Ridge to the base to demonstrate technologies being

USAF photo by Keith Wright



The Kirtland Partnership Committee is aggressively confronting the BRAC issue. Gen. Lester Lyles (right), Air Force Materiel Command commander, answered questions at an event sponsored by the group in May.

developed there. They include sensors that can detect explosives and could be utilized for homeland security. The laboratory also highlighted its Cold War role in working with the Soviet Union to disarm nuclear weapons of mass destruction.

"Sandia wanted to make its case," said Thomas, who predicts having Sandia's unique homeland security assets at the base will help keep Kirtland open.

The communities surrounding Barksdale Air Force Base, in Bossier City, La., have created a nonprofit organization, known as Barksdale Forward, to ensure the base, which operates B-52 bombers, remains open. Last year, Barksdale Forward offered to build and refurbish more than 300 housing units on the base—at no cost to the Air Force—as a way to address concerns that inadequate housing could hurt the base as facilities are weighed on the potential closure scale.

Ultimately, the Air Force opted to compete the work among commercial contractors, but Murray Viser, president and chief executive officer for Barksdale Forward, said the offer underscored the community's commitment to the base.

Viser said the community also was concerned that the Air Force might close the base because it was relying less on aging B-52 bombers, but those fears have faded with the onset of the war on terrorism. "We feel like the role of the B-52 has been validated during Operation Enduring Freedom," he said. Air Force long-range bombers, including B-52s, were critical in routing the Taliban and al Qaeda forces in Afghanistan.

No community has better positioned itself to keep a base open than San Antonio. The Texas city has formed with one of its Air Force bases a novel partnership that is being cited as the model for how base and local communities can work cooperatively.

During the last round of base closures, San Antonio fought a pitched political battle to protect thousands of jobs at two of its five military installations, Brooks and Kelly Air Force Bases. But those efforts came up short when the base closings commission decided to shut the doors at



Staff photo by Guy Aceto

Barksdale Forward, formed from the communities surrounding Barksdale AFB, La., offered to build and refurbish hundreds of housing units in their attempt to ensure the continued viability of the B-52 base.

Kelly, one of USAF's air logistics centers.

A New Approach

City officials decided after losing the battle in 1995 that they could not rely on save-the-base rallies and lobbying lawmakers to keep Brooks open in the future, so even before Kelly closed last year—and well before a new round of closings was approved, community activists began looking for a way to ensure Brooks would not share Kelly's fate.

"Our choice was either to pick ourselves up or blame the whole world," said Robert Sanchez, a San Antonio small business owner and community activist. City officials knew that Brooks, a relatively small base with an aerospace medicine technology mission, had been considered for closure because it had some of the highest operating costs in the Air Force. At the same time, the city wanted to attract more technology jobs to the region.

The city and the Air Force realized they had something they could offer each other. The city could assist the Air Force in reducing operating costs by providing city fire, police, and maintenance services, while the base had the land and high-technology facilities that could attract new businesses to the

region. After several studies and with legislative approval from Congress, San Antonio and the Air Force formed an unprecedented public-private partnership, known as the Brooks City-Base. Under the agreement, the Air Force turned over ownership of the base last summer to the city under a long-term lease that guarantees USAF's units land and space on the base at no cost. San Antonio is free to lease excess land and facilities to commercial tenants or develop it. In exchange, the city will provide all municipal and maintenance services at the base at no charge and share any profits it makes from leasing or development with the Air Force.

Ultimately, the deal should save the Air Force \$10 million annually in reduced operating costs, while the city stands to generate millions of dollars for the local economy by attracting new businesses and developing Brooks.

Air Force officials have repeatedly stressed the Brooks City-Base concept does not guarantee the base will remain off the closure list in 2005. But, Sanchez said, the city likes its chances now that it has reduced the base's operating costs. Moreover, he said, the city had few other options for fighting for Brooks' future.

"The best way to help military bases [remain open] is for communities to help them solve their problems," said Sanchez. ■

George Cahlink is a military correspondent with Government Executive Magazine in Washington, D.C. His most recent article for Air Force Magazine, "Under the Rubble," appeared in the November issue.

■ **Officials hope
the new system gives airmen
an honest assessment of performance
and a blueprint
for improvement.**

The Subtle Art of Evaluation

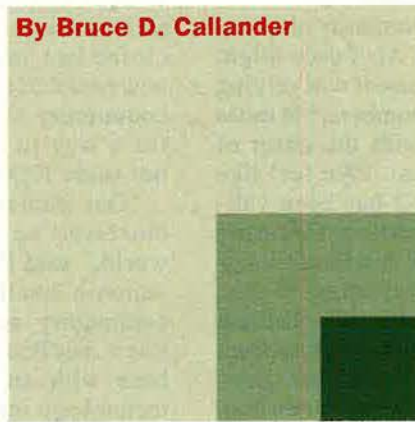
■ **P**ERSONNEL evaluations are tricky. The problem: how to provide a fair and honest assessment for leadership and, at the same time, inspire someone to improve rather than to head for the exit sign.

Individual perceptions of an evaluation system that affects promotions, duty assignments, and future careers bear directly on decisions to stay with the Air Force or quit. That retention factor has led service officials to refine the performance rating system—several times—to make it more visible and acceptable.

In fact, the Air Force has tried more than half a dozen evaluation systems over the years and made periodic changes in each before abandoning it in favor of a new approach. Today's program still is something of a work in progress, but officials feel it comes close to accomplishing the twin goals of giving the service an honest assessment of its members and giving those members blueprints for self-improvement.

In 1947, when the Air Force became a separate service, it still used the Army's officer evaluation process. This was a simple, multiple-choice form that required supervi-

By Bruce D. Callander



sors to answer 24 questions by picking from among statements most and least descriptive of the subject's job performance and personal qualifications. The rater then had to show where the officer fit among all those he had rated.

Two years later, the Air Force had developed its own form. It gave the supervisor twice as many factors to rate and half a page for comments. The ratings were weighted and totaled to give the officer an overall score. The form and the instructions were tweaked periodically over the years, but the same basic practice of matching members against a scale of traits persisted.

Over time, raters tended to give too many officers outstanding reports. In 1974, the Air Force tried to eliminate this kind of inflation by limiting the number of top-box ratings a rater could award. The approach worked to a point but was abandoned after complaints that, in effect, it gave units the power to preselect members for promotion.

An In-Depth Review

In 1995, then-Chief of Staff Gen. Ronald R. Fogleman called for an in-depth review of the officer and, later, the enlisted evaluation processes.

The evaluation review found no major problems with the officer system, according to Col. Carolyn Pratt, chief of the Promotion, Evaluation, and Recognition Division at the Air Force Personnel Center. "They determined that the Officer Performance Report was working as intended," she said. On the enlisted side there were several recommendations, such as the use of written promotion recommendations and elimination of rating expectations or guidelines.

One thing the 1995 study did change for both officer and enlisted evaluations was to make a bullet format mandatory for the narrative portion, the section where raters describe a member's capabilities. This section had degenerated to long, wordy descriptive passages that often told little about a member's performance. While the Air Force had encouraged raters to use a series of terse descriptive phrases rather than complete sentences to reduce the fog of verbiage, it was still optional. "We made it mandatory as a result of the '95 study," said Pratt.

Officials said shorter, more succinct wording is more likely to catch the attention of promotion boards. "Obviously," said Pratt, "the rater who can use a better turn of phrase may engender a better picture in the mind of somebody who is evaluating a record. But I will tell you that the records that stand out are the ones that take the shortest amount of time to get to the point. They are more effective than complete sentences where all the i's are dotted and the t's are crossed. You can fall asleep in the middle of those."

Following the 1995 study, the Air Force also decided to put more stress on feedback—the process in which a rater tells a member where the member fell short and how to improve. Raters now are required to show in writing when they complete such counseling both for enlisted members and officers. The counseling is supposed to be done before the formal evaluation.

"There have been growing pains since we initiated feedback forms and made individuals put on the performance report when that feedback was given," said Pratt. "We don't want the performance report itself to be the feedback, because the first time you are told how you are doing shouldn't be when you get your evaluation. It should be ongoing through the entire reporting period."

Feedback sessions include showing the member both how he or she is doing and how he or she compares with others in the same peer group. This second assessment, officials admit, is the hardest part of the process for some raters. It should also appear on the evaluation form itself.

Key to Promotions

"The promotion boards are looking for discriminators and when they don't find them, they tend to do it in reverse by looking at what's not being said," explained Pratt. "If you've got 10 squadron commanders under a wing, it would help to know if this person is considered by the wing commander to be No. 1 of 10."

She added, "Boards are looking for that type of stratification these days as opposed to the words that just say this individual is a blue-chip officer. That doesn't tell me anything. 'OK, I think they're good but how good is that?' We're looking for hard quantification."

While evaluations are used for a variety of purposes, including selection for assignments, training, and special duties, the most visible and emotionally charged use for officers is in the promotion process. Officer promotion boards consider awards, decorations, professional military education, and other factors, but levy the most importance on the annual OPR and the promotion recommendation form—a one-time document prepared for each promotion cycle and discarded after that round.

For senior enlisted personnel, the selection process is similar to that for officers, with one major exception—the Weighted Airman Promotion System, a point scoring process. For the middle enlisted grades, scoring well under WAPS is the primary means to promotion.

Those enlisted members competing for senior and chief master sergeant are evaluated using both the WAPS scoring process and a review of their records by selection boards. The boards review performance reports along with other information.

WAPS provides a point score made up of six elements valued at different points. The theoretical maximum is 460 points. The six elements are:

- Enlisted Performance Reports covering an airman's last five years (maximum of 10 reports), with the most recent reports given the most weight—up to 135 points.
- Fitness examinations—up to 100 points.
- Skill knowledge tests—up to 100 points.
- Time in grade—up to 60 points.
- Time in service—up to 40 points.
- Decorations—up to 25 points.

The WAPS Debate

The Air Force developed WAPS in the 1970s by studying the elements that selection boards considered, noting what weight they gave to each, and then duplicating the process mathematically. Because the WAPS formula reduces enlisted ratings to a single numerical value and many junior airmen tend to have similar EPR scores, critics of the system say it shifts undue weight to test scores and other factors. Personnel officials disagree.

"I am sure that there are some folks who think that," said Pratt, "but the WAPS factors were studied very carefully years ago before it

was determined that these were the types of factors we needed to look at. They give us the feedback, perhaps not in the same way an evaluation does, but well enough to show the caliber of the individuals."

Just to be sure the WAPS process still is working as intended, however, the Air Force is taking another look to determine, as Pratt put it, "if in today's environment we are still looking at the same things the same way, or whether we should make some changes in the formula." She added, "It has been tweaked slightly over time, but it is not markedly different from what it was when it was first envisioned."

Whatever its problems, the evaluation process appears to be understood by most members. On surveys, more than three-quarters of those questioned said they understood the systems. Lower percentages rated the process as fair, but officials said the dissatisfaction is less with the process than with the perception of how it is used.

It's Not the System

"Most of the complaints that we get are not against the system," said Pratt, "but about a specific situation that the individual finds himself in. Either that or they involve specific raters who may not have seen the individuals the way they see themselves or as they would like to be seen."

She added, "Of course, we have processes in place to appeal EPRs and OPRs where people believe that the correct information has not been put forward. But the beef normally is not with the system itself but with the people who write the ticket or with the way it was processed."

The Air Force itself considers the evaluation process a key part of the career system.

Officials admit, though, that not all contenders are going to make it. According to USAF, most officers believe they are in the top 25 percent of the officer force. However, mathematics dictates that not everyone can be at the top. The idea is to make the evaluation system not only fair, but understandable by everyone, especially those who did not receive the top ratings.

The Air Force has added a number of safeguards to help ensure that all contenders do get the fair-

The Drawdown Effect

Some observers have speculated that the long personnel drawdown of the 1990s eliminated many less-qualified members, making it more difficult to discriminate among those left. Theoretically, those still retained by the service were all outstanding.

Officials discount this contention. They maintain that it was unlikely only top performers survived the cuts.

"We used a variety of programs during the drawdown," said Col. Carolyn Pratt, chief of the Promotion, Evaluation, and Recognition Division at the Air Force Personnel Center. "Three-quarters of them were voluntary programs, which means we had very little control over who chose to leave and, frankly, we lost a lot of high-quality individuals."

The involuntary selective early retirement boards, which looked at more senior personnel, "considered the age of the individuals more than the quality of their records," she said. "They trimmed from the top down as opposed to making it a quality cut. Given another couple of years, those folks would have been gone anyway so it was just slightly earlier."

The Air Force also conducted one involuntary reduction in force action, targeting more junior personnel. However, Pratt said, "Many of those kids were so young it would be tough to tell you whether they would have turned out to be superchargers or not."

est shake possible. One is the management level review, made up of senior raters who study promotion recommendations to see that they are properly prepared and send the messages intended. Another is a procedure that protects officers in student status from being at the disadvantage of competing with instructors assigned to the same units. A third is a rule that removes promotion recommendation forms after each board so the officer will not be dogged in the future by a less-than-glowing form.

One way the Air Force has tried to make the evaluation and promotion processes more acceptable to members is by making them more visible. "We still keep the boards on a closehold in the sense that we don't allow just anybody to walk in and observe them in session," said Pratt. "We want to keep safeguards in place to make sure they are conducted the same way time and again."

The service encourages the people who sit on those boards to be open

once the board is completed. "They can't talk about the deliberative process itself and what they did in that process, but they are encouraged to talk about how the process itself worked, how they were briefed, what kind of charge the secretary gave the board before it convened, how scoring was done, and that sort of thing," said Pratt. "The members who sit on these boards are highly encouraged to go back out to the commands and to talk about these procedures."

Air Mobility Command recently circulated the board statistics and included reports by two of the board members who happened to be in that command, noted Pratt. "They outlined their experiences," she said, adding, "anybody who was looking at the board could tell what went on, how they viewed it, what they looked for, and those types of things."

Ultimately, however, much of the responsibility for seeing that they receive a fair hearing is left to members themselves. ■

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, "The Jet Generations," appeared in the October 2002 issue.

The Paper Trail

By Bruce D. Callander

In the Beginning, There Was Memo No. 6.

WAR DEPARTMENT
Office of the Chief Signal Officer
Washington

August 1, 1907

OFFICE MEMORANDUM NO. 6

An Aeronautical Division of this office is hereby established, to take effect this date.

This division will have charge of all matters pertaining to military ballooning, air machines, and all kindred subjects. All data on hand will be carefully classified and plans perfected for future tests and experiments. The operations of this division are strictly confidential, and no information will be given out by any party except through the Chief Signal Officer of the Army or his authorized representative.

Captain Charles DeF. Chandler, Signal Corps, is detailed in charge of this division and Corporal Edward Ward and First-class Private Joseph E. Barrett will report to Captain Chandler for duty in this division under his immediate direction.

J. ALLEN
Brigadier General,
Chief Signal Officer of the Army



Capt. Charles DeF. Chandler

The National Security Act of 1947

Section 2C7 (a). Within the National Military Establishment there is hereby established an executive department to be known as the Department of the Air Force, and a Secretary of the Air Force, who shall be the head thereof. The Secretary of the Air Force shall be appointed from civilian life by the President, by and with the advice and consent of the Senate. ...

Section 2C8 (a). The United States Air Force is hereby established under the Department of the Air Force. ...

Section 208 (b). There shall be a Chief of Staff, United States Air Force, who shall be appointed by the President, by and with the advice and consent of the Senate. ...

Signed July 26, 1947

In 1907, the chief of the Army Signal Corps created the progenitor to the US Air Force when he issued Memorandum No. 6, officially placing three men in a separate division—the Aeronautical Division—to oversee work on military balloons, air machines, and related subjects.

The air arm gained more permanence and resources—60 officers and 260 enlisted men—when Congress in 1914 created an Aviation Section within the Signal Corps. Four years later, the Army Air Service was established, followed by the Army Air Corps in 1926 and the Army Air Forces in 1941. (The Army Air Corps existed under the AAF until 1947.)

In 1947, Congress established the US Air Force as a separate service—climaxing a 40-year effort.



Dawn Patrol on the Hu

In upstate New York, carefully rebuilt World War I and 1920s-era aircraft take to the skies once more.



adson

Photography by Guy Aceto, Art Director, and Paul Kennedy

The Old Rhinebeck Aerodrome's Caudron G.III sports vintage instruments, upper right wing panel, cowling, and a Le Rhone rotary engine. The French-manufactured aircraft was flown by several nations during World War I. This airplane dates to 1914 and still flies in weekend air shows.

The Old Rhinebeck Aerodrome, nestled in the rolling hills of the picturesque Hudson Valley north of New York City in Rhinebeck, N.Y., was founded in 1959. It boasts some 75 antique aircraft dating from the very early days of flying. From mid-June through mid-October, about 15 of those airplanes take to the air each weekend for an air show that includes a dogfight demonstration and barnstorming display.

James Henry Cole Palen, a longtime aviation enthusiast, came up with the idea for the aerodrome in 1951 after the closing of Roosevelt Field, a civilian airfield on Long Island. In an auction of the field's collection of World War I airplanes, the Smithsonian acquired three and Palen six.



The aerodrome's aircraft are divided into three distinct eras: the pioneers, typified by the Curtiss "Pusher" (above and left); World War I aircraft, such as the Spad VII; and the postwar airplanes from the 1920s and 1930s.

The museum's reproduction of a 1915 Nieuport 11 (right), built by Gordon and Kay Bainbridge, has an original 80 hp Le Rhone rotary engine and instruments. Known as a "sesquiplane" rather than a biplane because of the small area of the lower wings, the Nieuport 11 inspired German copies developed by both the Siemens-Schuckert and Albatros companies.

This aircraft is finished in the colors of the model flown by Victor Chapman, who, flying with the Escadrille Americaine, became the first American pilot to lose his life in World War I.





The Luftwaffe, circa 1917, is represented in the weekend dogfights at the aerodrome by re-enactors flying a reproduction Albatros D.Va (above and right). The aircraft was painstakingly created by Palen, Gordon Bainbridge, and Neil Boehme, who measured every inch of an Albatros at the National Air and Space Museum. It made its first flight in October 1975 with an original 120 hp Mercedes engine. Unfortunately, the crankshaft of the antique engine soon broke.

Today the aircraft flies—albeit with a newer, more reliable engine—in the colors of the aircraft flown by World War I ace Capt. Eduard Ritter von Schleich, better known as the “Black Knight.”



The Sopwith F-1 Camel (far left), flown by British and American pilots, was perhaps the most successful fighter airplane of World War I.

At left, the Albatros and the Camel engage in mock combat.

With an eye to the 75th anniversary of Charles Lindbergh's historic 1927 New York–Paris flight, Rhinebeck's master craftsman Ken Cassens is building a nearly exact replica of the Spirit of St. Louis. With the cooperation of the National Air and Space Museum, Cassens was allowed the unique opportunity to reach inside the cockpit of the original aircraft to take measurements and photographs of the legendary airplane. At right, aerodrome guests visit Cassens's workshop.



Photos by Paul Kennedy



Some of Rhinebeck's most popular machines are from the Lindbergh era. One example: this lovingly restored Waco QCF, owned and flown by aerodrome pilot Dan Taylor. The QCF was one of the top performers of its day, able to clear a 50-foot obstacle with a takeoff roll of only 400 feet. It could land in a 100-foot circle.



The aerodrome is open to visitors during the week, but the biggest crowds gather for the Saturday and Sunday air shows. The performances are faithful to the barnstorming tradition, mixing aerobatics, comic elements, and mock combat.





Visitors can ride in a New Standard D-25 biplane. The open-cockpit aircraft provides passengers an authentic "wind in the face" experience during 15-minute flights over the Hudson Valley.

The 1928 D-25 was designed expressly for barnstorming. It was easy to fly, could be operated out of even the smallest fields with its big, high-lift wings, and featured a rugged, wide-stance landing gear for rough farm fields.



Best of all for the barnstorming pilots of the 1920s, it doubled the payload of the "old" Standard with room for four paying passengers instead of two per flight.

At left, aerodrome pilot Cassens takes to the air with guests.

Antique aircraft arrive in many different ways. The rare Bleriot XI monoplane (right), similar to the one Louis Bleriot flew across the English Channel in 1909, was donated to Palen in 1952 by Bill Champlin of Laconia, N.H. Champlin obtained it from H.H. Coburn, who as a boy had spotted the aeroplane in a junkyard. Apparently, the Bleriot had crashed at an air meet in 1910.

When the aircraft reached Rhinebeck it was approximately 25 percent complete. New wings, a stabilizer, and elevators were built. The front third and rear third of the fuselage are original, and it is powered by a 35 hp Anzani Y-type engine.



Staff photos by Guy Accio



Photo by Paul Kennedy

The maximum altitude at which this Bleriot has flown is about 60 feet. It is the oldest flying aircraft in the United States, according to aerodrome officials.

The air at the Old Rhinebeck Aerodrome smells faintly of burning castor oil and kerosene, and the quiet of the Hudson Valley sets off the unique sounds of vintage aircraft engines. The people themselves, dressed in period clothing—and some sporting handlebar mustaches—could have stepped out of the pages of a history book.



Photo by Paul Kennedy



In 1957, Palen began collecting pieces of a Curtiss "Jenny" JN-4H from a wrecked aircraft. Over the years, more parts were found, including a 180 hp Hispano Suiza Model E engine. In 1969, restoration was completed and the Jenny began flying. It flew until 1998, when it was stripped down for a total restoration. It returned to the sky in 2001. The aerodrome has the only Hispano Suiza-powered Jenny flying in the world today.

Some of the most famous—or, in the case of the Fokker D.VII, infamous—aircraft in the world are displayed at the Old Rheinbeck Aerodrome. These include everything from a Davis D1W and DeHavilland DH.82 Tiger Moth to reproductions of the Chanute Glider and the Wright Flyer.

The aerodrome also features many vintage cars, trucks, and motorcycles along with about 50 impeccably restored aircraft engines.



Palen died in 1993, but the aerodrome lives on as his legacy to lovers of early aviation everywhere.

The four exhibit buildings open in mid-May, and the weekend air shows resume in mid-June. ■

Saddam's Iraq is vicious and nasty, but Tehran may pose an even more formidable challenge.

The Iran Problem

IT IS a Persian Gulf nation whose efforts to acquire Weapons of Mass Destruction have long worried the United States government. For years it has clandestinely supported some of the world's most vicious terrorists, despite repeated protests from much of the Western world. Its ruling regime deprives citizens of basic freedoms. State-controlled media are filled with anti-Israeli diatribes, in part to distract attention away from an economy in free fall.

Iraq? No, Iran.

Even if Saddam Hussein is toppled and replaced by a pro-American regime in Iraq, the United States will still face a large, well-armed adversary in one of the most volatile regions of the world. Twenty-three years after the Iranian hostage crisis, Iran's theocracy remains fully in charge of the country and a fierce opponent of much US foreign policy.

Iran has harbored fugitive al Qaeda members, charge US officials, and is attempting to extend its influence across its border into western Afghanistan. It is working apace on an effort to develop a nuclear weapon—and, unlike Iraq, Iran's program has never been disrupted by UN-sanctioned weapons inspectors. Despite its long, bitter war with Iraq in the 1980s, Iran has criticized US efforts to oust Saddam—perhaps because some in Tehran fear they might be next on Washington's list.

The Real Power

Recently, the Bush Administration pulled the plug on a five-year US effort to work with President

Mohammad Khatami and encourage a reform agenda in Iran. The phrase "moderate Iranian" remains an oxymoron, decided the Bush team, at least when applied to government officials. Real power in the country remains vested in ruling mullahs, who of late have taken to shutting down opposition newspapers and jailing student demonstrators.

"Uncompromising, destructive policies have persisted" in Iran despite the efforts of reformists, said President George W. Bush in a written statement relayed into Iran July 12 on Voice of America radio.

At the same time, Bush offered support to street protestors and other ordinary Iranians who, he said, continue to agitate for freedom. The Iranian people have "no better friend than the United States," he said.

Iran's strategic position in the Middle East is a crossroads of trouble. To its east lies Afghanistan, to its west, Iraq. To the north are Turkmenistan and other unstable nations carved out of the former Soviet Union. To the south, across the Persian Gulf, are Saudi Arabia and the smaller oil states, whose Sunni version of Islam has long been in conflict with Iran's dominant Shiite Muslims.

Iran is big—easily three times Iraq's size, with about three times as many people. Known as Persia until 1935, it is also non-Arab. As such it has traditionally been something of an outsider in the region, different from Egypt, Iraq, Syria, and other regional powers in both ethnicity and religious tradition.

Its status as a Middle Eastern state

By Peter Grier



AP photo/Jerome Delay

that stands somewhat aloof from its neighbors has long made it attractive to the United States and other Western powers as a potential ally. "Potential" is the key word, however. The history of US-Iranian relations has seldom run smoothly.

In 1953, the CIA conspired with Britain to overthrow Iran's elected Prime Minister, Mohammad Mosaddegh, due to worries that he would nationalize Iran's oil industry. In the short run, the coup was successful, but it provided anti-US Iranians with a grievance that would prove highly damaging over the long run. And the man the coup empowered, Shah Mohammad Reza Pahlavi, was no Churchill. He was not even a Sadat. Weak and indecisive, he never quite managed to live up to Washington's idea of a regionally influential leader.

Then came the revolution (1977-79), in which conservative clerics crushed Westernizing liberals and turned Iran into an Islamic state. The hostage crisis caused by the November 1979 seizure of the US Embassy in Tehran by militant students played a large role in the defeat of President Jimmy Carter by Ronald Reagan, who

promised a more muscular foreign policy.

Reagan had his own problems with Iran—namely, the Iran-contra affair, in which the proceeds from arms sales to Tehran were to help fund contra rebels in Nicaragua. In one of the most bizarre episodes in US diplomatic history, American officials arrived in Tehran for secret meetings, proudly bearing a cake baked in the shape of a key. This was meant to symbolize the "opening" of a new relationship with Iranians purportedly more moderate than the nation's ruling mullahs.

Since then, US policy debate concerning Iran has generally centered on whether there truly are moderate factions in the country and, if there are, what kind of a relationship to have with them. Iran is not a dictatorship like Iraq. There are national elections for a president and a unicameral legislature. Ultimate power, however, continues to reside with religious leaders. The chief of state is Leader of the Islamic Revolution Ayatollah Ali Hoseini-Khamenei, who was appointed to his post (for life) by a panel of religious elders.

The current Iranian president may well want to make Iran more democratic and free, but at the present he does not appear to be making any headway.

"The unelected hard-liners have consistently been able to checkmate reformists and maintain hard-line rule," said Zalmay Khalilzad, National Security Council senior director for Southwest Asia, the Near East, and North Africa and special envoy to Afghanistan, in a speech on Iran policy given Aug. 2.

The ruling clerics have shut down more than 70 newspapers in the past year and ordered the arrest of dissident intellectuals and parliamentarians, noted Khalilzad. The former designated successor to the Ayatollah, Ayatollah Montazaeri, remains under house arrest for simply questioning some aspects of clerical rule. Nine women were registered to run for president last year, but none were allowed to do so. Courts continue to place limits on participation by women in public life.

Meanwhile the Iranian economy is dead in the water. Unemployment is nearly 30 percent, according to

US government estimates, with inflation nearing 30 percent. Per capita GNP has been stagnant for years. One out of every four Iranians with a college education works outside the country, according to Khalilzad.

"I admit that there is a sort of hopelessness in our society," said Iranian President Khatami publicly this summer.

It is against this background that President Bush has branded Iran a member of the "axis of evil" and a nation whose foreign policy goals are inimical to the United States.

Administration officials say they are particularly concerned about three things: Iran's continued push for Weapons of Mass Destruction, its support for terrorism in general, and its mixed reaction to US military action in Afghanistan.

"The initial signs of Tehran's cooperation and common cause with us in Afghanistan are being eclipsed by Iranian efforts to undermine US influence there," said Director of Central Intelligence George J. Tenet in Senate testimony earlier this year.

Iran's Military Buildup

In recent years, Iran has been attempting to build up the strength of its conventional military forces. One apparent aim of Iranian commanders: an increase in the ability to project power in its region.

Thus, earlier this year, Iran took delivery of a shipment of North Ko-

rean gunboats that US intelligence believes will be converted into guided-missile warships. Combined with other recent naval and coastal defense acquisitions, which range from Russian Kilo-class submarines to Chinese Silkworm anti-ship missiles, the new boats could help Iran control important sections of the Persian Gulf in a crisis—including the strategic Strait of Hormuz.

Iranian officials also appear to believe that they need to increase the deterrent value of their forces, given Iran's inclusion in President Bush's axis of evil. This September, Iran's defense minister, Rear Adm. Ali Shamkhani, blustered that the United States should think twice before targeting his nation.

"It is with a gigantic support of the ... well-prepared armed forces and our powerful military capabilities that Iran will react to any foreign violation," he told Iran's official news agency IRNA.

Those armed forces have indeed come a long way since the Iran-Iraq war. Epic, World War I-style battles with Saddam destroyed about 60 percent of Iran's heavy land weapons, according to Western estimates.

Today, with a population of more than 65 million to draw from, Iran has about 513,000 men in uniform. Another 200,000 to 350,000 are in the reserves, estimates Center for Strategic and International Studies expert Anthony H. Cordesman.

The army totals around 450,000 men. Of these, about 125,000 are Revolutionary Guards—ideological elite units formed after the fall of the Shah in 1979 to protect Iran's new theocracy. Iran's inventory of main battle tanks stands at roughly 1,100, with 1,200 other armored vehicles and more than 2,500 major artillery weapons.

The army also has about 100 AH-1J attack helicopters, but the readiness of these aircraft is unlikely to be very high.

At one time Iran's air force was one of the most highly capable in the developing world. The Shah's appetite for US fighters was such that before his ouster he considered chipping in to help pay for development of the F/A-18.

Today, Iran has only about 150 aging US-built aircraft left. These include 66 F-4D/Es and 25 F-14-A/Bs, which are about 60 percent serviceable, according to a net assessment drawn up by Cordesman. Iran has long tried to evade the US embargo on parts for these airplanes by purchasing through third parties.

The backbones of the Iranian air force today are 24 Su-24 Fencers and 30 MiG-29 Fulcrums. These Soviet-era aircraft are about 80 percent serviceable, claims Cordesman. If Iran acquires a nuclear weapon, the Fencers could be used as an interim delivery capability, pending perfection of an adequate ballistic missile.

Iranian units also include 14 RF-4E and five P-3F reconnaissance aircraft. The air force has a limited aerial refueling capability. Air defense relies mainly on 100 Hawk missiles from the Shah's era, with a scattering of newer, shorter-range Soviet- and Chinese-made models.

Iran's navy is one of the more capable maritime forces in the region. It has 10 Kaman missile patrol boats and 10 Houdong missile patrol boats—most equipped with C802 anti-ship missiles—along with three missile frigates and two corvettes. Western naval analysts are perhaps most concerned about Iran's five submarines, which given the constricted nature of the waterways in the region could close ship lanes for at least a short period of time.

Iran is currently seeking more modern fighters and surface-to-air missiles, such as the Russian S-300

AP photo/Jerome Delay



The Shahab-3, shown here in a "military week" parade in Tehran, has a range of about 800 miles. Iranian officials speak openly about seeking a missile with longer-range capabilities.

series, claims Cordesman. It has been unable to modernize key capabilities such as airborne sensors, electronic warfare, command and control, and air defense integration.

Overall, "Iran has not ... been able to offset the obsolescence and wear of its overall inventory of armor, ships, and aircraft," Cordesman told the Senate Foreign Relations Committee in August.

The WMD Issue

Iran has for years had an across-the-board program of WMD development. Although it is a party to the Chemical Weapons Convention, it has produced and stockpiled blister, blood, and choking chemical agents, according to US intelligence. It has a biological weapons arsenal and may be able to indigenously produce enough fissile material for a nuclear weapon by late this decade, says a CIA estimate.

Iranian officials have spoken openly of their desire for missiles with a range beyond that of their Shahab-3, which can hit targets up to 800 miles away. The CIA believes Iran may flight-test a missile of intercontinental capability later this decade. The Iranian military has already deployed unmanned aerial vehicles, including some configured for attack, and may be seeking more sophisticated such aircraft to serve as a WMD delivery capability.

Assistance from Russia, China, and North Korea that Administration officials have called "sustained cooperation" may be helping Iran's WMD work along. The US has long pressured Russia to cease its help in constructing Iran's Bushehr nuclear power plant, for instance, with little success.

The Bushehr plant was begun in 1974 with German help and was bombed three times by Iraq during the Iran-Iraq war of the mid-1980s. Iran says it needs electricity from the plant to bolster its energy production. But Administration officials say that is unlikely. They point out that Iran, a major producer of natural gas, is already venting into the atmosphere gas that could produce three times as much energy as a Bushehr-sized reactor.

"What's going on is Iranian recognition that possessing the Bushehr reactor will allow them to argue to have all of the other bits and pieces of



Iran has about 25 F-14s dating from the Shah's reign. Third-party purchasing has helped keep some of the Iranian fleet in service, despite the US embargo on replacement parts.

a domestic nuclear infrastructure that ostensibly is designed to support the civil power plant but in reality, we feel, is designed to support nuclear weapons ambitions," said Marshall Billingslea, principal deputy assistant defense secretary for special operations and low-intensity conflict, at a Senate hearing this summer.

Why Be Surprised?

Nor should the world be sanguine that it still has a few years to head off Iran's nuclear program. Too often predictions of possible proliferation have turned out to be too optimistic, Billingslea told Senators. For instance, after the first Gulf War, US investigators were shocked to discover that Saddam had been but one year from completing his own atomic weapon.

"We keep allowing ourselves [to be] surprised," said Billingslea. "We shouldn't do that."

The US concern about Iran's weapons programs is heightened by the regime's continued support for terrorism. In fact, it is arguably Tehran—not Baghdad—that is the terror capital of the Middle East. The US State Department has judged Iran the world's most active state sponsor of terrorist acts, with both Iran's Islamic Revolutionary Guard Corps and Ministry of Intelligence and Security providing planning, funds, and weapons.

"Although some within Iran would

like to end this support, hard-liners who hold the reins of power continue to thwart any efforts to moderate these policies," said the most recent edition of the State Department's "Patterns of Global Terrorism."

Iraq's primary contribution to anti-Israeli terror groups, for instance, has taken the form of cash payments to the families of Palestinian suicide bombers. Iran's support has been far more substantial. It spends an estimated \$100 million a year on Hezbollah and may even have dispatched Iranian Revolutionary Guards to help operate some of the group's heavy weaponry in Lebanon. Tehran has intensified support of Palestinian rejectionist groups since the beginning of the latest round of Israeli-Palestinian violence, to the point where it dispatched explosives and weapons to the Palestinian Authority forces aboard the *Karine A* freighter, which was seized by Israeli authorities. Anti-Israeli rhetoric from Iran's ruling mullahs is virulent: Supreme Leader Khamenei refers to Israel as a "cancerous tumor" that must be cut out.

Iran has also provided limited support to terrorist groups in the Gulf, Africa, Turkey, and Central Asia, according to the State Department. And there are still unresolved questions of Iranian complicity in the 1996 bombing of the US barracks at the Khobar Towers in Saudi Arabia.



Iran officially supports Afghan President Hamid Karzai but has used its irregular forces in Afghanistan without Karzai's knowledge or consent. Above, Revolutionary Guard troops near the Iran-Afghanistan border.

"The Iranian regime's support for terrorist activities—which have killed at least hundreds of thousands of innocent civilians, including Americans—is inconsistent with the desire of the Iranian people for Iran to fully join the community of nations," said Khalilzad in his August speech.

The US did see some positive developments in Iran's international behavior during Operation Enduring Freedom. At the beginning of hostilities in Afghanistan, Iranian officials quietly informed the US that if American warplanes happened to go down in Iranian territory their crews would be assisted in accordance with international conventions. As a committed foe of the Taliban, Tehran pledged to close its borders to al Qaeda attempting to flee over the Iranian border. Iran also worked with the US and its allies at the Bonn conference in late 2001 to help set up the Afghan Interim Authority.

Aiding al Qaeda

But later actions didn't match Iran's words. Hard-line elements in Iran in fact helped al Qaeda terrorists escape. For months, as Taliban resistance crumbled, the Iranian government did nothing to arrest and extradite al Qaeda, according to US officials. Instead, it insisted that no terrorists from Afghanistan were finding their way into Iranian territory at all.

Only after repeated complaints from President Bush and other US officials did Tehran admit that there was an al Qaeda presence in Iran. Finally, it extradited some suspects in custody to their country of origin and Afghanistan.

Iran has said it supports Afghan President Hamid Karzai's government. But it has also sent forces associated with its Revolutionary Guards over the border into Afghanistan and appears to be supporting some regional leaders without Karzai's knowledge or consent.

"While Iran's officials express a shared interest in a stable government in Afghanistan, its security forces appear bent on countering the US presence," said Tenet earlier this year. "This seeming contradiction in behavior reflects deep-seated suspicions among Tehran's clerics that the United States is committed to encircling and overthrowing them."

US military operations in Iraq could well exacerbate increased tension in the US-Iranian relationship.

On the one hand Iran is, if anything, a more bitter foe of Saddam Hussein than is the US. The Iran-Iraq war of 1980 to 1988 was a gruesome conflict more akin to World War I trench warfare than modern

battles. Both sides suffered hundreds of thousands of casualties. Iranian troops were attacked with Iraqi chemical weapons.

Iran has sheltered anti-Iraq dissident groups, including some that might participate in the formation of a post-Saddam government, according to Washington's plans. And it has actively fostered and funded one such organization—the Supreme Council for the Islamic Revolution in Iraq, an umbrella group for fundamentalist Shiites, drawn from Iraq's south, who oppose Saddam's rule.

On the other hand, Iran remains bitter that much of the world leaned toward Iraq during their mid-80s conflict. The United States certainly did. And Tehran may well fear that once Saddam is out of the way, the Bush Administration may turn its eyes on them. Iranian Foreign Minister Kamal Kharrazi said in September that while his nation would respect any UN resolutions dealing with the Iraqi situation, it would not participate in any war. Unilateral US action to oust Saddam, Kharrazi said, would set a "dangerous" precedent.

US officials have been publicly mum on whether they would try to topple the government of another evil axis member if their efforts in Iraq prove successful. Iran—with a relatively modern military and a complex, multilayered government and civil society—would be much more difficult than Iraq to change by force.

Instead, the bottom line of the US policy change toward Iran announced this year appears to be that the Bush Administration has given up on President Khatami as ineffectual and thus has given up on efforts to influence Iran from within. Instead, President Bush appeared to be offering his support to grassroots groups, such as student dissidents, as they push for change from outside Iran's existing systems.

After all, the support Bush offered in his statement broadcast into the country was not directed to chimerical government moderates but to the Iranian people themselves, as they "move towards a future defined by greater freedom." ■

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The merging of Navy and Marine Corps aviation will have a dramatic impact on the cultures of both services.

Air Wings

By Otto Kreisher

THE Navy and the Marine Corps have embarked on an unprecedented integration of their fighter squadrons, a move that will affect the size and the operations of the tactical aviation forces of both services.

It also will force dramatic changes in the cultures of the two services' air units. Marines face the greatest impact since, historically, they have considered their air arm an integral part of their ground combat forces. Half of the Marine Corps' fighter-attack aircraft will be under direct Navy control as part of carrier air wings, instead of under Marine command in the traditional air-ground team.

"It's the most ridiculous thing I've ever heard," said Norman Polmar, a military scholar and author of a history of carrier aviation. "If you integrate, what's the need for Marine air?"

"The reason for Marine air is to support the grunts [infantry]," Polmar said. "If you start to put them together [with the Navy], you lose the uniqueness of the Marine air."

"It really will change the culture of the Corps," said Col. Scott Doyle, a veteran Marine pilot.

But Doyle conceded, "To be able to afford the air forces we need, we have to do it."

Senior Navy and Marine leaders acknowledge that integration is driven mainly by money, particularly the approaching massive bud-



get "bow wave" for tactical aircraft.

Adm. Vern E. Clark, the Chief of Naval Operations, told a recent Naval Institute symposium that integrating Navy and Marine Corps tactical air will produce substantial savings.

Cannot Survive Independently

Marine Lt. Gen. Michael A. Hough, the new deputy commandant for aviation, told the same gathering that with the looming procurement bow



Built for Two



US Navy photo by PHCM Terry Cosgrove



The planned integration of Navy and Marine Corps air elements will affect future aircraft procurement. The Navy plans to reduce purchases of the F-35 Joint Strike Fighter (far left) by 400 airplanes and F/A-18E/F Super Hornet (above) by about 188. The Marine AV-8B Harrier (left) will eventually be replaced by F-35s.

wave "there is no way for the Navy and the Marine Corps to survive independently."

Although Marine tactical air pilots qualify in carrier landings during initial flight training and have flown off carriers regularly since 1931, most of their fighter and attack squadrons fly from land bases. And when they did operate from the sea during World War II and the Korean War, it was mainly as Marine air groups on separate carriers.

But that will change under integration.

Budget constraints and force reductions already had forced a partial tacair integration in 1997, when four Marine F/A-18 Hornet squadrons started making regular deployments with four of the Navy's 10 carrier air wings.

That trend will accelerate under a memorandum of understanding signed Aug. 14 by Navy Secretary Gordon R. England, Clark, and Gen. James L. Jones, Marine Corps Commandant, directing near total integration of their tactical aviation.

Many of the details of that integration emerged in an agreement signed shortly thereafter by Vice Adm. Dennis V. McGinn, deputy chief of naval operations for warfare requirements and programs, and Marine Gen. William L. Nyland, then deputy commandant for aviation.

That agreement said integration was a response to Defense Secretary Donald H. Rumsfeld's mandate in

the 2001 Defense Planning Guidance to seek reductions in future procurement and operating costs.

Encouraged by the findings of a subsequent consultant's study, the agreement said: "The Navy and the Marine Corps will integrate tactical aircraft (tacair) forces ... into a seamless naval aviation force at sea and ashore."

"We are pledged to change both Navy and Marine Corps 'culture' in order to derive the maximum benefit possible from integration," England and the two service leaders said in their August memo.

While Marines feel their culture will be affected the most, the Navy also will have to make some adjustments. For example, Navy aviators are used to the creature comforts of a carrier or a formal air base. But Marine expeditionary air units frequently live in tents, work on their aircraft in the open, and eat packaged combat rations.

The Shake Out

Under the agreement, four more Marine F/A-18 squadrons will join Navy carrier air wings within five years.

In that same period, the Navy will put three Hornet squadrons into Marine aircraft wings to support the unit deployment program. That program normally sends squadrons to Japan for six months but also can handle contingency deployments.

And the Navy will decommission

one of its 26 operational F/A-18 squadrons.

The Navy also has 10 F-14 Tomcat squadrons, most of which are being transitioned into the new Super Hornet models of the F/A-18.

Meanwhile, starting in 2004, the Navy and Marine Hornet squadrons in the carrier air wings will cut their authorized aircraft from 12 to 10. With four fighter-attack squadrons per carrier air wing, that would mean a reduction of eight strike aircraft on the carriers.

The squadrons from both services in the land-based unit deployment cycle will keep 12 aircraft. And the seven Marine AV-8B Harrier squadrons will retain 16 of the Vertical/Short Takeoff and Landing Harriers, pending a future budget review.

In the next step, two more Marine Hornet squadrons will become part of the final two carrier air wings. They will replace two Navy F/A-18 squadrons that will be disbanded.

With three Navy squadrons and no Marine units being decommissioned, Rear Adm. Mark P. Fitzgerald, deputy director of air warfare on the Navy staff, said, "We will give up some capability to the Marines."

But the integration would leave only four Marine Hornet squadrons outside the Navy's carrier force.

The timing of those moves is to be determined.

The plan also calls for each service to decommission one of its reserve Hornet squadrons in 2004. One of the three remaining Marine Reserve F/A-18 squadrons will join the two surviving Navy units in the reserve carrier air wing.

In 2006, the reserve squadrons also will drop to 10 aircraft each.

Nothing in the integration plan so far affects the EA-6B electronic jammer aircraft that both the Navy and Marines fly in support of joint and combined air strike missions.

According to the agreement, the Navy "will satisfy both Navy and Marine Corps commitments with Navy or Marine Corps squadrons." It added that there will be a change of operational control for Navy squadrons tasked to cover Marine Corps commitments (and vice versa) about six to nine months prior to a deployment.

As part of the merger, Clark said, a Marine colonel will replace a Navy captain as a carrier air wing commander in about two years. And

US Navy photo by PH1 Jim Hampshire



Marine aviators long have had to qualify for carrier landings. In 1997, four Marine Hornet squadrons began making regular deployments with four of the Navy's carrier wings. An additional four squadrons will do so after integration.



The Navy's venerable F-14 Tomcat has been through many upgrades since it entered service in 1973. Most of the Navy's 10 Tomcat squadrons are swapping their beloved F-14s for F/A-18E/F Super Hornets.

Hough predicted that in the future a Navy captain will command a Marine expeditionary air group, instead of a Marine colonel.

Not Just Economics

Although integration was inspired primarily by economics, officials insist it will result in a more effective and lethal tactical aviation force.

"Not only are we going to save billions of dollars," Clark said, "but because we are going to integrate across the old stovepipe lines, every measure in the [consultant's] study—every measure evaluating warfighting capability—increased under the integration concept."

By removing the traditional barriers between Navy and Marine air, he said, they will be able to "surge resources" into whatever mission needs help.

"That's why the net effect of this is increased warfighting capability at a dramatic reduction in cost," the CNO said.

Vice Adm. Michael G. Mullen, deputy CNO for resources, requirements, and assessments, said the naval services can have "a significantly more capable force" with fewer aircraft because of the great increase in combat capability of the current and next generation of tactical aircraft when armed with precision munitions.

"Ten years ago, we had to calculate how many sorties per target," Mullen said. "In Afghanistan, it was how many targets we could hit per sortie."

Hough contrasted the current one-bomb, one-kill strike capability with his experience flying F-4 Phantoms in Vietnam, "We had to put up 16 airplanes in the hope of hitting the planet."

The F-35 Joint Strike Fighter will provide even more precision attack capability, officials said.

The F-35 and the new Super Hornet, which the Navy has begun deploying, also are expected to be more reliable and easier to maintain, said naval officials.

"It isn't how many strike aircraft are on a given platform," Mullen said. "In the end, it is how many sorties a day I can generate out of that aircraft." If an air wing can turn its aircraft around two or three a day, he said, "I don't need as many of them."

Cutting Fighters

Based on those efficiency expect-

The Two Versions

The F/A-18 Current Operational Force

(The number of aircraft per squadron appears in parentheses)

	Squadrons	Total Aircraft
Navy	26 (12)	312
Marine Corps	14 (12)	168
Total	40	480

How That Gets Trimmed Under the Integration Plan

(The number of aircraft per squadron appears in parentheses)

	Squadrons	Carrier-Based Squadrons	Land-Based Squadrons	Total Aircraft
Navy	23	20 (10)	3 (12)	236
Marine Corps	14	10 (10)	4 (12)	148
Total	37	30	7	384





The Marine Corps had planned to only buy the F-35 STOVL version (shown here). Tacair integration will force the service to buy enough carrier-model Joint Strike Fighters to equip 10 squadrons.

tations and the reductions called for in the integration plan, the Navy Department has decided to cut its planned procurement of the F/A-18E/F Super Hornet and F-35 by more than one-third.

The Navy plans to reduce its Super Hornet buy from 648 to 460 and complete the procurement before it starts buying large numbers of F-35s at the end of the decade.

According to one report, the Marines will cut their F-35 buy from 609 to 350, and the Navy will drop from 480 to 430. That would mean a total cut of 309. However, England told the *Fort Worth Star-Telegram* his department would buy a total of 400 fewer Joint Strike Fighters.

There is little concern at the Pentagon that such a large reduction would increase unit cost. In fact, Edward C. Aldridge, the undersecretary of defense for acquisition, technology, and logistics, said that cuts in the JSF buy should not affect the unit price because of the large number of F-35s that other nations are expected to purchase.

Still at issue within the integration plan is just what mix of F-35s—the carrier version vs. the Short Take-off and Vertical Landing model—the two services will buy.

The Marines had wanted to buy only the STOVL aircraft to replace both their conventional F/A-18 Hornets and their jump jet AV-8B Harriers. The F-35 STOVL version would have given them a strike aircraft that

could fly either from the large-deck amphibious assault ships, austere expeditionary bases, or prepared airfields.

The Navy, however, had planned to replace its oldest Hornets by buying only the carrier-version F-35, which will have greater range than the STOVL aircraft.

Now it looks as if the Marines will have to get enough of the carrier model F-35s to equip their 10 squadrons in the Navy air wings. And the Navy may buy enough STOVL aircraft to supply its three squadrons serving with the Marine air groups.

“Right now, we are planning to have conventional Navy carrier airplanes on our [carriers],” England said. “But we will have Marines flying those airplanes.”

Hough said STOVL F-35s will replace the Marine Harriers, but what replaces the Hornets has yet to be decided.

The Culture Issue

Despite promises of increased combat effectiveness, there are concerns about both the emotional and the practical effects of integration on the Marines.

The Marines’ view of their air arm is unique. Although the vital role of aviation in World War II’s Pacific campaigns forced the Navy to acknowledge the aircraft carrier, instead of the battleship, as its premier warship, the Marine Corps remains an infantry-centric service.

An aviator has never been Marine Commandant, and the odds of that changing are slim.

All newly commissioned Marine officers, whether they are to become pilots, engineers, or grunts, go through The Basic School at Quantico, Va., where they are trained as infantry leaders. That training can come in handy later because Marine pilots often serve at the front with infantry units as forward air controllers and, at times, have had to fight like a grunt.

Despite their dominant role in the Marine Corps, the ground Marines



An AV-8B launches from the flight deck of USS Bataan. Each of the seven Marine Harrier squadrons will retain 16 Harriers, pending a future budget review.

US Navy photo by PH3 John Taucher

have a fondness for their fliers that developed early in the evolution of military aviation.

Marine aviators in bi-wing airplanes first earned that affection during the "Banana Wars" in the 1920s and '30s by flying supplies in and evacuating casualties from isolated infantry units in the jungles of Haiti, Dominican Republic, and Nicaragua. In those small but intense conflicts, Marine fliers also tested the concept of close air support at treetop levels, which they perfected during the island-hopping campaigns in World War II.

The Marines also developed a deep skepticism about counting on air support from other services. That may have started at Guadalcanal in 1942, when the Navy carriers fled the superior Japanese fleet, leaving outnumbered Marine aircraft ashore at Henderson Field to support the grunts in desperate battles for survival.

The value of the Marine close air support was proven again in Korea, when F4U Corsairs helped the grunts defend the Pusan perimeter, go on the offense at Inchon, and then survive the fighting withdrawal from the Chosin Reservoir.

Dependable air support is crucial to the Marines because their amphibious or expeditionary nature means they have much less heavy artillery than a comparable Army unit. To ground commanders, Marine tacair is their "flying artillery," and they have learned to depend on it when things get ugly.

As proof of that dependence, the Marines deploy and fight in organizations of various sizes called Marine Air-Ground Task Forces. Each MAGTF combines a ground force, an air arm—which can include transport and attack helicopters and fixed-wing tactical aircraft—and a combat support unit, almost always under command of an infantry officer.

Because of the need for the flying artillery, the Marine commander in Desert Storm, then-Lt. Gen. Walter E. Boomer, pulled most of the Marine Corps' fighter and attack squadrons out of the Air Force-run strategic air campaign into Iraq, so they



US Navy photo by PHAN Konstandinos Goumenidis

Navy and Marine Corps Hornet squadrons in carrier air wings will, in 2004, cut their authorized aircraft from 12 to 10. The reduction means eight fewer strike aircraft per carrier.

could focus on pounding the enemy divisions awaiting his ground forces in Kuwait.

Doyle noted that after integration, a MAGTF commander could not do that because most of the Marine tactical air would be under Navy control.

In Polmar's view, "If you put the Marines under the Navy, there'll be no one to support the grunts."

But senior Navy and Marine officers reject the idea that integration will leave the Marine ground forces without air cover.

Gen. Michael W. Hagee, confirmed Oct. 17 to be the new Marine Commandant, told the Senate Armed Services Committee at his confirmation hearing that after integration "naval aviation forces will surge to support Marine and joint ground forces alike."

Hagee added, "This point cannot be emphasized enough—Marine Air-Ground Task Forces are not losing airpower."

Retired Adm. Leighton W. "Snuffy" Smith Jr., a Navy attack pilot who flew hundreds of combat missions in Vietnam, said: "If the Marines need help, the Navy's going to be there."

Smith noted that he led air strikes into North Vietnam that included Marine F-4s, so "I know you can

integrate Navy and Marine air on a carrier and it will work."

Maj. Gen. James N. Mattis, who led the first Marine Corps force into Afghanistan, said: "I never doubted that the admiral would have the airplanes over my head when I needed them," referring to Rear Adm. Thomas E. Zelibor, who commanded the carrier battle groups at the start of Operation Enduring Freedom.

"It was the first time in my career I left my artillery behind. ... I was able to do it because of the trust that the naval air, Marine air, would be overhead," Mattis said.

And Navy Capt. William Gortney, who led Carrier Air Wing 7 in Enduring Freedom missions, said his Navy fighters "just spent four-and-a-half months, 24 hours a day, providing airborne artillery for the troops in Afghanistan."

A number of the officials noted that precision munitions, which can provide great accuracy from 15,000 feet, have changed the nature of close air support.

The old Marine idea of close air support—"some guy down there at 50 feet, shooting at some guy 1,000 feet away—those days are gone," Hough said. "We do close air support from 30 miles."

To Mullen, who has to balance requirements and budgets, integration means "I am going to have a more combat-capable force. And I am going to have one I can actually afford." ■

Otto Kreisher is a Washington, D.C.-based military affairs reporter for Copley News Service and a regular contributor to Air Force Magazine. His most recent article, "Top Chief," appeared in the October 2002 issue.

Lt. Gen. Ronald Kadish, USAF, head of US missile defense efforts, says the program is making rapid progress.

The Emerging SHIELD

Lt. Gen. Ronald T. Kadish, USAF, is director of the Missile Defense Agency, the DOD organization that oversees all ballistic and cruise missile defense efforts. On Oct. 31, he met with members of the Defense Writers Group in Washington, D.C. What follows are excerpts from that discussion.

Defense Against Iraqi Missiles

"As of today, ... we now have a measurable number of [Patriot-3] missiles that are very capable using hit-to-kill technology to take on that type of threat that the Scud represents. ... We still don't have as much in the magazines as I'd like, [but what] we have is a quantum change from what we had in the Gulf War. ...

"We improved the Patriot-2 as well. ... It has the glass fragmentation capability against Scuds. So we have that capability.

"And then you add to that the confidence we have in the Arrow system that the Israelis built in close cooperation with us, and we have the Arrow system deployed in Israel to protect that particular country. ...

"So, it [today's situation] is about as different as you can imagine from the time when we had actually zero capability in the Gulf War and we put some emergency capability in. ... I think it will be very effective."

Speeding Up Patriot-3 for War

"We have pretty much completed our original developmental testing regime for Patriot-3 and we entered into some operational testing during this past year, and we had a couple problems. But fundamentally we are completing the development of Patriot-3. ... We produced ... close to 40 missiles, already in the pipeline.

"So the missile's capability is pretty well-documented. ... There are some things we want to go do and improve on that, but fundamentally, we have a lot of confidence that Patriot will perform the mission of missile defense for the regime it was designed for. ... We've got to buy them as rapidly as we can afford to buy them."

Future of the Airborne Laser

"This is crunch time for the ABL. ... All the hardware

is getting delivered, and when hardware gets delivered, there are all of the inevitable problems [with] things not working as expected. I think over the next year, we'll learn an awful lot about the ABL program and its schedule. ...

"We are still assessing—or, at least, I am—the third quarter calendar year '04 as being the [first missile] shutdown time frame. I don't think we can pin that down specifically with as much certainty as I'd like until we get through next spring with the efforts at putting the airplane together at Edwards [AFB, Calif.]."

Issues Concerning ABL Development

"Stuffing all those things in the back end of the airplane causes a weight problem. Basically, the problem we have with the Airborne Laser is not that it is carrying too much stuff, but in one part of the airplane, it has too much weight. Just in one part of it ... in the back end, where the laser module is. ... I am confident we will eventually figure out how to solve that problem."

Critical ABL Milestones Coming Up

"This spring is the 'first light'—that is, when we hook up all the [ABL] modules and the plumbing and the optics in the integration airframe we have on the ground, and then run the full end-to-end test to make sure that the mission equipment works and produces photons. And then once that happens, then we take that configuration and put it in the airplane and start flight-testing."

Space Based Laser De-emphasized

"Today, in our priority scheme, Space Based Laser is a technology effort—a very promising technology effort, but a technology effort. ... We no longer have a program office for Space Based Laser. We are consolidating that effort and we will do technology as aggressively as we can, but it won't be focused on putting an experiment in space in the near term."

Key Developments Affecting SBL

"We've been at Space Based Laser for a lot of years, for a good reason—because space basing of missile

defense capability solves a lot of the geography problem that we face. However, two things have entered into the equation. ...

"The first one is that, given the threats we are facing today, the geography problem is difficult, but not as difficult as it was when we were looking at ... the old Soviet Union and so forth. Space basing of this capability can be looked at as a later improvement, as opposed to a near-term imperative that we actually do it soon.

"The second issue is that it is hard to do laser technology, in and of itself. ...

"As we looked at our priorities and the difficulties of Space Based Laser activity, we decided collectively with the Congress that we should put it at the technology stage."

Russia, China Response to ABM Treaty Demise

"Our efforts in missile defense today are not directed at the Russians and the Chinese. We are aggressively pursuing the proliferating states that go beyond that. That is a different problem in terms of the history of missile defense, if you will.

"If you ask me, 'Have things changed in that domain after the treaty?' My answer is, 'I see no change.' In fact, I see that this process is ongoing and unchanged regardless of the treaty. It was going on before the treaty. It is going on after the treaty in terms of proliferation issues."

The Problem of Rogue States

"The problems that we worry about in missile defense are oriented to those states that are emerging as threats, not in the established traditional 'enemies' that we started thinking about once. I think people really need to change their thinking. It is not about the Soviet Union. It is about North Korea. It is about Iran. It is about Iraq. It is about Libya. And other states that might threaten us in the process. The treaty between the old Soviet Union and the Russian Federation and the United States didn't apply to those guys. Therefore, life has not changed in that sense. ... From an ability to deal with that threat, life has changed a lot. [We now have the] ability to use many different types of technologies and things that we were restricted from using."

US Ground-Based Interceptor Program

"We have been progressing pretty well in our ground-based program against longer-range missiles. We had the flight test a couple weeks ago that was the fourth in a row in terms of success. Now we are at a point where we need to expand the testing envelope of that system, and that is why the test bed in Alaska as well as the greater Pacific area is so important to us to build.

"We are well on our way to building that test bed. With the approval of our budgets in Fiscal Year '03, it gives us a pretty good start in our management structure to get this thing done by the end of '04."

Importance of the Test Bed

"This test bed will provide pretty good indication of how well our systems work from the ground-based side and eventually, hopefully, in the boost [phase]. And it is near term. It will be done at the end of '04-'05 time frame, depending on how well we can execute the program."

Usefulness of the Limited Test Bed

"Once the test bed is in place, there will be some amount of capability—because of its location—to handle any threats from North Korea that might arise, but it will be extremely limited.

"Our test bed will have five missiles in it. You can do the math. ... Over the past two years, we have convinced ourselves, through some very difficult testing, that the basic technology is going to work. ... There will be residual capability, if you want to call it that, or operational capability, just because you have the things where they are and they are hooked up to do testing. So if a decision is made to turn that into an operational system, as limited as it might be, then we will be able to do that. ... Along the way, if we get threatened by North Korea, I think the American people would understand that we wouldn't sit by with five missiles in a hole and do nothing."

What Kind of Architecture?

"We don't want to postulate a grand design in the year 20XX and spend any amount of time and money building that grand design, even if we have confidence in the technology. That is, I think, the wrong way to approach an unprecedented development in missile defenses.

"A better way to do this is the track we are on right now to make sure we understand what capability we can produce in a given time frame based on our technical progress and then offer to the decision-makers some options as to what to do with that technology from an operational perspective."

The Problem of Countermeasures

"The countermeasure problem is always going to be with us. It is inherent in any military system and certainly in any defensive system. The midcourse countermeasure problem, however, is different than the boost-phase countermeasure problem, [and] that is different from the terminal-phase countermeasure problem.

"The biggest change that we had in [dealing with] the countermeasure issue is thinking and designing and re-searching a layered defense system. So if you have more than one layer, in other words, not only just the midcourse layer, you have a boost phase and/or a terminal phase, primarily boost phase, then you have a much more effective system than if you had only one layer. That is just plain math."

Midcourse Countermeasures

"In terms of the countermeasure issue in the midcourse—which has gotten all the attention over the years—we continue to gain a lot of confidence in our ability to handle the [problem]. ... And it will evolve through a lot more testing, some interesting technology, and more capability in our kill vehicles and sensors. We plan to test that. We are entering the stage of walk before we run, but we are walking a lot faster now in the process."

The Danger Will Persist

"I will state, very clearly, no system is perfect. And you should not expect any missile defense system that we put together to be perfect. But, ... if we can save one American city vs. none, that is a better thing for this country." ■

By Frances McKenney, Assistant Managing Editor

Region and State Presidents Receive Orientation

The Air Force Association's region presidents and state presidents gathered at AFA headquarters in Arlington, Va., for their annual orientation in October. The two days of information sessions and training prepared them for their duties in the coming year.

In his opening remarks, John J. Politi, AFA Chairman of the Board, spoke about leadership, encouraging the 13 region and 31 state leaders who attended the meeting to set the tone, set the pace, and set the direction for their organizations. AFA has four new region presidents and 18 new state presidents.

The Government Relations team was among the AFA departments that briefed the field leaders on its functions and services. AFA is but one of 15,000 associations and non-profits in Washington, D.C., competing for the attention of Congress, said Kenneth Goss, department head. "We get access because of the field work you do," he said. He reminded the audience to develop contacts not only with their Capitol Hill representatives but also with staffers on the Hill and in their local offices.

AFA is unique among military associations, Goss said, because it covers the full spectrum of Air Force-related issues and serves as an advocate for the widest range of constituents—from cadets to active duty to reservists to retirees and veterans.

Board Chairman Politi presented AFA's strategic plan, as the orientation continued the next day. He covered its content, how it is to be deployed, and the role the region and state presidents have in that process. Breakout meetings and a final joint planning session at the end of the day completed the orientation.

Tribute to LeRoy Homer Jr.

In October, the Lt. Col. B.D. "Buzz" Wagner (Pa.) Chapter and the Pennsylvania State AFA held a tribute to

Air Force Reserve Command Maj. LeRoy W. Homer Jr. at the temporary memorial in Shanksville, Pa., that honors the victims of United Airlines Flight 93.

Homer was first officer on the airliner that crashed in a field near Shanksville after passengers resisted terrorists who hijacked the 757 last Sept. 11.

Homer lived in Marlton, N.J., and was a member of the **Thomas B. McGuire Jr. (N.J.) Chapter**. A 1987 Air Force Academy graduate, he flew C-141s from McGuire AFB, N.J., and served in Desert Storm. In 1993, he was named 21st Air Force Aircrew Instructor of the Year. After leaving active duty two years later, he became a Reserve instructor pilot with the 356th Airlift Squadron, Wright-Patterson AFB, Ohio, and most recently had been an Air Force Academy liaison officer, recruiting potential cadets.

The temporary memorial, located near the crash site, is a section of chain-link fence topped with American flags and covered with mementos from visitors.

At the AFA ceremony, Robert C. Rutledge, national director for the Northeast Region, and David L. DuBarr, Pennsylvania state vice president, attached an AFA Citation to the memorial. It was awarded in Homer's memory by the Wagner Chapter and the state AFA.

Next to the citation, Rutledge and James M. Kirkstadt, Wagner Chapter treasurer, attached an AFA ball cap given in Homer's name by the McGuire Chapter.

A TV station from Johnstown, Pa., covered the event, which was also attended by members of the **Joe Walker-Mon Valley (Pa.) Chapter**.

National POW/MIA Day

Retired USAF Col. Jerry D. Driscoll, from the **Gen. E.W. Rawlings (Minn.) Chapter**, was keynote speaker at a ceremony in Minneapolis on Sept. 20, marking National POW/MIA Recognition Day.

Driscoll graduated from the Air Force Academy in 1963. On April 24,

1966, he was a first lieutenant, flying an F-105 from Korat AB, Thailand, headed for a highway-railroad bridge north of Hanoi. It was his 112th combat mission, his 81st over North Vietnam. Anti-aircraft fire struck the aircraft's tail, causing it to catch on fire. He ejected and was captured and spent seven years as a POW.

In his remarks at the POW/MIA ceremony, he spoke about the religious faith of those in captivity and how they held services "every single Sunday."

He also described the day of his release. Driscoll was in the first group of POWs repatriated in Operation Homecoming on Feb. 12, 1973. He said that when he walked up to the C-141 and saw the American flag on its fuselage, "I knew what freedom meant to me." Driscoll retired from USAF in 1987.

The Minneapolis ceremony was held near the state capitol, at the Court of Honor, where a curved granite wall contains plaques listing Minnesotans who died in US wars.

ANG Maj. Gen. Eugene R. Andreotti, the state's adjutant general and also a chapter member, made the opening remarks. Chapter member Richard L. Carroll was among five representatives who presented wreaths.

Chapter officers in the audience were Lt. Col. Mariano C. Campos Jr., chapter president; Clayton Pyle, Vice President, veterans affairs; and Katherine DuGarm, VP, communications.

Air Force, Army, and Navy ROTC cadets from the University of Minnesota and AFROTC cadets from the University of St. Thomas served as a color guard. After the ceremony, cadets from the two AFROTC detachments held a 24-hour vigil in honor of Prisoners of War and those Missing in Action.

Observed on the third Friday of September, National POW/MIA Recognition Day has been held since 1979.

Lessons in Maintenance

The **Central Maryland Chapter** helped a group of Civil Air Patrol

cadets learn some basics in general aircraft maintenance, last summer.

"Aerospace Education Foundation funding made it happen," said Robert J. Hawkins, VP of the Central Maryland Chapter.

Twenty-six cadets from around the US gathered at Ft. Pickett, Va., for two weeks in July for a National Flight Academy—Power. The CAP cadet activity included flying lessons, ground instruction, and aviation-related field trips. The academies were held in various states, but only Virginia's offered training in aircraft maintenance.

A certified flight instructor and airframe and power plant mechanic, Hawkins began teaching aviation maintenance to middle school and high school students in May. He held the classes at an airpark in Gaithersburg, Md. They were funded by an AEF chapter matching grant and donations from the **Thomas W. Anthony Chapter**, the **Baltimore Chapter**, and the state AFA. Some of those funds were earmarked for the CAP event this July.

At the summer CAP academy, Hawkins guided the cadets in changing the oil and filters on four small aircraft and carrying out general inspections and minor maintenance. Their biggest project was removing and rebuilding the nose wheel of a Cessna.

Hawkins works in information technology at the Canadian Embassy in Washington, D.C., and was a radar specialist during his USAF years.

He said Gerald V. West of the **Cape Fear (N.C.) Chapter** was among those who visited the CAP academy because they want to develop a similar maintenance course in their own states. Hawkins said the visitors were especially impressed by the maintenance manual he put together. It is geared to youngsters and was originally to be printed with AEF funds. Hawkins said the printer became so enthusiastic about the idea of training youngsters in aviation maintenance that he printed the manuals for free.

OEF Update

Columbia Palmetto (S.C.) Chapter members heard an update on Operation Enduring Freedom from the 20th Fighter Wing commander, who had just returned to Shaw AFB, S.C., from Southwest Asia.

Col. William J. Rew brought video footage of smart bombs hitting their targets and showed slides of troops and the terrain. This gave the chapter members a feel for how desolate and mountainous some areas were and how difficult it was to land air-



Photos by Susan Kennedy



At the region and state presidents orientation, AFA Chairman of the Board John Politi (top, right) goes over some ideas with Rocky Mountain Region President Craig Allen (left) and Joseph Sutter, who helped run one of the meetings. Listening to a presentation on AFA's strategic plans are (l-r) AFA National President Stephen Condon, Midwest Region President Keith Sawyer, and Illinois State President Frank Gustine.

craft, said Philip Wayne Corbett, chapter VP.

Rew's slides included views of the area where combat controller TSgt. John A. Chapman and pararescue jumper SrA. Jason D. Cunningham were killed during Operation Anaconda in March.

Rew wrapped up his presentation by talking about the wing's homeland defense role in Operation Noble Eagle. The wing presently includes four F-16CJ squadrons.

AFA leaders at the quarterly meeting held at Ft. Jackson, S.C., were Stanley V. Hood, national director;

Roger Rucker, then state president; and John Marshall, chapter president.

Convention in New Hampshire

The first state Teacher of the Year award for New Hampshire was presented at the state's convention in Manchester, N.H., in late September.

Keynote speaker Jack C. Price, then AEF Chairman of the Board, and Eric P. Taylor, state president, presented the award to Dan Caron during the convention's awards program. Caron is a technology educa-

tion teacher at Kingswood Regional High School in Wolfeboro, N.H. His students have sent vegetable and flower seeds into space on the space shuttle *Endeavour* to study the effect of the space environment on subsequent generations of seeds. Other projects have included a radio astronomy program to observe the Sun and Jupiter.

Among other convention awards, Norman J. Fortier of the **Pease (N.H.) Chapter** received a New Hampshire Governor's Citation. He is a World War II ace, with 5.8 aerial victory credits achieved between March and July 1944. At the time, he was a first lieutenant and captain with the 354th Fighter Squadron in the European Theater.

Eugene M. D'Andrea, national director, presented national-level awards (as listed in November, p. 85) and also conducted the installation of new officers for the state and for the Pease and **Brig. Gen. Harrison R. Thyng Chapters**. Newly elected state officers are David A. Carlson, VP, and Joseph D. Wercinski, secretary. New officers for the Thyng Chapter: Walter E. Wolf, John J. Bell, and Diana L. Carlson, as president, VP, and treasurer, respectively. New Pease Chapter officers: William J. Moran and Charles R. Waterman, VP and secretary.

James R. Thyng, a member of the chapter named for his father, spoke to the convention-goers, presenting a history of the general's military career in World War II and Korea and reading excerpts from his father's diaries. The chapter presented him with a \$1,500 donation for the Pittsfield (N.H.) Historical Society, which plans to build a memorial to the elder Thyng. Harrison Thyng graduated from high school in Pittsfield.

Fellowship Honoring Church

Missouri State AFA named Judy K. Church, Missouri state president and a member of the **Harry S. Truman (Mo.) Chapter**, as the first Charles H. Church Jr. Memorial Fellow.

The award is part of the new AEF Presentation Fellowships program, created by AEF's Board of Trustees in September. The program allows a sponsor to honor someone, commemorate an event, or provide for the memorial of an individual. Once established, the award becomes permanent, so others may subsequently be named as the same fellow. The honoree's name is posted on AEF's Website.

Church received her honor at an



Central Maryland Chapter VP Robert Hawkins conducts a maintenance class for Civil Air Patrol cadets at a CAP flight academy. See "Lessons in Maintenance," p. 76. Funds from AEF and several Maryland AFA organizations helped pay for the T-shirts and caps the cadets are wearing, as well as tools, supplies, and other costs for the classes.

awards banquet, held in conjunction with the Midwest Region meeting at Whiteman AFB, Mo., in October. To commemorate the event, AFA Chairman of the Board Politi presented her with a walnut plaque.

The award is named for AFA's 2001 Member of the Year, who was also national treasurer from 1995 to 2000. Church served in the Navy in World War II and went on to a civilian career in banking, retiring as chairman of

Unit Reunions reunions@afa.org

46th TFS/27th TFS, MacDill AFB, FL. March 14-16, 2003, in Tampa, FL. **Contact:** Bill Launikitis, 5004 S. Hesperides St., Tampa, FL 33611-3312 (813-837-9550) (w.j.launikitis@worldnet.att.net).

59th FIS, Goose Bay, Labrador, Canada. April 27-May 1, 2003, at the Hampton Inn Tropicana in Las Vegas. **Contact:** William McCarthy, 14353 Choco Rd., Apple Valley, CA 92307 (760-242-2759) (wmcca10011@aol.com).

431st FIS. May 8-10, 2003, in Branson, MO. **Contact:** Delbert Lusby, 9 Tracy Ln., Williams-town, KY 41097 (859-824-4226) (dlusby670@aol.com).

ATC Hump Pilots, Ltd. (WWII). May 9-12, 2003, at the Crowne Plaza Dayton in Dayton, OH. **Contact:** Fred Stone, PO Box 143, Henderson Harbor, NY 13651-0143 (315-938-5327) (fas:one@imcnet.net).

OCS Class 62-C. April 29-30, 2003, in Las Vegas. **Contacts:** Ernie Solomon (erniesolomon@comcast.net) or Glen Huckleberry (glen@earthlink.net).

OCS Class 63-A, B, C, and D. May 24-26, 2003, in San Antonio. **Contact:** Bob Karre (phone: 210-945-2113 or fax: 210-945-2112) (icarus@texas.net).

Pilot Class 54-M. April 30-May 4, 2003, at the Sheraton Four Points Hotel. **Contact:** Col. Clifford Allen, 591 Fairway Ct., Fort Walton Beach, FL 32547 (850-363-9602) (jajeallen@aol.com).

Pilot Tng Class 56-I, Williams AFB, AZ. Feb. 24-25, 2003, in Phoenix. **Contact:** Hap Palmberg (336-761-0218) (hapkap@earthlink.net).

Pilot Class 63-F, Vance AFB, OK. April 4-6, 2003, in Phoenix. **Contacts:** Paul Leighton (817-267-6706) (gpl@flash.net) or John Andres (218-372-3006) (jcamn@earthlink.net).

Seeking personnel of the **7406th Support Sq** (USAFE) for a reunion. **Contact:** Dusty Riggs, 2524 Candleberry Dr., Mesquite, TX 75149 (972-285-1672) (rheinmain7406@yahoo.com).

Mail unit reunion notices four months ahead of the event to "Unit Reunions," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

the United Missouri Bank of Hickman Mills. He had been an AFA member for nearly 40 years before he died at the age of 75 in Lenexa, Kan., last June.

Salute to a New Office

The **Donald W. Steele Sr. Memorial (Va.) Chapter** hosted a reception in October for outstanding air staff action officers in USAF's Office of the Deputy Chief of Staff for Warfighting Integration.

The action officers honored were Lt. Col. Scott Erickson; Maj. Ken Hirlinger, Kimberly Ullman, and Steven L. Dutschmann, who is a member of the **Gen. Charles A. Gabriel (Va.) Chapter**; and civilian Carroll Alexander.

The Warfighting Integration Office, AF/XI, was established last spring to integrate command and control and Intelligence, Surveillance, and Reconnaissance capabilities and their supporting communications infrastructure.

Lt. Gen. Leslie F. Kenne, who heads the office, attended the Steele Chapter reception at Ft. Myer, Va., and spoke about the accomplishments of her staff in the five months they have been together. Maj. Gen. Charles E. Croom Jr., director of communications infrastructure, and Brig. Gen. Dan R. Goodrich, director of command, control, communications, and computers and ISR, helped present the awards.

Chapter President James R. Lauducci noted that his chapter periodically hosts receptions for air staff officers selected for recognition by one of the deputy chiefs of staff.

More AFA/AEF News

■ At a September meeting, the **Gen. E.W. Rawlings (Minn.) Chapter** celebrated its 20th anniversary. Paul Groskreutz, then chapter president, cut a cake that had been decorated with the AFA logo. The chapter was chartered in August 1982 and is named for Edwin W. Rawlings, commander of Air Materiel Command in the 1950s and a native of Milroy, Minn. He died in December 1997. The Rawlings Chapter has more than 1,000 members.

■ Charles E. "Ned" Root, who was executive editor and managing editor with *Air Force Magazine* in its early years, died in New York City on Sept. 17. He was 84 years old.

■ Retired AFA staffer Alfred R. Musi, AFA comptroller from 1964 to 1987, died Oct. 15 in Melbourne, Fla., after a short illness. He was 80 years old. Musi had served in the military from 1942 to 1946 and had been a



In Washington, D.C., during the AFA National Convention, several Floridians presented Democratic Sen. Bill Nelson (third from right) with a plaque to thank him for his support of the military. The group from left: George Norwood, ANG Lt. Col. Rembert Schofield, David Cummock, CMSgt. Susan Shonka, and Dennis Moran. Nelson is on the Senate Armed Services Committee.

member of the **Cape Canaveral (Fla.) Chapter**.

Have AFA/AEF News?

Contributions to "AFA/AEF National

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Pieces of History

Photography by Paul Kennedy

Up and At 'Em



The Ryan X-13 "Vertijet" was designed to find out whether an aircraft could take off vertically, switch to horizontal flight, switch back to vertical mode, and then land. It could and did. On April 11, 1957, at Edwards AFB, Calif., the X-13 performed a vertical takeoff from a mobile trailer, performed level flight for several minutes, then, back in vertical mode, descended safely onto the trailer.

Two X-13s were built. This Vertijet, on display at the USAF Museum at Wright-Patterson AFB, Ohio, is the one that made the historic 1957 flight.



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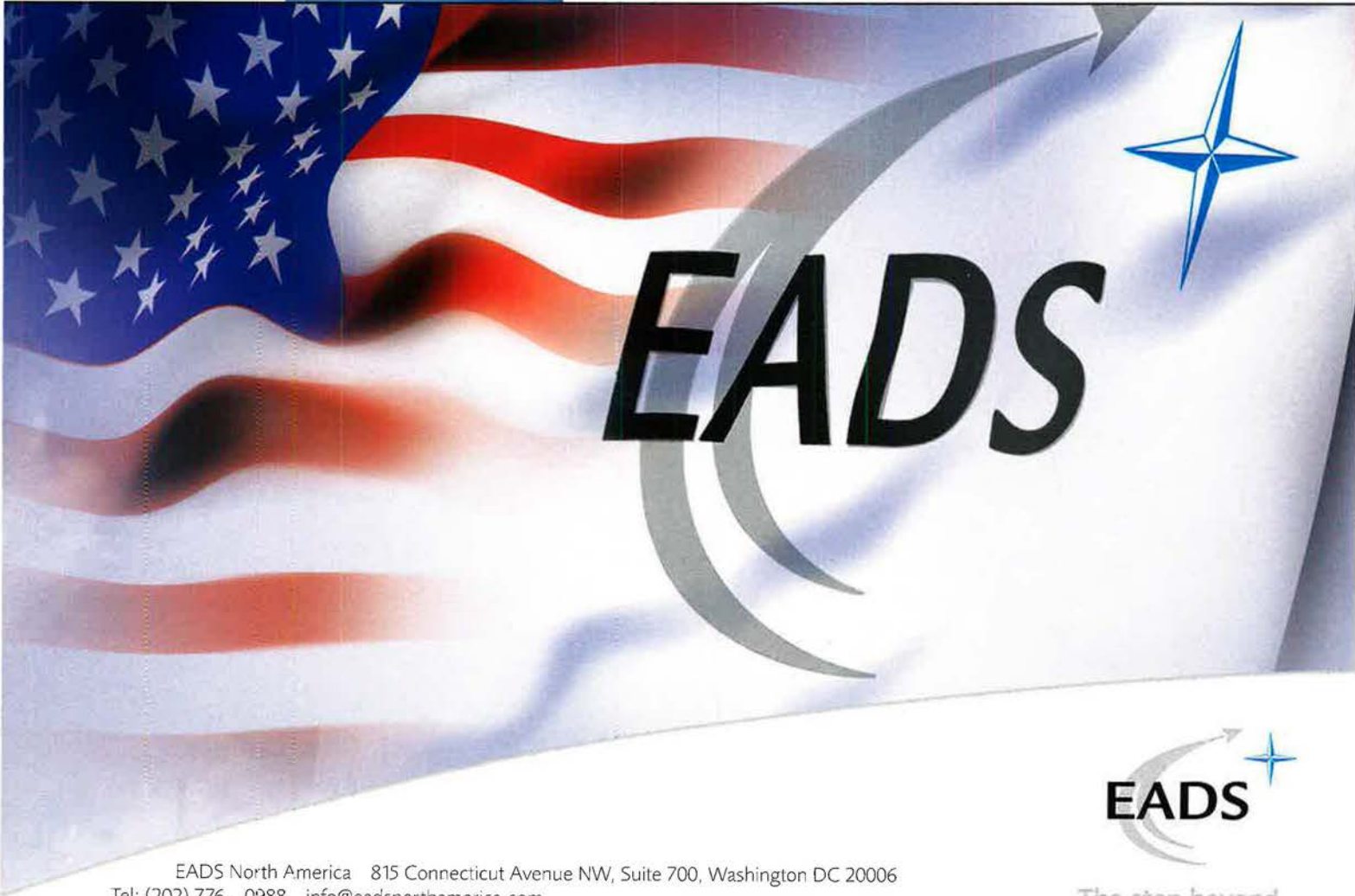
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