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AIR FORCE MAGAZINE

Boom Time in Afghanistan

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AIR FORCE MAGAZINE

June 2011, Vol. 94, No. 6


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About the cover: An MC-12 Liberty on the ramp at Bagram Airfield, Afghanistan. See "Boom Time in Afghanistan," p. 28. USAF photo.

FEATURES

Journal of the Air Force Association
AIR FORCE MAGAZINE


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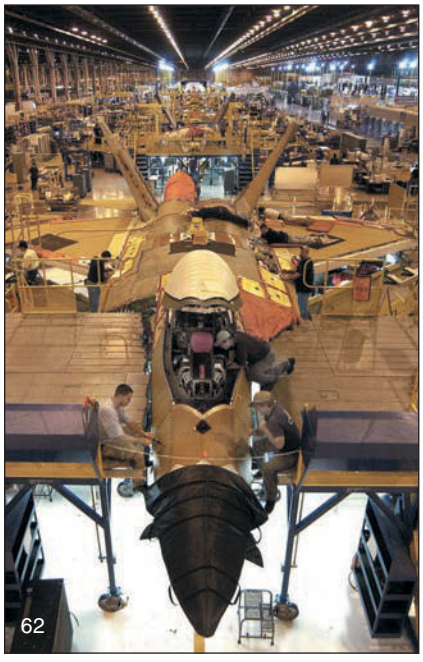
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Editorial

By Adam J. Hebert, Editor in Chief

Into the Rat Holes and Safe Houses

"People think bin Laden is hiding in the Hindu Kush, but did you know that every day from 4 to 5 p.m. he hosts a show on C-SPAN?"—Comedian Seth Meyers at the White House Correspondents' Dinner, less than 24 hours before the raid that killed Osama bin Laden.

As it turns out, bin Laden was hiding in plain sight after all, in a large, highly secure compound in the military town of Abbottabad, Pakistan. It took 13 years for the US to find the world's most wanted terrorist after al Qaeda bombed the US embassies in Kenya and Tanzania—and nearly a decade after the 9/11 terror attacks elevated the manhunt to an entirely new level.

But there is a positive lesson to be learned from this: Contrary to bin Laden's early beliefs, the United States does not quit when its national interests are at stake.

Osama bin Laden had given the US the slip before. In 1998, a cruise missile attack on al Qaeda training sites in Afghanistan just missed him. At the end of 2001, he may have narrowly escaped from Tora Bora and slipped into Pakistan. Then the trail went cold, but the working assumption was that he was living, perhaps in a cave, in the rugged and largely ungoverned frontier along the Afghanistan-Pakistan border.

He made many changes to stay safe.

Bin Laden had once traveled by SUV with bodyguards and communicated by cell phone. He gave all of that up to make it more difficult for the US to find him. His ultimate compound was custom built with high walls, darkened windows, and no clear lines of sight from neighboring buildings. It was in an area where people wouldn't ask too many questions. The compound had no phone service or Internet connection, and its occupants burned their trash. Bin Laden himself never left it. Despite all this, US intelligence professionals eventually tracked him down, and for this they are to be commended.

"Last August, after years of painstaking work by our Intelligence Community, I was briefed on a possible lead to bin Laden," President Obama said in announcing the terror leader's death. "It was far from certain, and it took many months to run this thread to ground."

The full might of the US national security apparatus went into this mission, which culminated with the May 1 operation that killed bin Laden and seized a priceless stash of intelligence information.

Bin Laden felt he could drive the US from Muslim lands, and eventually topple moderate Arab governments, because the US would turn and run when confronted.

He misread two events: the 1983 bombing of Marine barracks in Beirut,

The US does not quit when national interests are at stake.

Lebanon, that killed 241 Americans, and the 1993 "Black Hawk down" battle in Mogadishu, Somalia, which left 19 American troops dead. Presidents Reagan and Clinton withdrew US troops from the scene shortly after each of those attacks. But bin Laden "failed to understand that Beirut and Mogadishu represented a peacekeeping and a humanitarian mission, respectively," noted *National Journal's* James Kitfield, "with limited national interests at stake."

A common theme emerges when looking at the international manhunts for terrorists and thugs wanted by the United States: The searches take months or years, but they eventually pay off. A handful of cases prove this point.

Mir Amal Kansi. In January 1993, Kansi murdered two CIA employees in their cars as they waited to turn into the agency's Langley, Va., headquarters. He was picked up in Pakistan in June 1997—four-and-a-half years later.

Abd al Rahim al Nashiri. The mastermind behind the October 2000 bombing of the Navy destroyer *Cole* while it was docked in Yemen. Nashiri was captured in the United Arab Emirates in November 2002, two years after the attack.

Khalid Sheikh Mohammed. The principal architect of the 9/11 plot, with ties to the 1993 World Trade Center bombing and the murder of Daniel Pearl. "KSM" was picked up at a safe house in Pakistan in March 2003, a year-and-a-half after the Sept. 11 hijackings.

Saddam Hussein. Army Maj. Gen. Raymond T. Odierno said Saddam "was caught like a rat" when the deposed Iraqi dictator was found hiding in a hole on a farm near Tikrit. It was December 2003—nine months after the US invasion.

Abu Musab al Zarqawi. The brutal head of al Qaeda in Iraq led terrorist efforts during the darkest days of the war there, and was also behind the 2004 Madrid subway bombings. Zarqawi was killed in an air strike by a pair of F-16s north of Baghdad. It was June 2006, nearly three years after the US first offered a reward for his whereabouts.

The bin Laden success was clearly no anomaly. The US has proved time and again that when the stakes are high, it will eventually get its man. The computers, flash drives, CDs, videos, and documents scooped up by the Navy SEALs in Abbottabad will yield all sorts of valuable new leads.

"If I were Mullah Omar [the fugitive head of the Taliban], I'd certainly be worried," said Marine Corps Maj. Gen. Richard P. Mills, until recently the top Marine in Afghanistan, on May 5.

Ayman al Zawahiri, bin Laden's longtime deputy, should also be looking over his shoulder.

Anwar al Awlaki, the American-born head of al Qaeda in Yemen, certainly is. He narrowly avoided a Predator missile attack just days after the bin Laden raid—and this was even before analysts had a chance to pore over the intelligence collected from bin Laden's compound.

The radical Islam advanced by al Qaeda and the Taliban is being rejected throughout the Arab world. The population helped drive al Qaeda from Iraq, the Taliban relies on terror to secure support in Afghanistan and Pakistan, and this year's Arab Spring revolutions show the Muslim world has a desire for freedom, not extremism.

Terrorists such as Mullah Omar, Ayman al Zawahiri, and Anwar al Awlaki would be wise to take the advice given by Iraq's Prime Minister when Zarqawi was killed five years back. Extremists "should stop now," Nuri al Maliki said. "They should review their situation and resort to logic while there is still time."

Failing that, sooner or later, the US will come for them. ■

Letters

letters@afa.org

Gin Rummy

Not once in his memo does Secretary Rumsfeld mention Afghanistan, al Qaeda, or Osama bin Laden [*"Keeper File: Rumsfeld's 'Parade of Horribles,'" April, p. 71].* This was 2002. Whether deliberately forgetful or incredibly stupid, to talk about the next war with no mention of the ongoing war shows extreme incompetence. We Americans are still paying for the actions of the worst Secretary of Defense since McNamara.

William Larson
Universal City, Tex.

Airplanes of the Century

Your article "The Century Series," last sentence, reminds me that I was the first Wright-Patterson Air Force Base power plant lab project engineer on the dual-cycle engine system for the XF-103 *[April, p. 44].* The system consisted of a turbojet tucked in a ramjet duct system that theoretically allowed Mach 3 flight when the rest of the Century Series was barely supersonic.

I was a very young engineer in the ramjet section of the Nonrotating Engine Branch in the 1951 time period. The turbojet selected was the Wright Aeronautical J67. The ramjet burner would be the jet's afterburner until ramjet speed was reached. Then vanes in front of the turbojet would switch the incoming air to the ramjet burner.

The airplane was mocked up to include a periscope for the single pilot, although the Republic designer, Alexander Kartveli, preferred a conventional windscreen.

The airplane was canceled before building one, but I believe I saw the complete engine in an AEDC test cell in 1957. I don't know the test results, but I'm sure the AEDC archives would.

I finished my eight-year Air Force career in the Ballistic Missile Division under General Schriever, followed by 36 years at the Rocketdyne Division under various company logos in program management on various rocket engines, including Atlas, Thor, Delta, and the space shuttle. The XF-103 dual cycle was undoubtedly the most exciting, considering the time frame.

Frank Klatt
St. Marys, Ohio

[The] final sentence in the last paragraph—"Other Century fighters were felled by being too technically ambitious or by changing missions"—should not be accepted as having any relationship to the truth. Though not much is known or remembered about the F-107, -108, or -109, the F-110, for one, became quite famous in many of the world's air forces and battles.

The US Air Force's original designation for the F-4C was F-110A and I, for one, remember using the F-110 as a designation while at Holloman Air Force Base during the 366th Tactical Fighter Wing's changeover in the 1964-65 time frame from the F-84F to the F-110—which, as we all now know, became the F-4C.

Additionally, I would state that the F-111 also became a well known and highly respected member of the Century Series of fighter aircraft.

CMSgt. Jerome T. Czeikus,
USAF (Ret.)
Victorville, Calif.

■ *The F-4 and F-111 are not generally considered part of the Century Series.—THE EDITORS*

Look at It Like This

Your "Chart Page" on p. 68 of the April issue of *Air Force* Magazine is simple and straight forward, but how long have defense advocates used "as a percent of GDP" as the gauge for sufficient spending? It seems like that technique started in the early '90s as a result of the pressures put on the budget by the "peace dividend," and has continued as the yardstick to argue for maintaining or increasing defense's share of the budget. Since GDP in the US has generally increased over the years, significantly in some years, your argument is for ever-increasing defense outlays, regardless of the threat or needs of the services. It would be interesting to see the chart on p. 68 redrawn using constant 1986 dollars—dollars from the peak of the Reagan buildup, unbiased by an active war.

I am no "dove," but if my 20-plus years in the service taught me anything, it was how inefficient and wasteful military budgeting and spending could be, especially in the definition and administration of major weapons programs. Instead of arguing for the shiniest new watch, every five years, with the most bells and whistles, let's define the needs of the services based on our best knowledge of the threat and needs of the operators, spending what we need to spend to do the mission. Let's streamline the development and procurement process to get systems in the field in time and in sufficient quantities to actually make a difference. Systems and training are now flexible enough to be modified over time to respond to changes in the threat, extending service lives and effective-

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ness regardless of how the adversary plays the game.

Maybe we can restore a reasoned approach to our appropriations. If that means an increase in the defense budget, fine, but it shouldn't be based on some arbitrary number based on a minimum percentage of our country's entire economy. We should spend what we need to in order to get the mission done, not, supposedly, what the country can afford.

Lt. Col. John D. Barringer Jr.,
USAF (Ret.)
Denver

US-Japan Relations

Richard Halloran's article, "Japan at a Crossroads," continues an unfortunate trend in your magazine lately: sensationalizing a story at the expense of facts *[April, p. 60].* Halloran paints a dark picture of the current state of US-Japan relations. That's hardly the case. Let's look at some specifics:

"It [MCAS Futenma] has become an"open sore in the US-Japan alliance." An exaggeration and an extremely poor metaphor. While moving MCAS Futenma has certainly been a long-term problem, it is merely one single issue. As Mr. Halloran states, the Alliance Transformation and Realignment Agreement (ATARA), commonly referred to as the "Roadmap," outlined 19 independent initiatives to further strengthen our bilateral military relationship. Many of these initiatives are now complete—USS *George Washington* arrived in 2008 and is home-ported at Yokosuka Naval Base. The Japan Air Self-Defense Force Air Defense Command facility at Yokota Air Base is built, and operations will transition from Fuchu Air Base later this spring. MCAS Iwakuni opened a second runway (paid for by the government of Japan) last May, and carrier aircraft will move there from largely urban Atsugi Naval Air Station in 2014. In fact, 18 of the 19 ATARA initiatives are either complete or moving smoothly toward completion. Only Futenma is stalled. Overall, that's a 95 percent success rate.

"Work on most of the initiatives came to a halt, however, when Yukio Hatoyama of the Democratic Party of Japan (DPJ) became Prime Minister in September 2009." Another exaggeration. Only the Futenma initiative essentially stopped when Hatoyama was selected Prime Minister (PM). All other 18 continued forward as planned. Indeed, Hatoyama's backpedaling on the original agreement with regard to Futenma was considered a major foreign policy blunder, on both sides of the Pacific—and was the primary reason for his subsequent downfall and exit as PM.

"Even though the Japanese were jolted by Chinese and North Korean belligerence in recent months, Kan and his government have done little to persuade the Americans that Japan intends to be a reliable ally." A curious statement, given this past January US Ambassador Roos and then-Foreign Minister Maehara signed a renewal of the Special Measures Agreement, where the government of Japan will continue to fund construction, labor, utilities, and training relocation costs associated with the alliance—covering 75 percent of US stationing costs—the most generous host nation support of any of our bilateral partners.

A good one-fourth of the article introduces us to retired Gen. Toshio Tamogami, who is described as some type of renaissance figure who enjoys broad support. That's nonsense. Most Japanese, including members of the Japan Self-Defense Force, view General Tamogami for what he is, a member of the far right-wing fringe. Irrespective of his views on Japan possessing nuclear weapons, in every recent poll, over 80 percent of the Japanese public state their country should retain its non-nuclear principles. Given the current disaster at Japan's nuclear power plant, one could faithfully assume that figure will no doubt grow higher.

Mr. Halloran couldn't be further off the mark when it comes to an accurate assessment of US-Japan relations and the state of our bilateral security alliance. Look no further than our current ongoing Operation Tomodachi, where US civilian agencies and all four of our military services are engaged in one of our country's largest ever humanitarian/diaster relief efforts—an amazingly successful bilateral endeavor that I hope will be chronicled by your magazine in a future edition.

Col. James Brophy,
USAF (Ret.)
Tokyo

Remember the C-27A?

Given the fact that the subject article indicated that C-27s are slated for deployment to Afghanistan, whose air arm has already been equipped with refurbished G.222s, the C-27J's predecessor, it seems rather odd that apparently no attempt has been made to take advantage of lessons learned and experience gained through the operation of USAF's own version of the G.222, the 10 C-27As based at Howard AFB, Panama, for operations in Central America during the 1990s *["Spartan Beginnings," April, p. 40].*

While the C-27J and C-27A may have different engines (AE2100 vs. T64) and presumably different cockpit avionics, it would seem shortsighted, to say the least, for the collective USAF memory to consider the C-27J as a totally new airframe never previously in the active inventory, and not take advantage of prior experience gained with actual operations of the same airframe. Of course, this assumes that some means exists within USAF/ANG to tap into former Southern Command personnel involved with operating the C-27A, and transmit their knowledge gained to the ANG C-27J units. Maybe I'm just looking at things too logically, being an old field service rep or "tech rep" (707/727/737, DC-8/9/10, and F-15)!

Incidentally, I photographed one of the retired C-27As, 10103 with tail markings "AMC-Howard," in a surplus yard on the southern edge of Davis-Monthan Air Force Base on Jan. 7, 2002. It would be interesting to know what became of these 10 presumably low-time C-27A airframes (used for 10 years or less). You would think some use of them could be made for training aids if nothing else (as the Army has done with some early test or crash-damaged Apaches), rather than just being discarded as a bad investment or unwanted "orphans."

T. J. Gibson
Taylor, Ariz.

Hindsight, 20-20

As a former Army Guard air defender (Stingers) who transferred to the Air National Guard for 44 months of active duty with a NORAD-gained command, post-attacks, and as someone who has spent the last 27 years studying air and ballistic missile defense systems and operations, I found Mr. Bailey's letter ("Who Makes the Call?" April) *[p. 6]* interesting and well written. Having said that, I disagree with many of his tenets, but take particular personal and professional exception to this comment: "Foolishly, NORAD expected the opposite, an external attack."

Hindsight is truly a wonderful personal attribute. If Mr. Bailey had researched NORAD's air sovereignty laydown, he would've learned NORAD had no detection, tracking, or C2 capability within the United States, due to a lack of data tie-ins with the FAA's interior radars (since corrected). In addition, NORAD was tasked with defending against external threats violating the continental air defense identification zones (ADIZ). The day of the attacks, NORAD and its subordinate organizations did their job and then—assisted by other services and combat commands—quickly adjusted in a magnificent fashion.

To tie in the performance of NORAD, 1st Air Force, the Northeast Air Defense Sector, and the crews and personnel of

the 101st and 119th Fighter Wings to questions of the effectiveness of the ballistic missile program was at the least a major stretch on Mr. Bailey's part. It also constitutes an insult to those who served and continue to serve in the air sovereignty mission.

However, I do agree with Mr. Bailey that re-examination of the missile defense system should continue, along with additional testing, rigorous evaluation of the threat, and ultimately, full deployment of the system at Fort Greeley and Vandenberg Air Force Base.

Mark L. Morgan
Manchester, Mo.

Tanker, Tanker, Tanker

As a former Air Force maintainer, I have been following the new tanker issue. I didn't work on KC-135s but had some experience with EC-135s that had booms. I'm glad Boeing got the contract for the new tanker, but I have some questions about the timeline for delivery *["Air Force World: Boeing Wins KC-X Contest," April, p. 16].*

Boeing has been in the tanker business since the KB-50. Then came the KC-97L. Then the KC-135. Great planes, each and every one. Now, we have the KC-46 based on the 30-year-old 767 airframe design. No problem there. Tried and true is good. Now it is going to take until 2017 to deliver 18 aircraft to the Air Force. From 1956 until 1961, we built probably 750 KC-135s. At the current delivery rate, it will take about a hundred years to replace the KC-135. Where is a man like Kelly Johnson when you need him?

George Keeler,
USAF (Ret.)
Pine Plains, N.Y.

Many people got scared when President Eisenhower remarked, upon leaving office, to watch out for the "military-industrial complex."

Nowadays, we have to watch out for the "political party complex," which awarded Boeing the tanker contract.

Boeing got the KC-46A even though they rigged the lease, which ended in people being put behind bars and careers ruined! USAF then awarded the contract to Northrop Grumman's KC-45. Washington state politicians got USAF to back down, and now Boeing wins the tanker deal. This is not what USAF wanted. Makes the voters sick!

David Chigos
San Diego

■ *The KC-45 contract was overturned after the Government Accountability Office determined the Air Force did not follow its own selection criteria in awarding the program to Northrop Grumman.—The Editors*

Long Legs Voodoo

I am still smokin' over having pulled VA (Victor Alert) for almost four years, every fourth day, yet there was no mention of the most formidable force ever assembled *["Victor Alert," March, p. 58].* The F-101 Voodoo, with its long legs, carried the force to do the job by penetrating deep into the heart of the Red tide. We launched when the klaxon sounded in any kind of weather, day or night, with our ground mapping radar. No other aircraft had this capability, not the F-100, not the F-105, only the F-101A. During the "Berlin Crisis," the 81st Fighter Wing was the first to come on line, having flown eight aircraft from Libya to Bentwaters RAF station in record time, nonstop. No other aircraft matched that record.

Col. James B. Ramsey,
USAF (Ret.)
Austin, Tex.

During the 1970s, I spent five years at an air base in West Germany, first as the radar strike officer, then as the operations plans officer. We always had three Victor Alert aircraft loaded with nuclear weapons and ready for launch. From time to time, higher headquarters would send down an alert message that would send the Victor aircrews to their aircraft, where they would start engines, copy the alert message, and then shut down. Those three aircraft covered our three top priority targets. They were never scrambled into a training mission. If they had been, who would have covered those targets?

It takes time to generate an aircraft, a weapon, and an aircrew. Nuclear alert was a 24/7 operation. There was no time to pull any of those aircraft and aircrews off of alert. They flew their training missions when they were done with their time on Victor Alert. Rebecca Grant's article misses the whole point of Victor Alert and does not give the Victor Alert aircrews and support personnel the credit they deserve.

Maj. Vern J. Pall,
USAF (Ret.)
Tucson, Ariz.

Evolution of De-evolution?

It does not take a rocket scientist or airman to simply understand that the February 2011 article about Secretary of Defense Robert Gates leadership should have been titled "The deterioration of airpower under Gates" *["The Evolution of Airpower Under Gates," p. 54].* Simply, Mr. Gates has exhibited a lack of logical understanding and leadership under his tenure on most fronts, and has put our nation's defense posture and air superiority at risk with his lack of management and warrior philosophies. This is evident through the past years of articles in *Air Force* Magazine. I must state sarcastically that the "Taliban or Iraqi air forces" are not an immediate threat to the United States of America. Our politicians and bureaucrats should let the military clean house on those fronts, in order to bring our servicemen and -women home. A military campaign in a sandbox that is twice as long in tenure as World War II is ridiculous. China and Russia are real threats with their conventional forces and airpower. Those "frenemies" are more than happy for us to use up our resources (fighter/bomber hours, munitions, fuel, personnel, etc.) and to be occupied on those insignificant fronts and ignore their advances. Mr. Gates' initiatives today have put in motion tomorrow extended future conflicts and the significant loss of American/allied lives in the years to come. Second best air forces do not receive trophies, write history, or survive. Without superior airpower and their ample munitions and support aircraft platforms, the United States Air Force, along with its incredible country, is on course of having a very bad day. It is time to get serious again about winning and being intelligent.

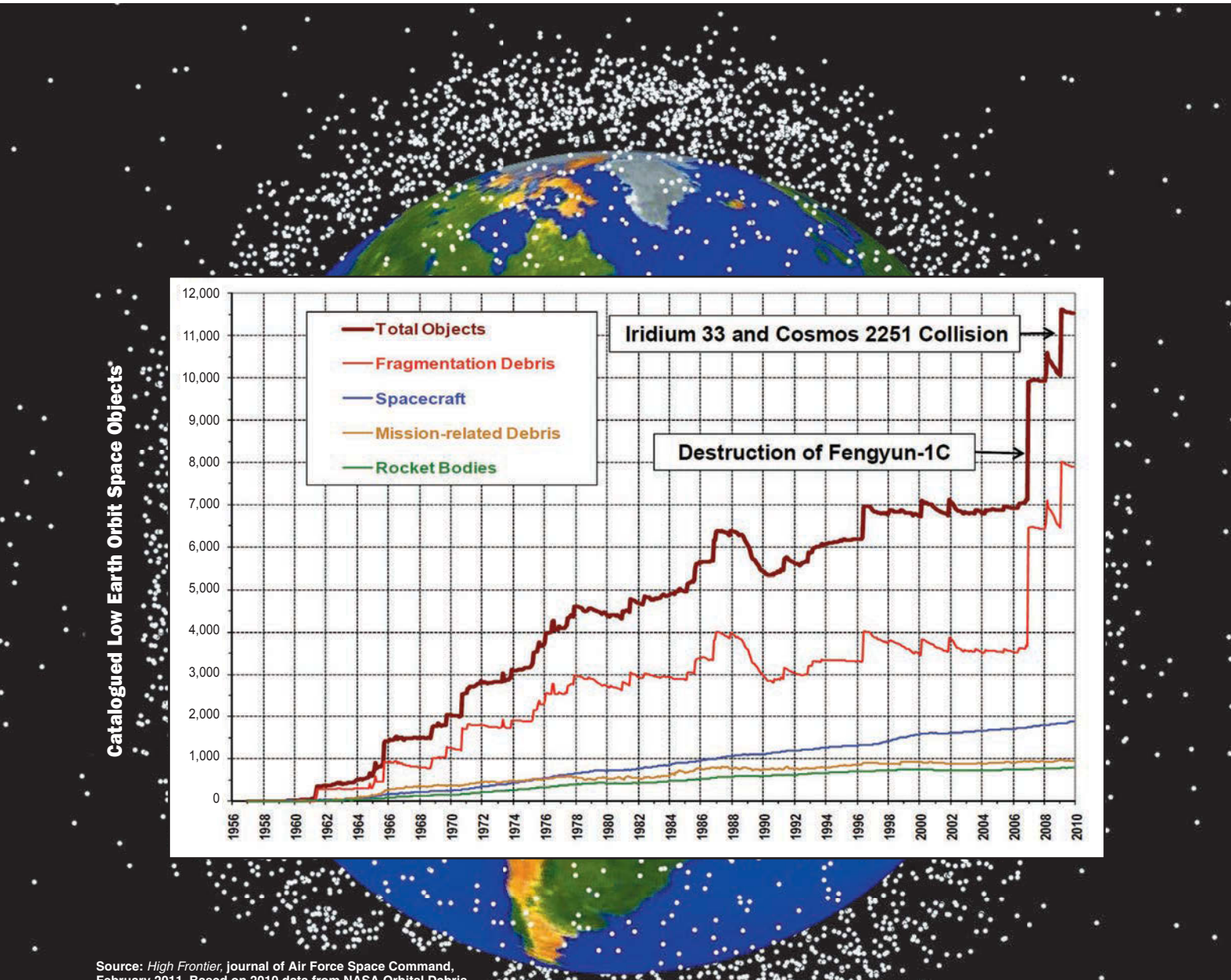
Bill Johns
Knoxville, Tenn.

chartpage@afa.org

Space Junk Jitters

US space officers are nervous about the threat of orbiting space junk—debris, rocket pieces, etc. As recently as 2006, space just above Earth contained 7,000 pieces of orbiting waste. Now, nearly 12,000 pieces are up there. As the chart shows, the rise stems from two events. In 2007, China fired an anti-satellite weapon into its inactive Fengyun-1 C satellite; the blast produced 3,037 debris objects. In 2009, Russia's dead Cosmos 2251 spacecraft slammed into the Iridium 33 satellite, releasing 1,750 objects. These two events raised the level of space junk by 60 percent. Worried about the danger posed to spacecraft, DOD and NASA are studying "active debris removal."

Waste in Orbit--a Spectacular Rise



Source: *High Frontier,* **journal of Air Force Space Command, February 2011. Based on 2010 data from NASA Orbital Debris Program Office.**

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THE 400 BLOWS

As part of an effort to cut more than $4 trillion from the federal budget in 12 years, President Obama announced in April a goal of reducing defense spending over the same period by $400 billion. The move could compel the services to shed some missions they now consider core to their function.

The goal amounts to 10 percent of the overall deficit reduction target, but is about a third of the $1.3 trillion in cuts that would come from discretionary spending—i.e., nonentitlement programs. The reductions would be over and above any savings resulting from the drawdown of the wars in Iraq and Afghanistan. The time period for reductions would extend six years beyond a possible Obama Administration second term, however.

A fact sheet on the proposals, released by the White House, said Obama aims to hold "growth in base security spending below inflation, while ensuring our capacity to meet our national security responsibilities." He will decide on what cuts to make after consulting with Defense Secretary Robert M. Gates and the Joint Chiefs of Staff, the White House said. According to the fact sheet, Gates has "shown over the last two years that there is substantial waste and duplication in our security budget that we can and should eliminate."

In an April press conference, Gates said, "There are those who argue that if you funded the department at roughly inflation for the next 12 years, that you could find this money. That may well be true."

However, costs for what he called "big-ticket items" in Pentagon must-spend categories, such as health care and fuel, are rising at well beyond standard inflation rates. So are personnel compensation rates. Assuming no freeze in military compensation or a radical downsizing of the armed forces, an increasing amount of a fixed budget will go to personnel costs, demanding reductions in other areas, like programs or force structure.

Last fall, when a bipartisan budget-cutting commission suggested large cuts to the military, Gates opined that the proposal lacked any strategic underpinnings, and amounted to "math, not strategy." In the April press conference, Gates said Obama's proposal doesn't warrant the same criticism because "it's a target" and that "no specific budget decisions will be made until we've reviewed … these choices and options."

The deficit panels proposed cutting deeply into modernization programs such as the F-35 fighter and Navy shipbuilding, but Gates insisted there are investments "we have to make," for example, buying replacement aerial refueling tankers and surface ships that have reached their life expectancy.

"All elements of the [nuclear] triad need to be modernized," Gates said. "You may have to make some choices there."

Gates said he wants to frame the discussion of how to reduce defense costs "so that it's not a math exercise, but so people understand the strategic and national security consequences of the decisions that they're making … in stark terms."

Gen. James E. Cartwright, vice chairman of the Joint Chiefs, said in the same press conference that decisions will have to be made about "what is it you want to be able to do, and then how much of it do you want to be able to do, which gets to quantities and capabilities."

While Gates ruled out a "mini-QDR," or Quadrennial Defense Review to rethink US military strategy, the Defense Secretary said he wants the services to translate what the latest QDR says into specific numbers of types of forces, with an eye toward what would happen "if you begin cutting off [a] mission—if you begin saying, 'OK, what if you didn't do this?'" One question might be, "What if you decided you didn't need to be able to fight two regional conflicts at the same time; then what are the implications of that for the force?"

DOD photo by Cherie Cullen

Gates: You have to make some choices.

Gates has been dropping leaden hints to the services that they may well have to part with some cherished missions to live within the Pentagon's means in the coming years.

- A year ago, addressing the Navy League, Gates asked whether "the nation can really afford a Navy" with $6 billion destroyers, $7 billion submarines, and $11 billion aircraft carriers.
- Gates chided the Air Force for putting too much emphasis on expensive programs, suggesting USAF seek the "80 percent solution" to its air combat requirements rather than "exquisite" capabilities that are seldom used.
- The Army, Gates has said, may have to rethink its focus on heavy forces.
- He has also questioned whether the Marine Corps' amphibious landing mission is still relevant, and warned it could well shrink in size.

THE NEW SHERIFF IN TOWN

The man who will have to implement the Pentagon austerity program is Leon E. Panetta, slated to take over as Defense Secretary from Robert M. Gates, who is retiring at

the end of this month. Panetta is not seen as a defense hawk, and likely will not shy away from cutting more major programs if he feels it is necessary to balance the Pentagon's thinner budget.

President Obama announced Panetta's move from CIA director to defense chief in an April press conference. Obama likely chose Panetta for both his familiarity with military intelligence affairs and White House experience as both a budget czar and presidential chief of staff.

In accepting the new post from Obama, Panetta said his "Job 1 will be to ensure that we remain the strongest military power in the world, to protect that security that is so important to this country."

However, Panetta added, "this is also a time for hard choices," and like Gates, he will emphasize the need to "prevail in the conflicts in which we are now engaged" while being "strong and disciplined in applying our nation's limited resources to defending America." He pledged to be a "faithful advocate" for the troops.

Panetta is a former eight-term congressman from California who served President Bill Clinton first as budget director and later as his chief of staff, where he was given high marks for putting better organization to the top tier of that Administration. In the mid-1960s, he served a two-year stint in the Army as an intelligence officer. Initially a Republican, he served in the Nixon Administration as a civil rights official before switching parties and running for Congress.

Although his choice as CIA director raised some eyebrows, Panetta won praise as a steadying influence at the agency in the aftermath of charges that it tortured terrorism suspects. He got along well with Gates—who reportedly made numerous calls to congressional offices naming Panetta as his preferred successor—and with Dennis C. Blair and James R. Clapper Jr., the two Directors of National Intelligence with whom he had to coordinate.

In the recent mission that killed Osama bin Laden, Panetta was credited as being the "field marshal" who oversaw the operation. The mission was considered a CIA operation, but used US Navy special operators and Army helicopters, enabled by Air Force aerial and satellite reconnaissance assets.

Gates had also served as CIA chief before taking over at the Pentagon, and many Washington insiders said the national security leadership shuffle—which will also see Gen. David H. Petraeus take over at CIA in the fall—reflects an increasing pattern of overlap between the defense enterprise and that of national intelligence. However, Panetta is seen as more of a political figure than Gates, whose career was generally apolitical and bureaucratic. Both Gates and Panetta served on President George W. Bush's Iraq Study Group, which urged Bush to withdraw from Iraq in 2008. Instead, Bush chose to boost the number of US troops in Iraq, which came to be known as the "surge."

Panetta turns 73 this month, marking him as the oldest person ever nominated to be Defense Secretary.

Perhaps even more immediate than deciding how to adjust the Pentagon's budget, Panetta will also have to choose a new slate of top uniformed officers on the Joint Chiefs of Staff and in key command positions. Coming up for rotation are the jobs of Chairman and vice chairman of the Joint Chiefs and Chief of Naval Operations all in just the next few months. In 2012, Gen. Norton A. Schwartz's term as Air Force Chief of Staff will be up as well.

STEALTH REVEALED

A secret stealth aircraft appears to have played a key role in the early May takedown of Osama bin Laden, as shown by photos of wreckage left behind by US troops.

During the raid, according to early information provided by US government officials, Navy SEALs rode into the bin Laden compound aboard two UH-60 Black Hawk helicopters. One of the aircraft experienced a malfunction or for some reason went down so hard it could not fly out again. No US troops were hurt, but they did their best to destroy the wreckage in the compound's courtyard, leaving hardly recognizable charred remains. However, the SEALs did not destroy the helicopter's tailboom, which broke across a wall and fell outside the compound.

Was the raid helicopter stealthy?

The wreckage is clearly not from any previously acknowledged US aircraft.

With smooth surfaces lacking any fasteners or other radar-reflecting seams, the faceted empennage resembled features seen on the F-117 Nighthawk and other stealth aircraft. The tail rotor was semi-recessed behind a stepped, saucer-shaped housing that seemed intended to quiet its noise. Eyewitnesses to the raid reported being unaware that the aircraft were coming until they were almost directly overhead, and even then, local observers believed the helicopters were headed away from—not toward—the compound.

A gridded vent on top of the tailboom is diamond-shaped, echoing the fundamental design feature of stealthy aircraft. Other surfaces were canted and angled in a way suggestive of stealth considerations.

The tailboom's appearance recalls the RAH-66 Comanche, a stealthy scout/attack helicopter the Army terminated in 2004 due to rising costs and changing Army aviation priorities.

According to government accounts, Pakistan was not alerted to the raid, presumably to prevent any bin Laden confederates in the Pakistani government from warning him. A quieted, stealth helicopter would be a logical vehicle with which to insert the SEAL team.

The secret helicopter marks the second stealthy aircraft known to be employed in the Afghanistan theater of operations. The first was the RQ-170 Sentinel, a smallish flying wing-shaped remotely piloted aircraft. The Sentinel was spotted and photographed at Kandahar Air Base by various observers, and the Air Force later acknowledged the RPA was one of its reconnaissance assets and that it was built by Lockheed Martin. Little more has been said about it.

Queries about the stealth helicopter were put to Boeing and Sikorsky, which jointly built the Comanche. They referred questions to US Special Operations Command, where a spokesman said that only the White House was authorized to speak about the raid. The White House declined comment.

A week after the raid, President Obama traveled to Fort Campbell, Ky., to visit with the troops and congratulate special operators who performed the mission. Fort Campbell is the home not of the SEALs but the Army's 160th Special Operations Air Regiment. It flies helicopters specially modified for unconventional warfare. ■

Air Force World

By Aaron Church, Associate Editor

National Security Leadership Named

President Obama announced in April his intent to nominate Leon E. Panetta to replace Robert M. Gates as Defense Secretary and Army Gen. David H. Petraeus to take over for Panetta as CIA director.

"I cannot think of a group of individuals better suited to lead our national security team during this difficult time," said Obama during remarks at the White House.

He added, "I urge our friends in the Senate to confirm these individuals as swiftly as possible so they can assume their duties and help meet the urgent challenges we confront as a nation. We are a nation still at war."

Gates intends to serve through June, with Panetta starting in July. Petraeus would retire from the Army and take over at the CIA as a civilian in September.

The President also announced that he wants Marine Corps Lt. Gen. John R. Allen to succeed Petraeus as the top US general in Afghanistan and Ryan C. Crocker to take over for Karl W. Eikenberry as US ambassador to that nation.

Still in the Libya Fight

After NATO took charge of air operations over Libya, US military aircraft continued to play a critical role in the mission of protecting Libyans and enforcing the no-fly zone. Between NATO's April 1 takeover of command responsibility for the Libyan mission—renamed Operation Unified Protector—and April 18, US military platforms flew more than 800 of the nearly 2,900 total air sorties, including daily aerial refueling; intelligence-surveillance-reconnaissance; command and control; and limited strike sorties against Libyan anti-aircraft targets.

Of those 800, more than 150 have been to suppress Qaddafi's air defenses. In eight of those, US aircraft dropped ordnance, according to officials.

Though nearly 89 USAF aircraft initially engaged in Operation Odyssey Dawn, now that the US is "out" of the main combat role, that number has declined to about 39, Air Force Secretary Michael B. Donley told reporters on April 5.

Most of the roughly 50 aircraft no longer enforcing the NFZ or flying strike missions returned to US Air Forces in Europe bases, Donley said, noting that they "may be in reserve" for future operations if called upon.

Revised Plan Issued

US Northern Command now shares responsibility with US European Command for overseeing US military operations in the Arctic under the new unified command plan approved by President Obama. UCP 2011 stresses the growing importance of the Arctic.

Further, "NORTHCOM was given advocacy responsibility for Arctic capabilities primarily due to having the only US Arctic territory within its area of operations," according to a Pentagon spokesman. Arctic responsibility had been shared between US European Command, US Pacific Command, and NORTHCOM under the previous map approved by President Bush in 2008.

The new plan also assigns NORTHCOM responsibility for Alaska and adjacent waters which were previously divided between both NORTHCOM and PACOM.

Additionally, the plan strengthens the role of US Strategic Command in combating weapons of mass destruction.

Little Rock, Big Damage

A tornado tore through Little Rock AFB, Ark., on April 25, injuring three people, battering three C-130s, and damaging more than 40 homes.

Though injuries were minor, several homes were torn in half or stripped completely of their roofs. The base exchange and the commissary were closed due to "extensive damage," according to a base spokesman.

Displaced families were placed in temporary lodging until new homes could be found.

Despite the devastation, airmen and C-130s from the 50th Airlift Squadron at Little Rock deployed to Southwest Asia three days after the tornado. "My hat's off to our whole community for the extraordinary work they have done to take care of our deployers and their families," said Col. Michael A. Minihan, 19th Airlift Wing commander.

The squadron was the first of nearly 20 C-130s and 1,000 airmen that deployed after the disaster.

USAF photo

Fiscal Train Wreck Averted

Congress on April 14 approved a spending bill for Fiscal 2011, and President Obama signed it the next day. The $513 billion base operating bill is $5 billion over 2010 levels, but shy of the $540 billion Defense Secretary Robert M. Gates warned is needed to avoid serious operational disruptions.

The Defense Department had been operating on a continuing resolution since last fall, which constrained spending at Fiscal 2010 levels and prevented spending money on any new-start projects in the Pentagon budget. Gates had described the situation as a potential fiscal train wreck if it continued, and Air Force Secretary Michael B. Donley said the Air Force would not be able to meet the final fiscal year payroll if a full spending measure was not approved.

The services will still have to reprogram substantial amounts of funding to cope with the reductions the bill contained.

New Cyber Commander

Maj. Gen. Suzanne M. Vautrinot assumed command of 24th Air Force from Maj. Gen. Richard E. Webber, its first chief, during a ceremony at Lackland AFB, Tex.

Under Webber, 24th Air Force went from activation to full operational capability in just 14 months. It also became the Air Force's operational component of US Cyber Command.

Gen. William L. Shelton, Air Force Space Command boss, presided over

05.10.2011

An F-15C from the 44th Fighter Squadron fires an AIM-9 missile during a Combat Archer mission over the Gulf of Mexico. The 44th FS has deployed from Kadena AB, Japan, to Tyndall AFB, Fla., to participate in this air-to-air weapons systems evaluation program with the 53rd Weapons Evaluation Group. Combat Archer tests the weapons systems of every USAF combat aircraft platform and evaluates aircrews.

the change-of-command ceremony April 29.

Vautrinot most recently served as the special assistant to the Air Force vice chief.

Webber is retiring, effective July 1, after 36 years of service.

F136 Terminated, on Life Support

General Electric and Rolls Royce announced in May they would fund continued development of the F136 alternative engine for the F-35 strike fighter from their own coffers. The two companies said they will bankroll development through Fiscal 2012, when they hope to regain DOD funding.

"We believe so strongly in our engine and the need for competition in defense procurement that we have committed to self-fund F136 development costs for this fiscal year and next," said GE CEO Jeff Immelt in the companies' joint statement May 5.

The Defense Department notified the GE-Rolls consortium that DOD had terminated the development contract April 25, asserting that a competing engine for the F-35 was superfluous, "unneeded, and wasteful."

Defense Secretary Robert M. Gates has long wanted to rely solely on the Pratt & Whitney F135, but has faced congressional resistance to killing the F136 over the past several years.

In late March, the F-35 program office issued a stop-work order on the F136, pending completion of a defense appropriations bill for the rest of Fiscal 2011.

The subsequent bill, HR 1473, contained no funding for F136, paving the way for contract termination.

The GE-Rolls team said in an April 25 statement it would comply with orders to preserve and return all government property, but that the companies would "work closely" with congressional supporters to restore funding in Fiscal 2012.

Now, Two USAF Chopper Plans

The Air Force will now pursue two separate helicopter competitions: one to acquire a new personnel recovery aircraft, and one for a new utility aircraft.

The new recovery chopper—taking the place of the canceled CSAR-X

US Forces Kill Osama bin Laden in Pakistan

Defense Secretary Robert M. Gates told hundreds of airmen at Seymour Johnson AFB, N.C., May 6, that Osama bin Laden's death "could be a game changer" in Afghanistan. However, it could take six months to determine the full impact his death will have for the US combat forces operating in theater.

US special operations forces killed the terrorist leader May 1 following a firefight inside his compound in Abbottabad, Pakistan, roughly 35 miles north of the capital city Islamabad.

"Bin Laden and [Taliban leader] Mullah Omar had a very close personal relationship, [but] there are others in the Taliban who have felt betrayed by al Qaeda. [They feel] it was because of al Qaeda's attack on the United States that the Taliban got thrown out of Afghanistan," Gates said in his first public comments on the raid.

The world's most wanted man, who had eluded US capture for nearly a decade and was widely believed to be hiding underground in a remote region near the Pakistan-Afghanistan border, had been living in a heavily fortified compound near Pakistan's military academy.

The three-story compound was roughly eight times the size of other houses in the neighborhood. Barbed-wire-topped walls reaching up to 18 feet high surrounded it. Seven-foot privacy walls shielded its balconies and all the windows were blacked out.

Its occupants were known to burn their trash rather than placing it out for collection like other residents in the area. Bin Laden and his family were believed to be living on the second and third floors, while several other families resided on the first floor.

The compound was "unlike most other residences in the Abbottabad area" and was "designed to obscure lines of sight from multiple directions," Pentagon officials said.

In an address to the nation late May 1, Obama said he was first briefed on a possible lead to bin Laden's whereabouts in August 2010. After months of US personnel running down leads, Obama said he determined there was "enough intelligence to take action," and therefore "authorized an operation to get Osama bin Laden and bring him to justice."

"Today, at my direction, the United States launched a targeted operation against that compound," Obama said. "A small team of Americans carried out the operation with extraordinary courage and capability. No Americans were harmed. They took care to avoid civilian casualties. After a firefight, they killed Osama bin Laden and took custody of his body."

ABC News reported after the raid that Obama initially authorized a plan for two B-2 stealth bombers to drop several 2,000-pound Joint Direct Attack Munitions on the compound, but he nixed the plan when he realized the compound would be reduced to rubble, leaving no evidence bin Laden actually was killed. Recovering the body was key.

Senior intelligence officials said US personnel verified bin Laden's identity after he was shot by the team of US Navy SEALs during the raid. Bin Laden was unarmed but attempting to evade capture when he was killed. Also killed were his son, two couriers, and a woman who was caught in the crossfire on the compound's first floor. A bin Laden wife rushed a special operator and was shot in the leg, but was not killed. None of the children living in the compound sustained injuries.

Obama said he decided not to release photos of the body, but the Administration plans to do everything in its power to ensure the American people and the world can be confident that bin Laden is indeed dead.

Special operators were able to visibly identify bin Laden and CIA agents compared photos of the body to known photos of the terrorist leader. One of his wives called him by his name during the operation, and there was a "virtually 100 percent" DNA match of the body against DNA of several bin Laden family members, officials said.

The SEALs took the body with them when they left the Abbottabad compound, and officials said within 24 hours, US forces prepared Osama bin Laden's body according to Islamic tradition. They wrapped his body in a

aircraft—will replace the service's aging and combat-weary HH-60G Pave Hawks, while the new utility platform will supplant Vietnam War-era UH-1N Hueys, USAF said April 25.

USAF anticipates "that a derivative of helicopters already in production" will be able to meet requirements, said Maj. Gen. Randal D. Fullhart, USAF's acquisition director for global reach programs. Fullhart said USAF is looking for a "best value" solution that meets requirements.

The service aims to replace 112 Pave Hawks, with a request for proposal anticipated in 2012, while a draft solicitation to replace the Hueys is scheduled for release this summer.

The Air Force wants to procure 93 Common Vertical Lift Support Platforms to succeed the Hueys in roles such as ICBM field protection, and have them operationally ready by 2015.

NRO Satellite Launched

The Air Force launched a classified National Reconnaissance Office payload into space aboard a United Launch Alliance Atlas V rocket from Vandenberg AFB, Calif., April 14. The mission was the last of six launches during NRO's 50th anniversary year 2010-2011.

The launch "culminates one of the most aggressive launch schedules in our history. I am immensely proud of the contractor and government team who came together to support these missions. Their hard work and dedication ensures our nation's critical edge in space well into the next decade," said Col. Alan Davis, head of NRO's space launch office.

The preceding NRO rocket lifted off from Florida, March 11.

MC-130J Takes First Flight

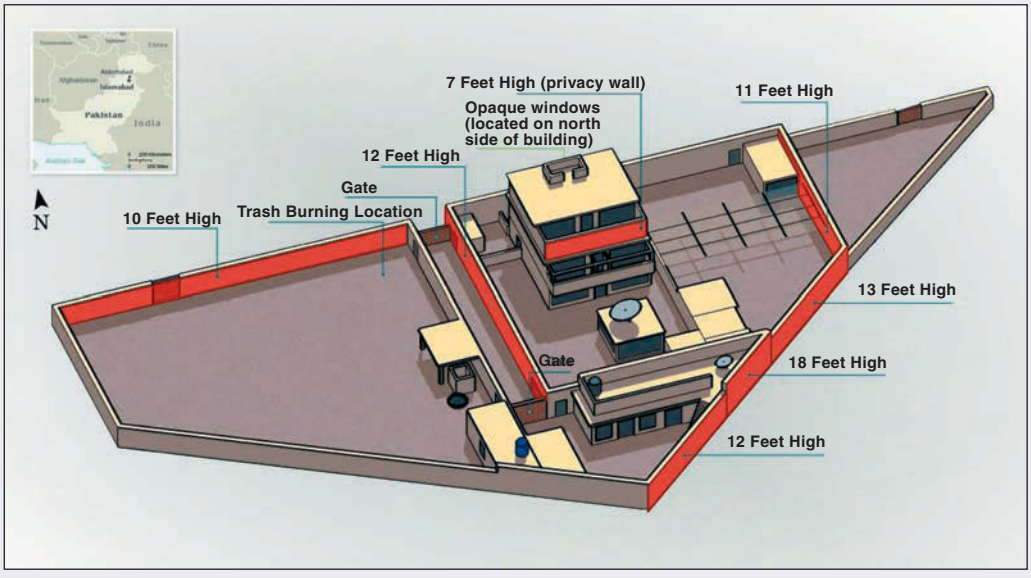
USAF's first MC-130J Combat Shadow II aircraft completed its maiden flight, taking to the skies from Lockheed Martin's aircraft plant in Marietta, Ga., April 20.

The flight came less than a month after the aircraft rolled off the assembly line at Marietta. The aircraft must now complete a series of test flights prior to scheduled delivery to Cannon AFB, N.M., in September.

It is the first of a fleet of new MC-130Js Lockheed Martin is building to replace Air Force Special Operations Command's legacy MC-130Ps. The aircraft will support covert insertion and resupply of special operations forces.

white sheet and weighted bag, and delivered it to the sea from the deck of the aircraft carrier USS *Carl Vinson* during the early morning hours of May 2.

The United States buried bin Laden at sea because officials were wary of creating a shrine to the al Qaeda terrorist leader, whose minions on 9/11 carried out the worst terrorist attack on US soil. "There was no available alternative in terms of a country that was willing to accept the body, and we took pains to ensure that we were compliant with Muslim tradition and law," officials said at a Pentagon briefing.



This DOD graphic shows the complex security features at bin Laden's Abbottabad compound.

Although Pakistan provided information that was included in the intelligence assessment, Pakistani officials were not informed of the operation until all US personnel and assets were safe, according to the intelligence officials. "It's inconceivable that bin Laden did not have a support system in the country that allowed him to remain there," said John Brennan, assistant to the President for homeland security and counterterrorism, during a briefing at the White House May 2. However, Brennan declined to speculate on Pakistani officials' knowledge or complicity in the situation.

Brennan called President Obama's decision to authorize the mission against bin Laden "one of the most gutsiest calls of any President in recent memory." The Intelligence Community had built a solid case of "circumstantial evidence" based on information gathered from multiple detainees over a number of years and various other efforts to run the information to the ground, said Brennan. However, officials did not have proof bin Laden was actually in the compound.

Brennan said the "minutes passed like days" inside the Situation Room as the President and his team watched the 40-minute operation unfold. "It was probably one of the most anxiety-filled periods of time," he said.

Pentagon officials said the CIA is in the process of setting up a task force to review "quite a bit of materials" collected at the scene, which they hope will lead to other high-ranking al Qaeda members. Computers, CDs, flash drives, and videos were collected, constituting an enormously valuable intelligence cache.

Secretary of State Hillary Rodham Clinton said the terrorist network's reign of violence will not end with bin Laden's death, although it marks a significant milestone in the war on terror. She, and other senior leaders, said the United States remains committed to its partnership with Pakistan.

"Our message to the Taliban remains the same, but today it may have even greater resonance: You cannot wait us out. You cannot defeat us. But you can make the choice to abandon al Qaeda and participate in a peaceful political process," she said during a televised press conference.

—Amy McCullough

Nine Americans Die After Attack in Kabul

A disgruntled Afghan Air Force officer, reportedly upset over his finances, began an argument with one of his US air advisors in a building at Kabul Airport in Afghanistan on April 27. What happened next was a tragedy that left nine Americans dead.

The veteran Afghan pilot pulled out a weapon and attacked the group of assembled US air advisors. Killed were eight USAF airmen and one US contractor.

All eight airmen were deployed to the 438th Air Expeditionary Wing at the Kabul airport, helping to train, advise, and assist the nascent Afghan Air Force.

The 438th AEW's advisors help instruct AAF personnel to operate the Mi-17 transport helicopter, the Mi-35 attack helicopter, and the C-27 Spartan light transport. The wing is part of the NATO Air Training Command-Afghanistan (NATC-A).

The airmen killed were:

Lt. Col. Frank D. Bryant Jr., 37, of Knoxville, Tenn., who was assigned to the 56th Operations Group at Luke AFB, Ariz.

Maj. Philip D. Ambard, 44, of Edmonds, Wash., an assistant professor of foreign languages at the US Air Force Academy in Colorado Springs, Colo.

Maj. Jeffrey O. Ausborn, 41, of Gadsden, Ala., a C-27 instructor pilot assigned to the 99th Flying Training Squadron at Randolph AFB, Tex.

Maj. David L. Brodeur, 34, of Auburn, Mass., an 11th Air Force executive officer at JB Elmendorf-Richardson, Alaska.

Maj. Raymond G. Estelle II, 40, of New Haven, Conn., who was assigned to Air Combat Command headquarters at JB Langley-Eustis, Va.

Maj. Charles A. Ransom, 31, of Midlothian, Va., a member of the 83rd Network Operations Squadron at Langley-Eustis (posthumously promoted to the rank of major on May 3).

Capt. Nathan J. Nylander, 35, of Hockley, Tex., who was assigned to the 25th Operational Weather Squadron at Davis-Monthan AFB, Ariz.

MSgt. Tara R. Brown, 33, of Deltona, Fla., who was assigned to the Air Force Office of Special Investigations at JB Andrews, Md.

Ambard, Brown, Estelle, and Ransom all worked in communications with the advisors and Afghan personnel at the airport, 438th AEW spokesman Capt. Jamie Humphries told *Air Force* Magazine.

Brodeur, an F-16 pilot by background, was training and advising the Afghans on how to develop their command and control center.

Ausborn, also a pilot, advised on the C2 center in addition to helping with C-27 instruction.

Nylander, a weather control officer, helped manage the wing's interpreter program.

The US civilian who died was James McLaughlin Jr., 55, of Santa Rosa, Calif. He was a contractor and retired Army lieutenant colonel who worked for MPRI, a division of L3 Communications, helping with helicopter flight instruction.

ISAF identified the shooter as Ahmad Gul, 50, a veteran Afghan pilot from Tarakhail district in Kabul province. During the incident, Gul was "severely wounded" before he left the room where the initial attack took place, said ISAF officials based on initial findings of their investigation. Gul appeared to be carrying two weapons, they said.

He was later found dead at a different location within the building.

The USAF airmen were armed and their weapons were "loaded with magazines," as per the NATO training mission guidance, said Army Lt. Gen. William B. Caldwell IV, head of the NATO training mission April 30.

Humphries said the incident remains under investigation. He said he could not address any specific policy or security changes at the Kabul airport or across the NATC-A in response to the shooting, due to operational security concerns.

"The entire Air Force family is saddened by this loss, and our thoughts and prayers are with the families and friends of these brave airmen," said Air Force Secretary Michael B. Donley, Chief of Staff Gen. Norton A. Schwartz, and CMSAF James A. Roy in a joint statement on the day following the tragedy.

"We will continue to advise and work towards our goal of helping the Afghan Air Force set conditions for a professional, fully independent, and operationally capable Afghan Air Force," stated spokesman Humphries.

—Marc V. Schanz


Lt. Col. Frank D. Bryant Jr.


Maj. Philip D. Ambard


Maj. Jeffrey O. Ausborn


Maj. David L. Brodeur


Maj. Raymond G. Estelle II


Maj. Charles A. Ransom


Capt. Nathan J. Nylander


MSgt. Tara R. Brown


James McLaughlin Jr.

Operation Enduring Freedom—Afghanistan

Casualties

By May 18, a total of 1,569 Americans had died in Operation Enduring Freedom. The total includes 1,567 troops and two Department of Defense civilians. Of these deaths, 1,227 were killed in action with the enemy while 342 died in noncombat incidents.

Afghan Relief

Airmen responded to a landslide in Afghanistan's Balkh province in April, airlifting 17,000 pounds of relief supplies to victims.

Members of the 774th Expeditionary Airlift Squadron worked with Army quartermasters at Bagram Air Base, packing 16 pallets of food, water, and essentials onto C-130s for delivery to the northern province, bordering Uzbekistan, April 7.

"It's been a long day, but this morning we got the opportunity to help ... after a natural disaster, which is what we do back home," said Capt. Chris Armstrong, a navigator with the expeditionary unit deployed from the Texas Air National Guard's 181st Airlift Squadron in Fort Worth.

The landslide inundated nearly 100 homes in the region, destroying crops and farmland. "At the end of the day, it isn't just a war we are fighting here, but we are also here to help," said Army Pfc. Kenneth Bosch.

Medevacs With Afghan Choppers

A combined team of Afghan airmen from the Kandahar Air Wing and USAF advisors conducted the first dedicated Mi-17 medical evacuation mission in the nascent wing's history.

Flying from Afghan Air Force's Kandahar Air Base in the southwest Afghanistan, two Mi-17s dispatched to bring an Afghan National Army officer with compound leg fractures from nearby Camp Bastion to Kandahar, April 11.

"This mission demonstrated key teamwork, cooperation, and the communication we've been training for, and the results were flawless," said Maj. Charla Quayle of the 738th Air Expeditionary Advisory Squadron, an advisor aboard the evacuation helicopter carrying the patient.

The transfer was the first test of the AAF medics' new communications system and also provided them an opportunity to demonstrate their clinical capabilities.

AFSOC plans to field the first operational unit of MC-130Js by 2012. Lockheed is under contract to build 15 MC-130Js.

Guam's Island Fortress

The Air Force is planning to harden facilities at its strategic western Pacific hub on Andersen AFB, Guam, Chief of Staff Gen. Norton A. Schwartz, told lawmakers April 7.

In Fiscal 2012, USAF plans to reinforce infrastructure "that includes both facilities and, importantly, utilities," such as "making sure that we have some redundancy and resilience in the fuel supplies," Schwartz told the House Appropriations Committee's military construction panel. Plans exist to disperse assets "at outlying locations around Guam" in time of conflict as well, noted Schwartz.

USAF has earmarked funds "to the tune of $25 million" for these efforts in 2012, matched by similar amounts this year.

Additionally, there's "about $147 million" programmed in Fiscal 2012 for a munitions facility, an aircraft rinse and wash facility, and a fuel maintenance facility at Andersen, Schwartz said, adding that such infrastructure is needed "to operate a major airdrome like Andersen ... in a tropical area."

Warthog's Seaside Splash

An A-10 may have chalked up a first-ever attack against a maritime target, attacking two Libyan ships engaged in indiscriminate firing on merchant vessels in the Libyan port of Misratah in March.

"While we know of no other recorded instance in which the A-10 was used to attack a maritime target, this is not something that could be officially verified," an Air Force spokesman said.

"A-10s have never [before] attacked surface ships or other maritime targets," another spokesman confirmed in April.

Light Work

Hawker Beechcraft's AT-6 is undergoing weapons certification testing at the Air Force's Barry Goldwater Range in Arizona.

Flown by members of the Air National Guard and Air Force Reserve Command Test Center staging from the nearby Gila Bend Auxiliary Field, the AT-6 began the trials with inert bomblets, 2.75 mm aerial rockets, and a .50-caliber machine gun in April.

"[We had] a few hung rockets, and with the 50-cal., the biggest thing we've learned is that this airplane is bounced around a bit more. But at the end of the day, things are going well," said test pilot Lt. Col. Keith Colmer, the project's engineering director.

USAF photo by A1C Joshua Green

Dry Heaves: *SSgt. Jonathan Smith, the NCO in charge of training for the 820th Combat Operations Squadron, Moody AFB, Ga., gets a mouthful of dirt while low-crawling under wires during a training exercise at Camp Blanding, Fla. Smith is with the only USAF group trained and equipped to conduct integrated base defense in high-threat areas.*

Senior Staff Changes

RETIREMENTS: Maj. Gen. John M. **Howlett,** Brig. Gen. David H. **Cyr.**

NOMINATIONS: TO BE LIEUTENANT GENERAL: Brooks L. **Bash,** Stephen L. **Hoog,** Jan Marc **Jouas. TO BE MAJOR GENERAL:** Mark A. **Atkinson,** William J. **Bender,** Brian T. **Bishop,** Christopher C. **Bogdan,** Michael J. **Carey,** John B. **Cooper,** Samuel D. **Cox,** Barbara J. **Faulkenberry,** Russell J. **Handy,** Michael A. **Keltz,** Steven L. **Kwast,** Frederick H. **Martin,** Thomas J. **Masiello,** Earl D. **Matthews,** Robert P. **Otto,** John W. **Raymond,** Darryl L. **Roberson,** Anthony J. **Rock,** Jay G. **Santee,** Rowayne A. **Schatz Jr.,** John F. **Thompson,** Thomas J. **Trask,** Joseph S. **Ward Jr.,** Jack **Weinstein,** Robert E. **Wheeler,** Martin **Whelan,** Stephen W. **Wilson,** Tod D. **Wolters,** Timothy M. **Zadalis.**

CHANGES: Brig. Gen. Robert J. **Beletic,** from Dep. Cmdr., Canadian NORAD, Winnipeg, Manitoba, Canada, to Vice Cmdr., 1st Air Force, ACC, Tyndall AFB, Fla. ... Maj. Gen. (sel.) Brian T. **Bishop,** from Dep. Dir., Politico-Mil. Affairs (Western Hemisphere), Jt. Staff, Washington, D.C., to C/S, UN Command, US Forces-Korea, Yongsan Army Garrison, South Korea ... Brig. Gen. Randy A. **Kee,** from Cmdr., 379th AEW, ACC, Southwest Asia, to Dep. Dir., Politico-Mil. Affairs (Western Hemisphere), Jt. Staff, Washington, D.C. ... Brig. Gen. Jeffrey G. **Lofgren,** from Dep. Dir., Ops., NORTHCOM, Peterson AFB, Colo., to Cmdr., 380th AEW, ACC, Southwest Asia ... Brig. Gen. Edward M. **Minahan,** from Cmdr., 380th AEW, ACC, Southwest Asia, to Principal Dir., Middle East Policy, Office of the USD, Policy, OSD, Pentagon ... Brig. Gen. Kenneth E. **Todorov,** from Dir., Standing Jt. Force, NORTHCOM, Peterson AFB, Colo., to Dep. Dir., Protection, NORTHCOM, Peterson AFB, Colo. ... Maj. Gen. Lawrence L. **Wells,** from DCS, UN Command, US Forces-Korea, Yongsan Army Garrison, South Korea, to Cmdr., 9th AF, ACC, Shaw AFB, S.C.

SENIOR EXECUTIVE SERVICE CHANGES: Andrew D. **Cox,** to Dir., Space Protection Prgm., AFSPC, Peterson AFB, Colo. ... Darrell F. **Zimbelman,** to Prgm. Dir., Electro-Optical Imagery Satellite Sys., NRO, Chantilly, Va. ▪

The AT-6 will progress to laser guided bombs in June, followed by Hellfire missile and laser guided rocket testing in October at Eglin AFB, Fla., and China Lake, Calif.

The trials are the second phase of a congressionally funded evaluation.

Raptor Vs. Talon

The 1st Fighter Wing at JB Langley-Eustis, Va., welcomed its first of seven planned T-38 Talon trainer aircraft on April 1.

Transferred from Holloman AFB, N.M., the first T-38 forms the basis of Langley's new Talon Adversary Air Program, providing lower cost aggressors to square off against the wing's F-22s in training.

"This T-38 program is a very economical solution to a difficult problem," said Lt. Col. Derek Wyler, adversary program leader.

With fewer fourth generation fighters available in USAF's inventory, the impetus to find a suitable aggressor increased, making the Talon's arrival a relief.

"The T-38 is small, nimble, and difficult to find in the air," said 1st Fighter Wing Commander Col. Matthew H. Molloy, adding that the T-38 "will punish a Raptor pilot's mistakes."

The remaining six T-38s are due in the coming months.

Escape From Hidden Mountain

A UH-1N Huey helicopter assigned to the 58th Special Operations Wing crashed on a routine training flight from its base at Kirtland AFB, N.M.

The aircrew escaped the wreckage unscathed before flames consumed the helicopter just before noon local time, April 27, according to KRQE News in Albuquerque.

Two instructor pilots, a flight engineer instructor, and a student were conducting combat search and rescue training when the helicopter crashed and burned on a slope of Hidden Mountain, roughly 25 miles southwest of Kirtland, according to KRQE.

The Air Force is convening a board of inquiry to investigate the cause of the mishap.

Global Hawk Trips Nunn-McCurdy

DOD informed Congress that the costs of USAF's RQ-4 Global Hawk program mushroomed through the end of 2010, triggering a "critical" breach of the Nunn-McCurdy cost-monitoring thresholds.

The aircraft's program acquisition unit cost increased 14 percent compared to its current cost baseline, and its average procurement unit cost rose 22.8 percent, according to DOD selected acquisition reports published April 15.

As a result, the Pentagon must review the program and has to certify to Congress by June 14 that its continuation is vital to national security.

The decision to reduce the planned buy of Block 40 Global Hawks and to replace them with more expensive Block 30 airframes was the primary culprit for the cost spike, according to DOD.

Pentagon officials anticipated the breach last year and have already begun making some changes, DOD said.

Bones Can Hurt More

A B-1B Multiple Ejector Rack now in testing could enable the bomber to

White House photo by Pete Souza

In Real Time: *President Obama, Vice President Biden, and Secretary of State Hillary Rodham Clinton, along with other members of the President's national security team (including Joint Chiefs Chairman Adm. Michael Mullen and Secretary of Defense Robert Gates), receive real-time updates in the White House Situation Room during the mission to capture or kill Osama bin Laden May 1. At the computer is USAF Brig. Gen. Marshall Webb, assistant commanding general, Joint Special Operations Command.*

deliver four times as many precision guided munitions as the B-52.

Today's B-1s carry twice as many PGMs as the B-52, but the new bomb rack would increase the Lancer's loadout 220 percent, from 15 to 48 500-pound weapons.

The rack can host an array of different weapons simultaneously, making it possible for B-1 crews to answer calls for variety of munitions on a single mission.

"B-1 operators have the ability to conduct numerous individual attacks and massive air strikes as needed, without needing to stop to reload," explained TSgt. David Koscienski, weapons suitability noncommissioned officer in charge with the 337th Test and Evaluation Squadron at Dyess AFB, Tex.

Aircrews tested the rack successfully on a B-1 in late March at California's China Lake Missile Range.

Final Minuteman Complete

Airmen from the 341st Missile Maintenance Squadron at Malmstrom AFB, Mont., installed the final upgraded Minuteman III ICBM, complete with new propellant and internal components, in its silo.

"We're relieved it's done," said SSgt. Matthew Truitt, 341st MMXS missile handling team chief, who was responsible for lowering the 68,000-pound missile into launch facility Juliet-09 on April 6.

The Air Force added new propellant to the boosters on its fleet of 450 Minuteman III missiles under the Propulsion Replacement Program. The changes were part of the modifications to keep these missiles viable out to at least 2020.

Known as "2012 boosters," the initial 100 originally received new propellant, but no internal refit. Now that the Air Force has fit those missiles with the extra internal components, the missiles become "2020 boosters," bringing them in line with Minuteman missiles upgraded later in the series.

Nuclear Units Realign

Air Force Materiel Command munitions squadrons responsible for nuclear support will transfer to Air Force Global Strike Command over the next year, announced USAF officials April 27.

Placed under AFMC at the outset of the service's efforts to reinvigorate its nuclear enterprise, AFGSC is now mature and "capable of integrating the munitions function into the larger nuclear mission," explained Air Force Chief of Staff Gen. Norton A. Schwartz. To minimize disruptions to operations and personnel, the squadrons will remain in place.

Affected units are: the 798th Munitions Maintenance Group at Minot AFB, N.D.; 498th MUMG at Whiteman AFB, Mo.; 15th Munitions Squadron at F. E. Warren AFB, Wyo.; 16th MUNS at Malmstrom AFB, Mont.; 17th MUNS at Minot; 19th MUNS at Whiteman; 498th Nuclear Systems Wing at Kirtland AFB, N.M.; and 798th MUMG, Det. 1, at Vandenberg AFB, Calif.

Liberty for Beale

Beale AFB, Calif., will be the Stateside home of USAF's MC-12W Liberty fleet, Air Force officials announced April 8.

"We have a long history of operating intelligence, surveillance, and reconnaissance weapon systems, and we are ready to add MC-12W to our Beale fleet," said Brig. Gen. Paul H. McGillicuddy, Beale's 9th Reconnaissance Wing commander.

Initially, airmen will use seven aircraft there for mission-qualification training, while the bulk of the fleet remains deployed overseas.

The Air Force identified Beale last July as the preferred beddown location, pending the completion of environmental impact studies.

USAF operates 37 MC-12s for overhead ISR support to ground forces. Previously, MC-12 training was conducted at Key Field, Miss.

Beale already hosts U-2s and RQ-4 Global Hawk operations, and MC-12s will begin arriving early this summer.

Combat Shadows to Cannon

Officials with the 27th Special Operations Wing activated the 522nd Special Operations Squadron in a ceremony at Cannon AFB, N.M.

The 522nd SOS will be USAF's first unit assigned to fly the MC-130J Combat Shadow II, due to begin operations in 2012.

The unit's role will be covert infiltration, exfiltration, and resupply of special operations forces in hostile and denied regions.

"We will commit ourselves to excellence, be dedicated and courageous, and we will always lead the way," said Lt. Col. Paul Pendleton, who took command of the re-formed unit, whose history dates to World War II. Pendleton

Predators Over Libya

Two days after the Defense Department revealed that armed MQ-1 Predators began operations over Libya, NATO announced the first series of attacks by the remotely piloted aircraft against Libyan dictator Muammar Qaddafi's forces April 23.

Defense Secretary Robert M. Gates divulged President Obama's approval of using armed drones in Libya on April 21, stating in a Pentagon briefing that Predators have "a very limited additional role" consistent with Obama's aim to supply unique US capabilities to the NATO mission.

In the first strike, a Predator carrying two Hellfire air-to-surface missiles destroyed a multiple rocket launcher near the city of Misratah. Qaddafi forces had used it against civilians. In the second incident, a Predator took out an SA-8 surface-to-air missile in Tripoli. In the latter case, officials noted that Predator operators detected civilians near the missile, and delayed their attack until the bystanders dispersed.

Unarmed Predators previously flew surveillance missions over Libya, but "the character of the fight has changed," necessitating the addition of armed orbits, Marine Corps Gen. James E. Cartwright, Joint Chiefs vice chairman said at the Pentagon briefing.

With Libyan dictator Qaddafi's forces "digging in or nestling up against crowded areas" to avoid air attack, Predators enable urban strikes with less fear of collateral damage.

Firefight in the Old Southwest

Under the direction of US Northern Command, six specially equipped Air Force C-130s tackled some 32 uncontrolled wildfires in Texas alone and more in Mexico's Coahuila state.

Two Air Force Reserve Command Hercules from the 302nd Airlift Wing at Peterson AFB, Colo., entered the fray first, deploying to Laughin AFB, Tex., reinforced days later by four Air National Guard C-130s.

As of April 27, C-130s had flown 64 missions, releasing thousands of gallons of fire retardant and suppressant on fires in Texas and Mexico using the self-contained Modular Airborne Firefighting System (MAFFS).

Since arriving April 17, four of the aircraft had dropped a total of 90,000 gallons of retardant in an attempt to control fires across 993,000 acres in Texas alone.

Air Guard units from North Carolina's 145th Airlift Wing, California's 146th AW, and Wyoming's 153rd AW staged from Dyess AFB, Tex., to battle blazes across that state.

Reserve assets focused primarily on supporting fires in the state of Coahuila, across the border, at the request of Mexico's government.

MAFFS discharges roughly 3,000 gallons of suppressant in five seconds, drenching a 60-foot swath a quarter-mile long, from standard operating altitudes, refilling in less than 12 minutes.

received the unit's laurelled guidon from 27th Special Operations Group acting commander Col. Charles Myers at the stand-up April 7.

Known as the "Fireballs," the 522nd SOS was one of the most decorated air units in World War II.

Droning on at Ellsworth

Officials at Ellsworth AFB, S.D., have activated Det. 1 of the 28th Operations Group. It will manage the lead-up to activating an MQ-9 Reaper remotely piloted aircraft squadron at the base next year.

"The base itself will undergo changes to facilitate a smooth transition as the new detachment paves the way for the incoming RPA squadron," said Col. Jeffrey B. Taliaferro, 28th Bomb Wing commander. He added, "We are on track with the critical events and activities that need to be completed before the squadron flies its first combat air patrol next year."

The Air Force announced its decision to bring an MQ-9 unit to Ellsworth last June.

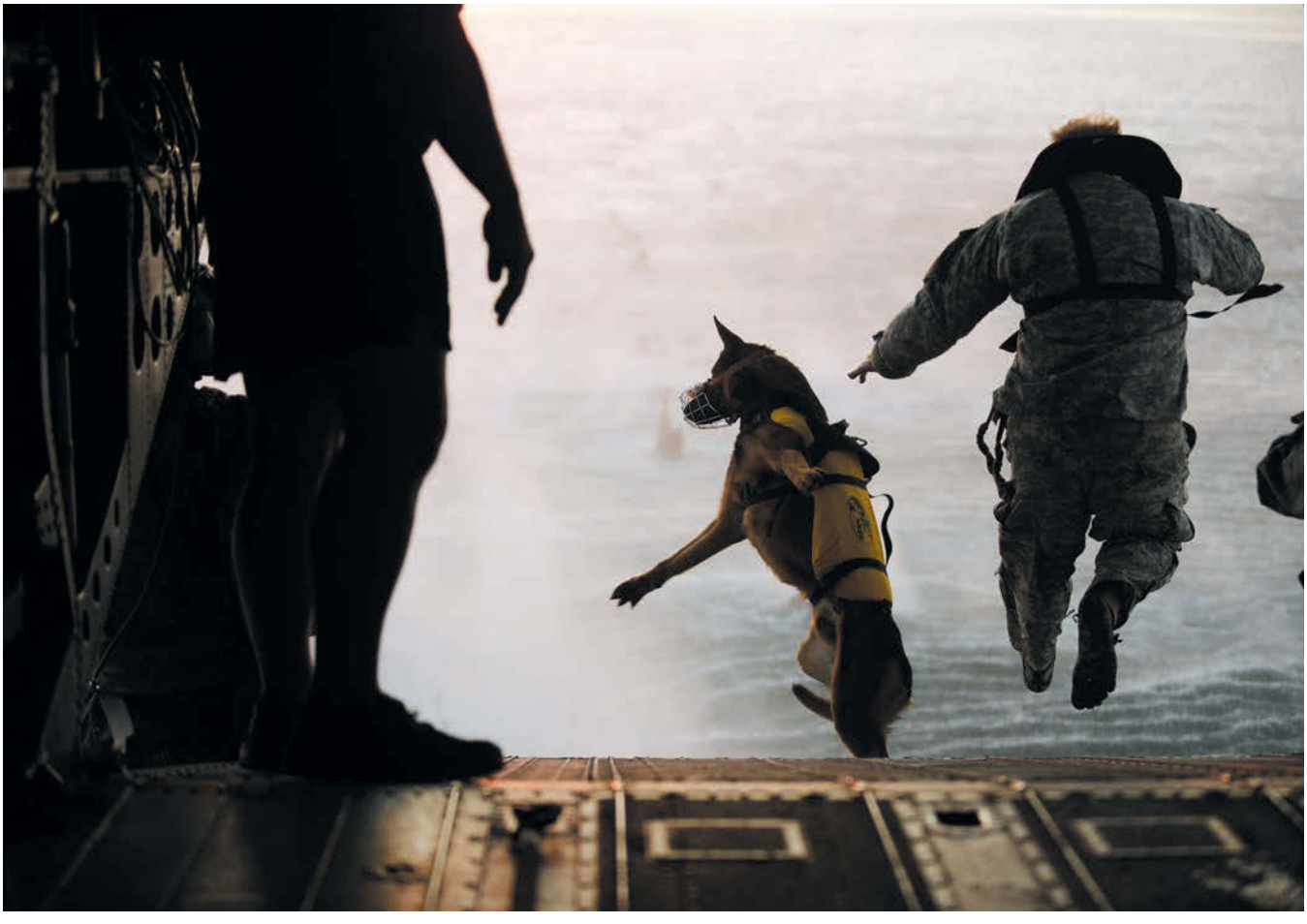
The base expects to add 280 civilian and military personnel to operate Reapers supporting contingency operations overseas. The squadron is slated to begin operations in May 2012.

Fightin' Eagles Win Raytheon Trophy

The 27th Fighter Squadron at JB Langley-Eustis, Va., won the 2010

***Sic 'Em, Rover:** A soldier and his military working dog leap from the ramp of a CH-47 Chinook helicopter during water training over the Gulf of Mexico as part of the exercise Emerald Warrior in March. Emerald Warrior is an annual two-week joint tactical exercise sponsored by US Special Operations Command designed to apply lessons learned from operations in Iraq and Afghanistan in joint training.*

USAF photo by TSgt. Manuel J. Martinez



USAF photo by MSgt. Kevin J. Gruenwald

Green Means Go: *Two F-16s break out of formation and head to the "fight" during a Green Flag West mission April 27. Green Flag West, an unscripted battle exercise, provides a realistic close air support training environment for airmen preparing to deploy in combat operations.*

Raytheon Trophy as the Air Force's most outstanding air superiority squadron.

The F-22 unit known as the "Fightin' Eagles" deployed more than 200 days last year to the west Pacific in a US Pacific Command Theater security package and for exercises at the United Arab Emirates' Air Warfare Center.

The 27th FS is the first F-22 unit to win the coveted air superiority trophy.

Milestone for Resupply

The State Department announced completion of the 1,000th US aerial supply mission to Afghanistan transiting Russian airspace.

The flights have brought "over 150,000 personnel" to Afghanistan in support of international efforts there, according to the State Department's release April 20.

A bilateral agreement beginning July 2009 has made these flights possible, adding much-needed additional capacity and flexibility to US Transportation Command's flow of troops and materiel into the land-locked nation to sustain US and NATO forces.

Access to Russian airspace allows modern commercial freighters and military transports to fly directly from bases in the United States over the North Pole en route to airfields in Afghanistan.

The US has no plans to discontinue flights anytime soon, according to the State Department.

Lear Back at Scott

Scott AFB, Ill., is reclaiming the Air Force's sole C-21A schoolhouse from Keesler AFB, Miss.

This move centralizes the bulk of C-21 functions at Scott, which had hosted the training mission for the militarized Learjet transports until the early 1990s.

The Air Force aims to cut the fleet from 56 aircraft to 28 by Fiscal 2013. As part of these changes, Scott's 458th Airlift Squadron assumes responsibility for training in addition to conducting operational airlift.

The squadron will designate two of its existing airframes for training. The first initial qualification class began at Scott in early April. Instructor pilot training is set to begin in July.

Residing under Scott's 375th Operations Group, which manages the C-21 fleet, the 458th AS realignment designates the base as the "focal point for all things C-21," said Col. Terry Ward, 375th OG commander.

Air Guard Unit Activated

The Mississippi Air National Guard activated the 286th Air Operations Group at Key Field in Meridian to support the homeland defense and domestic disaster-response missions of the Continental US NORAD Region and 1st Air Force (Air Forces Northern) at Tyndall AFB, Fla.

The new group belongs to Key Field's 186th Air Refueling Wing, which is losing its KC-135 tankers under BRAC 2005.

"The 286th will be able to rapidly augment our organization in the event of an emerging natural disaster or air threat to homeland security, and having this manpower pool and technical expertise will greatly enhance our ability to respond at a moment's notice," said Maj. Gen Garry C. Dean, CONR-1st Air Force commander.

The group activated at Key Field April 8. Key is also slated to host C-27J transports filling in behind the KC-135 mission.

Working the B-52 Details

"We are still working through exactly how" a portion of the B-52 bomber fleet will be converted to conventional-only roles, James N. Miller, principal deputy undersecretary of defense for policy, told the Senate Armed Services Committee's strategic forces panel in May.

The conversion would allow the United States to exclude some 30 B-52s from counting as nuclear delivery platforms under the New START agreement with Russia. The move would also help the US meet its overall nuclear force structure targets.

Officials will propose the conversion plan at some point to US treaty-compliance experts for approval, said Gen. C. Robert Kehler, commander of US Strategic Command, testifying with Miller.

The proposal will make clear that the B-52s are "not capable of carrying or delivering nuclear weapons," he said, adding that "we believe we have a good way to do that, that still allows them to be capable for conventional missions."

After approval, US officials will exhibit a B-52, per the treaty's terms, for Russian inspectors to physically view the conversion.

Pararescueman Awarded DFC

SSgt. John Hatzidakis, a pararescue instructor with the 342nd Training Squadron at Lackland AFB, Tex., received the Distinguished Flying Cross with Valor Device for combat actions near Lashkar Gah, in southern Afghanistan, on March 19, 2009.

During the evacuation of a critically wounded British soldier to Camp Bastion, a rocket-propelled grenade struck Hatzidakis' HH-60G rescue helicopter, severely damaging the tail.

Initially blown back by the explosion as he was attending to the soldier's wounds, Hatzidakis quickly recovered, using his body to shield the Brit from flying debris.

He then checked to see if any of the five crewmen needed medical attention before assisting with the damage assessment. "I was just doing my job and what I thought was right," said Hatzidakis.

Hatzidakis was awarded the DFC in a ceremony at Lackland, April 18.

Bronze Star Medals Awarded

MSgt. Benjamin Horton, an explosive ordnance disposal airman, was awarded three Bronze Star Medals for his actions in Afghanistan.

Assigned to the 775th Civil Engineer Squadron at Hill AFB, Utah, Horton was credited for saving lives as an EOD team leader, clearing improvised explosive devices for coalition forces in theater.

In one incident, a nearby blast rendered Horton temporarily blind. Despite the trauma, he remained calm, holding his position until assistance reached him.

After his sight returned, he saved a unit from entering an IED-laden alleyway and performed post-blast analysis before leaving the scene due to injury.

In the same ceremony April 18, SSgt. Keith V. Green, another EOD specialist with the 775th CES, was awarded a Bronze Star Medal for his service as an EOD team leader in Afghanistan.

Rescue Valor

Adm. Michael G. Mullen, Chairman of the Joint Chiefs of Staff, presented the Bronze Star Medal with Valor Device to three pararescuemen in a ceremony at Nellis AFB, Nev.

Mullen individually recognized TSgt. Jeffrey Hedglin, TSgt. Ryan Manjuck, and SSgt. Asher Woodhouse for their courage under fire, rescuing three wounded US soldiers in Afghanistan June 3, 2010.

Assigned to Nellis' 58th Rescue Squadron, Hedglin carried a wounded soldier more than 80 feet across open terrain, Manjuk hoisted the casualties into the hovering helicopter, and Woodhouse spotted surface-to-air fire for the aircrew.

"I'm accepting this award on behalf of the rescue community as a whole," said Hedglin, Guardian Angel team leader, during the April 14 ceremony.

Airman's Remains Identified

The Defense Department identified the remains of 2nd Lt. Martin P. Murray, a 21-year-old World War II airman from Lowell, Mass. He had been missing in action for 68 years. Murray's remains were returned to his family for burial with full military honors in Marshfield, Mass., in April.

Murray was one of 11 airmen lost Oct. 27, 1943, when their B-24D bomber disappeared over Papua New Guinea during a reconnaissance mission.

DOD investigators excavated the Papua New Guinea crash site in 2007, after a local citizen alerted a team about the wreck several years earlier.

Two of Murray's crewmates, SSgt. Claude A. Ray and SSgt. Claude G. Tyler, had also been recovered in 2007 and were buried last October.

Remains of WWII Airman Identified

The Defense Department identified the remains of TSgt. James G. Maynard, an airman missing in action since World War II. He was buried at Arlington National Cemetery, April 22.

Maynard was part of a six-man crew aboard a C-47A Skytrain that departed from Tanauan Airfield in the Philippines, March 12, 1945.

As soon as the aircraft was cleared for takeoff, all communication was severed, and after a failed search, the men were presumed killed.

Though US officials received word in 1989 of the crash site near Leyte, where Tanauan was located, regional unrest had prevented investigation and recovery operations. ■

News Notes

■ Belgium, Britain, France, Germany, Luxembourg, Spain, and Turkey—the seven launch customers for Airbus Military's A400M transport—signed final contract amendments in Seville, Spain, April 7, paving the way for production to begin. The first aircraft should be delivered in 2013, to France.

■ A Lockheed Martin F-35B short takeoff and vertical landing test aircraft autonomously settled down to a vertical landing from hover for the first time in early April, according to Pratt & Whitney. The auto-landing was the F-35's 74th vertical landing test overall.

■ Australia signed an agreement with the US government to acquire a fifth C-17 transport via foreign military sales, announced Boeing, April 18. The airframe will bolster Australia's humanitarian and disaster-relief capabilities, operating from RAAF Amberley, near Brisbane.

■ Lockheed Martin delivered the second production C-5M to the Air Force from its production line at Marietta, Ga., April 11. The aircraft, which is the fifth to join the fleet overall, was ferried to Stewart ANGB, N.Y., for final interior touches before traveling to its home base at Dover, Del.

■ Col. Lenny Dick and Robert McCutchen Jr. attained 5,000 flying hours in the F-16, a feat only two other Viper pilots have attained. Dick is vice commander of the ANG Reserve Command Test Center, and McCutchen is assigned to the 56th Fighter Wing at Luke AFB, Ariz., where he serves as special assistant to the wing commander.

■ A Russian Air Force delegation led by its Chief, Col.-Gen. Alexander Nikolayevich Zelin, visited Barksdale AFB, La., meeting with Global Strike Command officials April 4. The Counterpart Visit Program aims to strengthen bilateral relations, providing leaders a view into programs of mutual interest.

■ NASA's ER-2 research aircraft began temporary operations from Offutt AFB, Neb., in late April. Part of a NASA project to improve predictions by weather satellites, the aircraft will fly sorties gathering data on weather patterns over Oklahoma through early June.

■ The in-flight depressurization of a Southwest Airlines Boeing 737 over Arizona, April 1, prompted USAF to inspect its fleet of 737-based C-40Bs. The executive transports, assigned to the 89th Airlift Wing at JB Andrews, Md., were determined to be in excellent condition.

■ The Air Force Phased Array Warning System known as Pave PAWS averted evacuation of the International Space Station, April 5. The radar network detected and tracked a six-inch chunk of debris, determining it would pass by the ISS harmlessly.

■ US Southern Command opened a command center on April 19 at NAS Key West, Fla., to combat illicit narcotics and other trafficking in Central and South America. The unit will coordinate all US air and sea assets, cooperating with international partners.

■ About 60 airmen joined 150 Congolese military personnel in the Democratic Republic of the Congo for a two-week aeromedical evacuation exercise sponsored by US 17th Air Force, Air Forces Africa. ■

Verbatim

By Robert S. Dudney

verbatim@afa.org

Panetta's Prayer

"It's in your hands, friend. I wish you the best. All I can do is pray a hell of a lot."***—CIA Director Leon E. Panetta to Vice Adm. William H. McRaven, just before the latter initiated the SEAL raid that killed Osama bin Laden,*** **Wall Street Journal,** ***May 3.***

Obvious Signs of Heat Stroke

"We insist on only one thing—that we're an equal part of it. In practical terms, that means our office will sit, for example, in Brussels and agrees on a red-button push to start an anti-missile [defense launch], regardless of whether it starts from Poland, Russia, or the UK."***—Russian Deputy Prime Minister Sergei Ivanov, in an interview in Miami with Bloomberg News, revealing Moscow's wish to join in a planned missile shield for Europe, April 7.***

Sure, Why Not?

"Over the last two years, [Defense] Secretary [Robert M.] Gates has courageously taken on wasteful spending, saving $400 billion in current and future spending. I believe we can do that again."***—President Obama, speech at George Washington University focusing on spending cuts, April 13.***

Fast Track

"It's my sense that White House defense decisions are putting this great republic on the fast track for decline. ... The logic has been simply baffling to me: Expand our military commitments while cutting our armed forces."***—Rep. Buck McKeon (R-Calif.), chairman of the House Armed Services Committee, remarks to the Heritage Foundation, Washington, D.C., May 5.***

Oh, ***Please*** **Shut Up**

"There are human rights issues that relate to the policies of the North Korean government, which I don't think any of us on the outside can change. But one of the most important human rights is to have food to eat. For the South Koreans and the Americans and others to deliberately withhold food aid to the North Korean people because of political or military issues not related is really a human rights violation."***—Former President James Earl Carter, remarks at a news conference after visit to North Korea, April 28.***

Discovered: Atheists in Foxholes!

"Atheists Seek Chaplain Role in The Military"***—Actual headline in*** **New York Times,** ***April 26.***

Gold Standard

"[The F-35] is our highest priority program. Air superiority is something we absolutely have to have, operationally, forever. And so, we're going to get that program delivered."***—Frank Kendall, principal deputy undersecretary of defense for acquisition, technology, and logistics, in a meeting with the Defense Writers Group, Washington, D.C., April 20.***

Entangling Alliances

"A big part of what's going on is our British and French allies want to get out of what looks to be a stalemate that they now own, so they are busy pressuring us to escalate, and we don't want to escalate."***—Military analyst Stephen Biddle, Council on Foreign Relations, in Associated Press dispatch on US decision to use Predator aircraft in Libya, April 30.***

Brave Words of a Moonbat

"I'm not leaving my country. No one can force me to leave my country and no one can tell me not to fight for my country."***—Libyan leader Muammar Qaddafi, in a televised address to the nation, April 30.***

Weapons of the Weak

"[Libya] has not been a very big war. If [the Europeans] would run out of these munitions this early in such a small operation, you have to wonder what kind of war they were planning on fighting. Maybe they were just planning on using their air force for air shows."***—John Pike, director of GlobalSecurity.org, commenting on reports that NATO forces were running out of bombs,*** **Washington Post,** ***April 16.***

All They Need Is Weapons

"If the Lord Almighty extricated the US out of NATO and dropped it on the planet of Mars so we were no longer participating, it is bizarre to suggest that NATO and the rest of the world lacks the capacity to deal with Libya. It does not."***—Vice President Joseph Biden, interview with the*** **Financial Times,** ***April 19.***

The Terrible Ifs Accumulate

"If we had declared a no-fly zone early on, three or four weeks ago, Qaddafi would not be in power today. So now the Libyan people are paying a very high price in blood because of our failure to act, and because of this overwhelming priority of having to act multilaterally."***—Sen. John McCain (R-Ariz.), quoted in*** **New York Times,** ***April 12.***

Gates Takes a Guess

"My guess is you won't see much change at all, because the whole thrust ... is you're supposed to go on treating everybody like you're supposed to be treating everybody now—with dignity, respect, and discipline."***—Secretary of Defense Robert M. Gates, in remarks to troops in Iraq about the forthcoming end of "don't ask, don't tell" policy, April 7.***

Incoming

"On space programs, we're paying too much, and you will see us doing a lot with the management of space programs coming up. ... You can look into the future, and it's apparent that at the cost projected, these [space programs] are not affordable."***—Undersecretary of Defense for Acquisition, Technoligy, and Logistics Ashton B. Carter, remarks at the Heritage Foundation, Washington, D.C., April 20.***

Incoming II

"Many [budget] efficiencies will have to be found in the fastest growing element of our spending— ... the cost of personnel. Not unique to DOD, but the ... cost of manpower is growing faster than our other spend lines. Don't just look at pay checks, but consider health care, education, retirement and the like."***—Gen. Donald J. Hoffman, commander of Air Force Materiel Command, in address in Dayton, Ohio, April 26.***

Carry That Weight

Photo from National Air and Space Museum

In a World War II-era propaganda shot (above), USAAF student bombardiers hoist 100-pound dummy bombs overhead. It was part of daily calisthenics and strength training at Midland Army Airfield, Tex., the High Plains home of what Life *magazine once called "the world's largest bombardier college." Graduates were known as "Hell-from-Heaven Men," in reference to the punishment they delivered from the air. In today's Air Force, they do things differently, but some things never change. At right, trainees perform timed push-ups.*

USAF photo by Melinda Mueller

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Air operations are on the rise as the Air Force disperses throughout Afghanistan to take the fight to the enemy.

Boom Time in

Afghanistan's Paktika province lies due south of the capital Kabul by just over 100 miles, over mountainous and rugged terrain, abutting Pakistan's border to the east. There are few paved roads, but in early March there was plenty of traffic high above, as the contrails of tankers occasionally crossed the mountain-studded landscape and low flying fighter aircraft crossed the plains in between.

Now closing in on its 10th year, the war in Afghanistan is flaring anew. An infusion of troops and resources is placing American and coalition troops in the thick of insurgent and Taliban territory. Concurrently, the metrics for US and coalition airpower reflect an intense fight. In 2008, Air Forces Central recorded 20,359 close air support sorties, but in 2010, AFCENT flew 33,679 CAS missions. In addition, with the arrival of Gen. David H. Petraeus, US Forces

Two Army Chinook helicopters lift off on a mission from Bagram Airfield, Afghanistan, behind an F-15E Strike Eagle deployed from Seymour Johnson AFB, N.C. Bagram, located north of Kabul, has expanded significantly since the beginning of Operation Enduring Freedom in 2001, as a large number of close air support, airlift, and supply sorties originate from, or route through, the airfield every week.

Afghanistan

By Marc V. Schanz, Senior Editor

Afghanistan commander, in July 2010, sorties with weapons releases began a steady climb: from 325 in July to a peak in October of 1,043 releases in a single month.

What's behind the numbers, various Army and Air Force officials in theater explain, is an increase in combat due to US and coalition forces entering contested areas—and staying. At Forward Operating Base Orgun-E, a remote US base mere miles from the Pakistan border and the largely ungoverned Waziristan, Army troops from the 101st Airborne Division's 4th Brigade Combat Team, known as "White Currahee," conduct nearly daily clearance and interdiction missions targeting militants.

Sitting at more than 7,000 feet altitude, Orgun-E is only a few miles from daily combat, as are small FOBs and combat outposts spread out across the area, part of Regional Command East, stretching from Paktika in the south up

USAF photo by SrA. Felicia Juenke

USAF photo by SrA. Sheila deVera

Maj. Tracy Schmidt of the 389th Expeditionary Fighter Squadron, and her weapons system officer, Capt. Kimberly Volk, take off from Bagram on a sortie this past March. A C-17 (left) and C-5 (right) sit on the tarmac behind the fighter. The Air Force has poured resources into Afghanistan as troop levels have increased, making ramp space at major hubs like Bagram a precious commodity.

to Bamiyan in the north and Nuristan in the east.

A tall sensor tower keeps watch on the nearby hills for incoming rocket and mortar fire, and all lights at night must have red lens caps affixed. Late one night in March, just across the hall from the tactical operations center, Maj. Mark Houston, executive officer of the 2nd Battalion, 506th Infantry Regiment, 4th Brigade Combat Team, summarized White Currahee's environment using a map of the region. Taliban and insurgent exfil and infiltration lines, especially for fighters and weapons, run all up and down Paktika's porous border, he explained. He paused every few minutes to indicate locations where his troops have taken fire or experienced tough fights recently.

Firepower and the High Ground

"At [Combat Outpost] Zerok, we were taking indirect fire every day last year, but since December things have cooled off," he explained. Operations had "put a whupping" on bad guys in the sector.

FOB Tillman, near a border post, often runs into a "professional enemy," working in small units, well equipped with top-of-the-line gear, and attacking to determine the strength of forces in the sector. Houston explained, "Two nights ago, Tillman took fire from three different locations," prompting a call for air support, with a B-1B arriving on station within 20 minutes.

"We've stopped them down south, and up north, … but now we are aiming to stop up the flow of insurgents and weapons from Pakistan," Houston said. The spring weather was improving, and soon he expected activity to jump up in his sector as the fighting season ramped up.

Many of these operations, from the tops of Paktika's mountains to defending the FOBs and COPs that litter the Afghanistan-Pakistan border, would be nearly impossible without the guarantee of air superiority, soldiers and senior officers across RC East attest. In some of the most inhospitable terrain on the planet, the guarantee of air superiority changes the strategic picture in large and small ways. "You have to remember something about the enemy here," Houston said. "He respects two things: firepower and the high ground."

Airpower, be it air resupply or being able to call fixed wing or rotary wing assets to respond to a troops in contact scenario, is a huge advantage—and the ultimate high ground. Joint terminal attack controllers [JTAC] and joint fires observers are critical to carrying out daily operations in this terrain, as they are the link between operations on the ground and air superiority, from intelligence-surveillance-reconnaissance support to putting munitions "danger close" on top of the enemy.

Staff map by Zaur Eylanbekov

Since 2009, when President Obama ordered more than 40,000 additional troops into Afghanistan (coinciding with the drawdown of combat forces in Iraq), the US and NATO footprint has mushroomed in the country—particularly in the south in provinces such as Kandahar and Helmand and the east along the provinces straddling the Durand Line, the border with Pakistan. Today, the number of troops contributing to NATO's International Security Assistance Force hovers around 132,000.

For the US, approximately seven infantry brigades' worth of personnel

are spread across RC East and RC North according to military officials. (RC East alone encompasses about 43,000 square miles, a geographic area where the bulk of this combat power is located.) Unlike the early years of the war, when NATO and US forces sought to concentrate their efforts on Kabul and a few other municipalities, the infusion of manpower is expanding the counterinsurgency campaign, with forward bases and combat outposts now sprouting up and enlarging in areas where just a few years ago a token presence existed.

Paktika's FOB Sharana is a prime example, sitting on top of a plateau with a valley and mountains beyond. The base has undergone significant expansion in the seven months preceding March 2011. Before the main force of Task Force Currahee moved in, operations expanded, and semipermanent buildings sprouted up. The base's airstrip is currently being extended and will soon be able to receive direct C-17 flights, in addition to the small contract airlifters and C-130s that routinely fly in and out. The days of Bagram serving as the big hub for air in Afghanistan are receding, as the process under way at Sharana is occurring at numerous other locations, many becoming semi-autonomous, with newer facilities, longer runways, enabling aircraft to arrive and depart without transiting through Bagram (or BAF, pronounced "Baff," as it is known in theater parlance).

Afghan airspace is now a lot more crowded as a result. The Air Force's hand in all of this can be revealed by just observing the ramp at either Bagram Airfield north of Kabul, or Kandahar Airfield, just outside Kandahar city, 300 miles to the south. A few years ago, Kandahar was host to a small operations group of USAF forces—mainly MQ-1 remotely piloted aircraft, HH-60 rescue helicopters, and other assets—when, in early 2009, Air Forces Central decided to stand up a full wing.

A Massive Infusion

The 451st Air Expeditionary Wing came online in July 2009, becoming the second expeditionary combat wing in Afghanistan. Brig. Gen. Paul T. Johnson, a veteran A-10 pilot and current commander of the 451st, said the movement coincided with the President's decision to increase troop levels. "The US began plussing up the level of presence to support increased numbers of ground forces [coming in], so we needed increased air capability as well," Johnson said.

Thus began a series of moves integrating with the forces now spread out across Afghanistan. With the new wing came an A-10 fighter rotation, what Johnson called the "triggering event" of the plus-up of air forces in the south. Until 2009, A-10s were based at Bagram, hundreds of miles from where the US was making a concerted push into the Taliban heartland, in the Helmand River Valley, the Horn of Panjwai west of Kandahar, and other areas. Bringing a Warthog squadron south to Kandahar meant "you have a heavier kinetic fighter presence in the country than we had before '09," said Johnson.

Today, the AEW at Kandahar Airfield is a bustling operation, with aircraft seemingly taking off and landing every moment of the day. Its operations group is arguably the busiest and most diverse in the Air Force. "We have 11 squadrons total, [and we're] ramping up to 12 at some point this summer," said Col. David W. Hicks, another veteran A-10 pilot and commander of the 451st Expeditionary Operations Group at Kandahar.

Four of Hicks' squadrons will divest out to Helmand province's Camp Bastion this summer, he added, in a new expeditionary group composed of rescue and aeromedical evacuation units. "As you can see, there are cats and dogs of all varieties, and we are spread out all over the place," he said in March.

Kandahar is undergoing a massive infusion of airpower, with large numbers of MQ-1, MQ-9, and MC-12 Liberty aircraft flowing in to provide ISR support. The 361st Expeditionary Reconnaissance Squadron stood up in spring 2010 as the second MC-12 squadron in Afghanistan, after the 4th ERS at Bagram began operations in December 2009.

Four C-130Js operate around the clock with Kandahar's 772nd Expeditionary Airlift Squadron. It will soon double the number of airframes to eight, according to Hicks.

Other units include an HH-60 Pave Hawk squadron; a Guardian Angel squadron of pararescue jumpers, survival specialists, and combat rescue officers; a battlefield airborne communications node (BACN) squadron; an air control squadron; and several more.

When combined with Bagram, the expansion at Kandahar has changed the tenor and profile of combat in the Afghan campaign—not only due to the capabilities deployed, but also how they are being dispersed through the country. USAF has tweaked the command and control of air assets to ensure they are used optimally in an environment where no commander ever says he has too much air.

The Air Force is "more widely dispersed around the country," Johnson said. "One of the reasons is, we have simply reached capacity in a place like Bagram and Kandahar, and ... out at Bastion, so we have physically run out

Staff photo by Marc V. Schanz

An HH-60 Pave Hawk sits on alert at Kandahar Airfield, Afghanistan. Low-density, high-demand assets, such as rescue units, are dispersed throughout Afghanistan to better support coalition forces.

USAF photo by SrA. Sheila deVera

A1C Jarren Ewing (back) and SrA. Stephen Jardine of the 455th Expeditionary Security Forces Squadron pause during a patrol outside Bagram Airfield.

of space. We are pushing people out to new locations. It's a reflection of how we have more heavily resourced the fight," he added.

With the proliferation of combat outposts and FOBs in hard-to-reach areas, the need for air to provide ISR, lift, and CAS is growing. "The logistical burden has increased," Hicks noted. "Because [troops] are not sitting in large clumps, the need for airdrop has gone way up, … and you can make an argument you need more CAS, ISR, too, because they also need overwatch to provide security." He said the mission hasn't changed much, but the tempo sure has.

Across the ramp from Hicks' operations group, the 772nd EAS is pushing toward yet another record-breaking month for airdrops. In January, the squadron set a monthly airdrop record of 51 drops, quite a feat at the time. The record was again broken with the unit completing 72 airdrops of more than 1.5 million pounds (about 1,100 bundles) in March. "We are doing a tremendous amount more now than we were when I got here, nine months ago," Hicks said of the ops tempo of the tactical airlifters.

The rapid rise in airdrops is due to several factors, USAF officials explain. There are better delivery parachutes, coupled with larger-capacity C-130 J models carrying more cargo, which can place larger loads in increasingly accurate drop zones. "That allows crews to have a great deal of confidence they will hit a drop zone, and the customers are assured they won't have to hike over a mountain to get what we deliver," Johnson said.

More importantly, he added, the accuracy and reliability enables US and coalition forces to stay in areas more isolated and more dispersed than would otherwise be possible. With no reliable network of roads, air resupply is of great importance in Afghanistan. "Because we can do this, … this allows us to ponder going places [that we] previously wouldn't have gone before," Johnson said.

New Capabilities in Real Time

Air units under the umbrella of the wings at Kandahar and Bagram have dispersed throughout the country. Hicks rattled off a list of forward operating locations for his aircraft—often far flung from Kandahar. In March, a detachment of the 451st EOG stood up at Herat. Another operates out of Shindand in the western portion of Afghanistan. Another detachment operates out of Jalalabad, performing primarily ISR duties.

Johnson admitted ISR gathering is easily the "lion's share of what we do," and the same could be said for the 455th AEW. "The vast majority of the time, I'm using my aircraft as a [nontraditional ISR] asset. … Only in certain cases do we employ kinetic firepower."

From combat outposts to brigade commanders all the way back to AFCENT's combined air and space operations center, there is an "appetite" for intelligence about specific areas to conduct operations, he added. Missions vary widely, and run the gamut from "sweeps" to route clearance to providing overwatch for "key leader engagements," where service members work with local leaders and tribal officials to root out troublemakers. The demand for ISR is driving skyward the number of combat air patrols for unmanned vehicles, and their utility in combat is evidenced by near-constant Predator and Reaper presence on the ramps at Kandahar and Bagram. Even with the UAV surge, the twin-engine MC-12 was quickly developed to supplement them.

"In some of those cases, we are actually figuring out [new capabilities] in real time," Johnson noted. The MC-12 was rushed into combat first in Iraq, then in Afghanistan, which required a lot of dialogue with "customers" as well as the planners and operators. They are all but deployed "out of the lab" and must be tinkered with while carrying out combat missions, in order to figure out their best employment. He pointed to a relatively new platform operating over Afghanistan under command of his wing: Blue Devil, a sensor package on a King Air 90, combining a signals intelligence node with a wide-area surveillance camera. Blue Devil aids enormously in tracking larger areas of interest, as opposed to the "soda straw" view associated with Predator sensors.

Of course, all of this capability must get to the right place when needed, and to better facilitate this, AFCENT and senior USAF commanders have altered the command and control structure for assets since the beginning of the 2009 force surge. Today, NATO has the lead for security operations in Afghanistan under the rubric of ISAF. As a result, communication between the CAOC, ISAF, and the various regional commands has become even more critical.

"For several years, it was all about [Operation Enduring Freedom], and in that case, it was very much a regional command structure funneling requests up through US channels," Johnson recalled. Today, airpower requests from ground commanders make their way up to NATO's ISAF joint command in Kabul, the headquarters responsible for directing day-to-day operations across Afghanistan and partnership operations with Afghan security forces. IJC and the CAOC are in contact daily, as IJC must be the "arbiter" of all these requests for air support, Johnson said.

AFCENT Commander Lt. Gen. Gilmary Michael Hostage III has made some changes to the air hierarchy since arriving in Southwest Asia in August 2009. The moves are designed to em-

power the air component commander for Afghanistan (Maj. Gen. Charles W. Lyon, the senior airman in the country) by giving him limited operational control and full administrative control over AFCENT forces.

Though tactical control of theater-wide assets remains with the CAOC, Lyon has authority to organize force, recommend courses of action, and provide authoritative direction to the subordinate air expeditionary wings in country. In late 2010, Hostage redesignated the air component coordination element for Afghanistan as the 9th Air and Space Expeditionary Task Force-Afghanistan (9th AETF-A) and moved to add staff and authorities to the post.

Effective integration of airpower with ground maneuver required more than close proximity, Hostage wrote in the winter 2010 edition of *Air and Space Power Journal*. "My intent … is to make the ground commander successful. I have seen positive results from this change as the ACCEs [air component coordination elements] have been more fully integrated in operational planning and during staff deliberations, allowing them to provide world-class air support," Hostage wrote.

From the operations perspective, Hicks agreed communication has improved—and it is a fluid, two-way process. Between the CAOC and Lyon, the air picture is "tailored" because they have a unique perspective of what the theater looks like at any given time. It helps because "8,000 individual requests [are not coming] to the wing," Hicks said. "Down here, we look at the fight, we understand what's going on, and we can offer up support or ask questions. ... We're trying to keep our arms around [the fight] on a daily basis, and it is certainly a challenge." Most days, in addition to responding to taskings, Hicks or Johnson are also asked their opinion on how to operationally employ assets to get the best coverage or response time in theater.

Johnson believes there is more dialogue in the air-to-ground process today than ever. "There was a time when a JTAC would say, 'Stand by for a nine line,'" (target coordinates), he'd get them, and that would be the end of the conversation," Johnson said. Now, when you get a request, "what you would observe is a dialogue up and down the line, ... so that everyone understands what is taking place."

While the Afghan campaign has certainly become more kinetic, airmen and service members operating in country are still cognizant they are in an environment demanding "a lot of personal restraint … by all the participants," Johnson said. "It requires all of us to be very conscious of the lethality that is at our disposal and how, if misapplied, that lethality can work against us."

Staff photo by Marc V. Schanz

Armored tactical vehicles pass each other on a road linking the older section of Forward Operating Base Sharana with the newer areas. Sharana, an Army FOB, has undergone rapid growth in the last year.

Time Will Tell

USAF officials in Afghanistan couch their perception of the future carefully, but they all seem to agree that a great deal of pressure is now on Taliban and militant forces. US and coalition forces have gone into places they hadn't gone before, and stayed—presenting the enemy with a choice of either fighting or giving up terrain. "In some cases, they went away, but in others they fought—unsuccessfully," Johnson said. "We anticipate they will come back in the spring, ... but nobody is exactly sure what that fighting season is going to look like. They get a vote in how they are going to conduct their operations." In fact, only a day prior, Kandahar Airfield had been subject to a late-night rocket attack.

Johnson said operations in Afghanistan have evolved, but the demands are no less difficult, especially in situations where mortars are falling, tempers are rising, and casualties are accumulating. For the JTACs and air advisors, "it's an astounding amount of responsibility. And they embrace it."

In the coming years, the Obama Administration is forecasting a slow drawdown of forces, and USAF officials are waiting to see what implications this will have on operations. As Afghan forces step up capabilities and US ground forces withdraw, CAS will not be emphasized as much, Hicks said. "If the dynamic changes, ... that in large part depends on decisions made as far as what the force lay down will look like." However, Hicks added, ISR and airlift will not be going away any time in the near future, as having the ability to move about the country and have a persistent air picture will "continue to be critical."

Just down from the offices of the 451st wing, four Mi-17 helicopters of the Afghan Air Force sat on the ramp, where Afghan military members fly missions and work alongside advisors from the 442nd Air Expeditionary Advisor Squadron. The fliers have made progress, and regularly perform cargo transport, VIP movement, and even medical evacuation missions, but much work remains in areas such as building up a strong NCO corps and lines of authority across squadrons and wings in the country.

"We are ... cognizant that they still have a long way to go," Johnson admitted. "Will [the Afghans] need assistance with mobility, with ISR? Time will tell."

For now, the pace and intensity of the USAF mission in Afghanistan is connected to the US and coalition forces currently operating across the country. "Whoever is outside the wire, we see [that force level] and presence driving our level and presence here," Johnson said. ■

At AFA's first-ever CyberFutures conference, top officials spoke of the need to prepare for war in cyberspace as they do for air, land, sea, and space.

CyberFu

Staff illustration by Zaur Eylanbekov

FUTURES

By **Amy McCullough,** Senior Editor

One of Air Force Space Command's top priorities is to operationalize and normalize military cyberspace. The task is difficult because few people understand the laws and principles surrounding the Defense Department's newest operational domain—which is entirely man-made.

Cyberspace is constantly changing and many of the fundamental questions, such as whose job it is to guard the networks and how that will be accomplished, remain unanswered. Nonetheless, AFSPC officials hope to speed up the process by pulling from 20-plus years of lessons learned operationalizing the space domain.

Building the cyber workforce and establishing the necessary authorities will be key, but these also pose some of the biggest challenges, said officials at the Air Force Association's inaugural CyberFutures conference held March 31 to April 1 in National Harbor, Md.

"The one guarantee in today's cyberspace domain is that it will be different in the future," said Lt. Gen. Michael J. Basla, vice commander of Air Force Space Command. "In the physical domains, the laws of nature never change. We can count on gravity as a constant. In the cyberspace domain, the rules of humans dominate and we can't count on that stability."

Although the people, products, and ideas underpinning cyberspace may be a bit more mature, the field itself remains in its infancy and still lacks a "coherent, higher level framework" to guide investment, said James Richberg, the assistant deputy director of national intelligence for the cyberspace office of the Director of National Intelligence. Richberg helped develop the Comprehensive National Cybersecurity Initiative, launched by President George W. Bush in January 2008.

USAF photo by SSgt. Tiffany Trojca

Air Force Chief Information Officer Lt. Gen. William Lord addressed threats to the Defense Department's network at the Air Force Association CyberFutures Conference at National Harbor, Md.

Whack-a-Mole

The CNCI now plays an integral role in implementing the recommendations of President Obama's Cyberspace Policy Review, which includes creating a unified response to future cyber incidents, strengthening public and private partnerships to find technology solutions that ensure America's security, and investing in cutting-edge research and development in the cyber domain.

Richberg said there needs to be a "scorecard" that the government and private sector can use to check off successes and inefficiencies in cyber. Rather than living with hardware and software that are incompatible or bugs that may or may not be fixed, Richberg said officials need to seek some type of performance warranty, much like you get when you purchase a new automobile.

Estimates show that the public and private sectors spend more than $20 billion annually on cybersecurity. The Pentagon's Fiscal 2012 budget request includes $4.6 billion for cyber in the Air Force alone—the same amount set aside to fix the F-35 strike fighter program.

Yet, "we are still playing whack-a-mole on threats," Richberg said.

"Few of us would buy a plot of land and then head to the neighborhood home improvement store to buy supplies to build our own house without blueprints, yet that's the way much of enterprise IT architecture sprang up," he said. "So, in terms of guarding the networks, it frankly isn't surprising that most customers end up with a la carte cybersecurity solutions and little to no system integration or idea of security performance."

The Air Force network has been scanned thousands of times this year, including 132 suspicious events and 10 new malware signatures, said Lt. Gen. William T. Lord, USAF's chief

USAF photo by SSgt. Jason Barebo

USAF Capt. Stefan Essig (r) and Army Maj. Darryl Verrett run computer systems checks aboard an E-8C JSTARS. The Pentagon and combatant commands continue to discuss roles and command and control in the cyber realm.

of warfighting integration, during his address at the conference.

Those threatening the network are after the Pentagon's intellectual property and proprietary information, but "most importantly, ... they are accessing our networks for later exploitation," Lord said. The hackers and attackers trying to gain entry into DOD networks also are becoming more and more sophisticated. If compromising the network becomes too much of a challenge, Lord said they will simply move on to one of the 19,000 applications on the USAF network—each of which has a varying degree of security.

That's why the Air Force is putting its applications through rigorous testing to fix holes in the system. However, technological advances and plugging holes are not the only solution. The government will never be able to keep pace with cyber developments; chasing technology will always be an uphill battle, Basla said.

Though Basla said he doesn't want to "discourage innovation," the best way to create the stability necessary to operationalize and normalize cyberspace is through "deliberate processes while developing our people."

A true fix will require changing the culture in the Air Force so the cyber cadre is trained with the same operational rigor as those working in the air and space domains.

"We're getting there but we're not there yet," Lord said. "In an operational weapon system, ... I'll bet you don't just walk in there and tear off the shrink-wrap that came with the commercial product and click, click, click until it doesn't work. We're changing the way that we train, certify, inspect [those] ... who are running our networks today. That's cultural. That's training. That's educational."

USAF photo by Robbin Cresswell

Air Force basic military trainees learn about defending cyberspace during a class. USAF leaders say training in the cyber domain is just as important as training in the air and space domains.

The Trouble We Have

Lack of training is the No. 1 way to remain vulnerable, said Air Force Maj. Gen. Ronnie D. Hawkins Jr., vice director of the Defense Information Systems Agency. Hawkins suggested all senior leaders should be certified to operate on the network, just like an F-16 pilot is certified to fly the aircraft. Re-engineering the workforce has to start at the top and then work its way down to the lowest ranking airmen, he said.

The Air Force would not allow someone to command an aircraft wing if he didn't know how to fly that aircraft, so it should not allow people to work within the cyber domain without first becoming certified to do so, Hawkins said. There also needs to be an additional layer of scrutiny of the information that is allowed into the cloud. That could mean decertifying people if they screw up and prohibiting them from operating on the network until they can go through the proper training, just as pilots can be decertified following an accident investigation review board.

"None of us would get on an aircraft ... with the knowledge that the pilot and everybody on that aircraft had not been certified and also recertified at some time or another," said Hawkins, who said operating in cyber should be no different. "Until we get there, we're going to have the trouble that we have. We're going to have the intrusions that we have. And more importantly, we will not be able to gather the right type of information to effect the change that needs to go on to secure the cloud and more importantly secure cyber."

Cybersecurity will require a well-trained and experienced cadre. The best way to grow and train the force is to align a collection of relevant career fields under one cyber force, said Maj. Gen. David N. Senty, chief of staff for US Cyber Command. That would mean those building the network, doing combat communications, network defenders, and cyber operators would move through the same stovepipe, and

USAF photo by SrA. Dana Hill

Airmen with the 497th ISR Group work on the operations floor at JB Langley-Eustis, Va. Industry leaders say they are already seeing a convergence between the Intelligence Community and the IT experts.

USAF photo by SSgt. Liliana Moreno

Maj. Gen. Michael Basla, now Air Force Space Command vice commander, greets Maj. Gen. Edward Bolton Jr. (in t-shirt), director of cyber and space operations at USAF headquarters, while touring a flight line in Southwest Asia. At AFA's cyber conference, both spoke about the challenge of operating in a domain that is constantly changing.

the Defense Department would be able to pull from each of those skill areas to best protect the network.

DOD also is trying to find a "logical career track" for the next generation of cyber warriors. Senty said it would be a "special operations-like career field" made up of "a skilled, selected, distinctive cadre that can operate in cyberspace with the same [confidence] as our combat arms and operators do today."

These cyber commandos would have backgrounds in intelligence, space operations, engineering, electronic warfare, combat arms, and especially planning. Planners will play a key role in maneuvering through the intricacies of cyberspace and integrating "at all phases of an operational plan," he said.

The goal is to build a multidisciplined workforce, where the cyber cadre is first trained at US Cyber Command and then goes off to work under the National Security Agency and/or DISA before coming back into their respective services, each bringing with them a wealth of new knowledge.

To make the network "smarter and more secure," DOD needs to create an ebb and flow within the community that allows the cyber cadre to easily move from one career field to another. This will ensure they remain in touch with the cyber domain throughout their careers. In this model, those trained as network builders could find themselves at some point acting as cyber hunters who chase down "spurious data, unusual behaviors, or anomalies" in the network, Senty said.

Barbara G. Fast, the vice president of cyber solutions for Intelligence and Security Systems, a division of Boeing's Network and Space Systems, said she does not believe cyber will remain a niche career field. In fact, the transition to a more permanent career path already is taking shape and it's bringing with it a convergence between the Intelligence Community and the IT experts, said Fast, a retired Army major general.

Army Gen. Keith B. Alexander, commander of USCYBERCOM, may be the first senior cyber officer but he won't be the last.

Setting the Standards

"That is going to be the largest core operational competency because it is inherent in every mission that we perform. It's how we operate today," Fast said. "We sometimes tend to think of it, particularly in industry, as being at the enterprise level, but more and more, it's going to migrate ... to the tactical edge."

Successfully creating that long-term cyber workforce will require heavy investment in education, said Robert F. Brammer, vice president for advanced technology and chief financial officer for Northrop Grumman's Information Systems sector, because building a broadly based cybersecurity workforce is a critical national security issue.

"We're beginning to realize the importance and what it would take to get that done. ... I know we're making progress, but I also have a very healthy respect for how much more there is to be done," he said during an industry panel discussion at the conference.

Lynn A. Dugle, Raytheon president of Intelligence and Information Systems, agreed that education is crucial, but said industry is too reliant on traditional learning methods and processes.

"I am extremely confident that if I went to many of my colleagues who are generals and I said to them, 'Sir, we're going to enter the battle tomorrow. We are outmanned one-to-10, one-to-12,' ... I don't think [their] response would be, ... 'We're going to create a four-year college curriculum and we're going to fill the gap," Dugle said. "What I'm saying is not anything against well-thought-out programs, ... but I'm saying that it's insufficient. ... Not only because [it takes] too long, but in this field, dynamic learning is the name of the game. [Cyberspace] is not like physics. It's not like civil engineering where what you learn has a half-life of decades."

As the education process accelerates and evolves, government and industry will have to come up with a uniform definition of success. Today, there are many metrics to gauge cybersecurity, such as money spent, pieces of malware blocked, percentage of audit compliance, but there are few "real measures" of success, said Richberg.

Determining what constitutes the appropriate level of cybersecurity is not an easy task, because what is considered adequate security in one context may be unacceptable in another, he said. For example, it's not likely the government would accept anything less than zero defects when talking about the security control system for a nuclear power plant. On the other hand, the standard likely would be less stringent when talking about cyber crimes.

The key to protecting the networks will require an open dialogue based on a standardized vernacular and shared framework, plus a common model to drive the roles and responsibilities of all parties involved in the cyber domain. Richberg offered a general paradigm based on detection, defense, resilience, and recovery.

The orientation of malicious cyber activity, or attribution, would fall under detection in Richberg's model—something he called either the "Holy Grail or the Achilles' Heel of our field, depending on whether you are an optimist or a pessimist." Cyber defense would include coverage of everything from the common desktop computer to the entire enterprise network. Resilience, in this case, can be defined as damage limitation, while recovery is the ability to generate a replacement capability if attacked.

Whether you buy into his proposal, Richberg said "a successful model, ideally, should be readily understood by the laymen, help practitioners map where their particular focus is relative to the big picture, and can help describe or even define those roles and responsibilities for individuals, enterprises, and governments."

Hawkins, the DISA vice director, said the Pentagon needs to "start reducing the attack surface" from which cyber threats can come. By reducing such noise, cyber warriors can focus on specific areas of interest, build partnerships, and increase discipline, he said.

"We do a lot of information sharing. We do very little collaboration. We do a lot of reactive work. We don't do a lot of work on the front end," said Hawkins. "But there is a lot of intellectual capital. There is a great deal of information that is out there concerning the threats, as well as the tactics, techniques, and procedures to inoculate our different networks such that they would not be attacked or would not be penetrated. And if they were and are, we would be able to do something about it."

Until that collaboration becomes common practice, though, the cloud enterprise will always be vulnerable because you never know when an attack is going to take place, Hawkins said.

The focus now is on "breaking down the silos" between each of the services and federal agencies that need to come together in this new domain and figuring out how each one fights and operates in cyberspace.

There has been an ongoing, "intense" discussion between the Pentagon and the combatant commands about key terrain and command and control, Senty said.

While COCOM commanders look at cyber from a tactical perspective, Cyber Command takes a more strategic approach. The goal is to balance the two, so commanders can be confident that the latest technology will be available to aid them in the fight when and where they need it.

The cyber terrain is not so different from the physical battlespace. It includes physical maneuvers, lines of approach, and various ways to array military forces.

"We think of the cyber terrain in a similar format but mapped differently; key terrain features, avenues of approach, defensive positions, extraction points, exfiltration points. How to look at things at a strategic, operational, or tactical level may lead you to a specific point on a network, and our objective in this case is to inject ourselves in the right place in a process for maximum utility, maximum military utility," he said.

In the future, cyber operations, kinetic operations, and intelligence will merge—a process already under way, said Maj. Gen. Edward L. Bolton Jr., director of cyber and space operations at USAF headquarters.

Developing Specialists

Sometimes a cyber offensive attack will be a smarter solution to what would traditionally have been conducted as a kinetic operation. Israel's 2007 attack on Syria's integrated air defense system, which was the biggest and supposedly the best Russian-made system at the time, is the perfect example. Instead of kinetically taking out the Syrian IADS, Israel hacked the network, flew in undetected, and then bombed a nascent nuclear facility.

"You're going to see, and you're already seeing, a trade-off in options between kinetic and nonkinetic attack," said Bolton.

Air Force officials expect to see an "exponential change" in the type of users operating in the domain. Right now, more than a third of the users live in Asia, and China will prove to be a formidable opponent, said Bolton. The Chinese are developing cyber specialists in the same way the Soviets once developed athletes.

"They take the best 50 or 60 kids in a school who are good at math and give them computers. Those kids have a runoff. The No. 1 kid goes to a special school. Those kids have a runoff," said Bolton, who said it won't be a stretch to see "half a million Chinese scholars" trying to break into the Pentagon's networks within this decade.

Though China's prominent role in cyberspace is not new, Bolton said he expects to see a spike in the number of currently undeveloped countries participating in the domain. "The slope of the curve on the less developed world is actually very, very sharp, so you're going to see a dramatic increase," he said.

The future of cyber also will rely on smart data to create a secure cloud, where the user's identity is valid and identified. Keeping track of mobile users and maintaining strong encryption on such devices presents a significant challenge, he said.

"Something we protect at Cyber Command is our networks, [but] we're also protecting privacy and individual rights," said Senty. "It's a technology challenge that I think our country needs to address because of our adherence to doing those two things simultaneously and not compromising one for the other." ■

A Man-made Realm With Real-World Effects

Maj. Gen. Edward L. Bolton Jr., director of cyber and space operations at Air Force headquarters, said future battles will merge cyber operations, kinetic operations and intelligence—and the synergistic process has already begun. In the cyber domain, an adversary may find a nonkinetic means to defeat an enemy.

In 2007, as a prelude to bombing a Syrian nuclear facility, Israel disabled Syrian air defenses through a cyber attack.

Also in 2007, Russia was accused of unleashing a cyberwar on Estonia. The three-week cyber assault disabled the government ministries website, as well as the websites of Estonian political parties, banks, and various newspapers. The electronic onslaught continued until NATO got involved to help beef up the Alliance member's cyber security. The attack on the small Baltic country is the first known incident of such an assault on a nation-state.

The next year, before Russia invaded Georgia in August 2008, Russia first conducted denial-of-service attacks on Georgian news and government websites. As hostilities ramped up, so did the severity of the cyber attacks. They eventually forced Georgia's entire banking system to shut down, as banks attempted to protect themselves and prevent the loss of confidential data. The attacks essentially isolated the country from the rest of the world during the early days of the war.

But cyber threats are not always intentional. Air Force Maj. Gen. David N. Senty, chief of staff for US Cyber Command, said one of his biggest concerns is that a simple click of the mouse will lead to catastrophic physical destruction of property, as it did in Siberia in 2009. One of the operators at the Sayano-Shushenskaya hydroelectric power plant completely destroyed the facility and more than 70 people died after he accidentally activated one of the power plant's turbines that had been taken off line.

After nearly a decade of struggle and false starts, the Air Force can now proceed with replacing its fleet of 50-year-old KC-135 aerial refuelers.

The Air Force has chosen Boeing as the winner of the KC-X competition to replace the oldest KC-135s. The service in February awarded Boeing a $3.5 billion contract, which will pay for development and deliveries of four initial aircraft. Plans call for 18 airplanes to be delivered by 2017, with further deliveries through the 2020s. The KC-X program overall is valued at more than $30 billion.

The announcement wasn't the signal for a victory lap, however. The real climax of the competition came on March 4, when EADS North America, Boeing's rival for the KC-X contract, announced it would not protest the Air Force's choice. Only then was the tanker award considered a done deal, and the Air Force could at long last get the program going.

Having finally achieved success with the KC-X—now to be called the KC-46A—for several years the service's top modernization priority, the Air Force may view its procedures in this contest as the model for upcoming programs. These competitions may well prove just as contentious, given that big procurement contracts will likely be rare in the years to come.

Air Force Secretary Michael B. Donley, announcing the KC-X winner at a Pentagon press conference in February,

The

A KC-46A tanker prepares to refuel a C-17 in this artist's concept supplied by Boeing. The Air Force selected the KC-46A as its new tanker in February; at least 179 are to be built.

said the service had done its utmost to use a "clear and disciplined approach to requirements," and a "clear description of how the evaluation would be conducted." More than 230 acquisition experts from across all the armed services and Defense Department evaluated the proposals or vetted the evaluation even as it was under way.

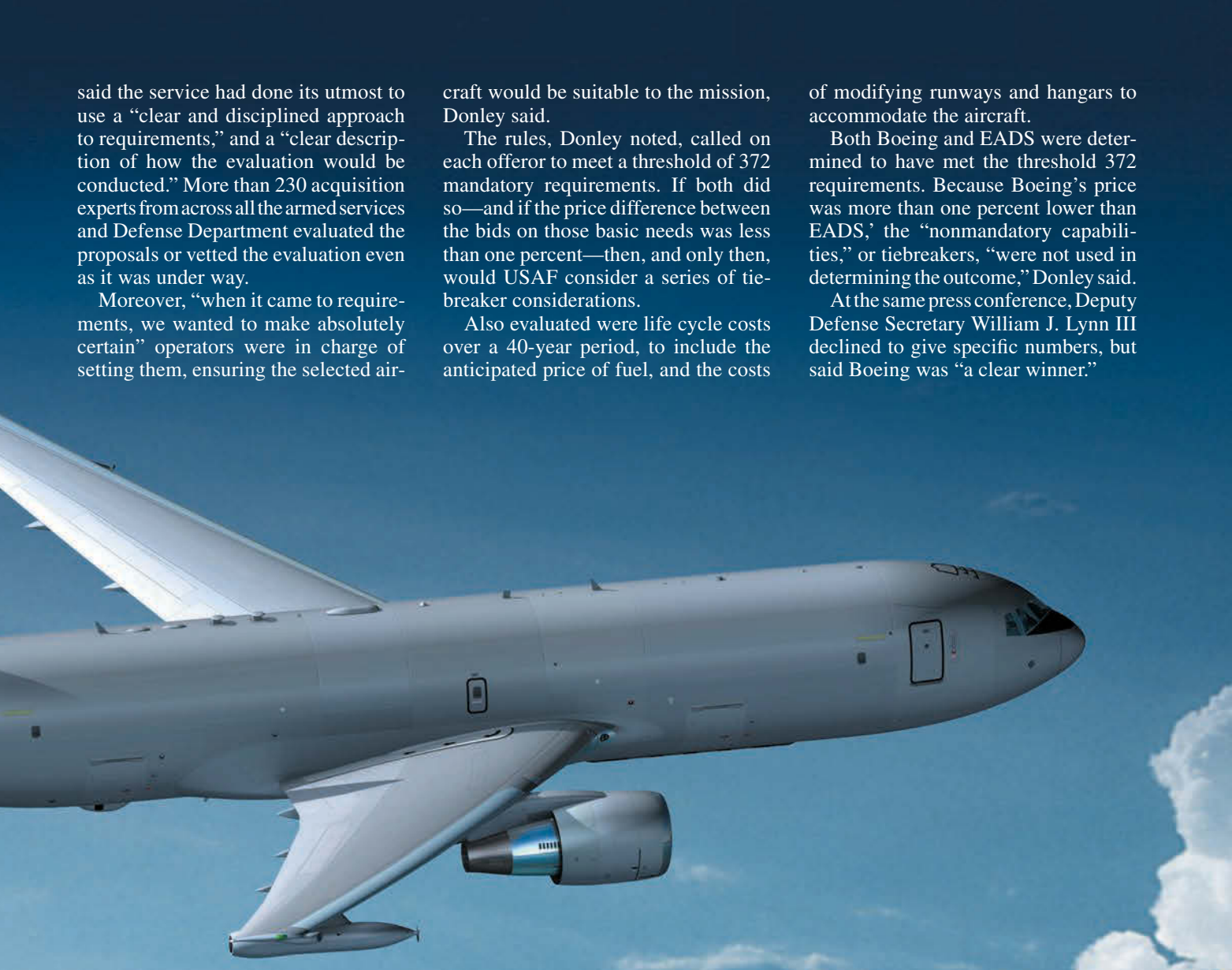
Moreover, "when it came to requirements, we wanted to make absolutely certain" operators were in charge of setting them, ensuring the selected aircraft would be suitable to the mission, Donley said.

The rules, Donley noted, called on each offeror to meet a threshold of 372 mandatory requirements. If both did so—and if the price difference between the bids on those basic needs was less than one percent—then, and only then, would USAF consider a series of tiebreaker considerations.

Also evaluated were life cycle costs over a 40-year period, to include the anticipated price of fuel, and the costs of modifying runways and hangars to accommodate the aircraft.

Both Boeing and EADS were determined to have met the threshold 372 requirements. Because Boeing's price was more than one percent lower than EADS,' the "nonmandatory capabilities," or tiebreakers, "were not used in determining the outcome," Donley said.

At the same press conference, Deputy Defense Secretary William J. Lynn III declined to give specific numbers, but said Boeing was "a clear winner."



Tanker Answer

The KC-46A was a long time coming.

By John A. Tirpak, Executive Editor

Boeing illustration

Boeing illustration

An F-35 prepares to refuel from a KC-46A in this Boeing graphic. To simplify the KC-X competition, USAF specified an airplane very much like its existing KC-135.

He went on to say, "I do think we've learned important lessons from this process, and we've tried to reflect them in this competition."

Pentagon acquisition, technology, and logistics chief Ashton B. Carter said the program will be of a fixed-price nature, possible because top Pentagon leaders believe this tanker "can be well-specified and well-defined." Carter had previously said fixed-price deals are unsuitable for projects requiring the invention of new technology or incurring significant developmental risk.

Money To Be Made

Boeing issued a statement saying it is proud to have won the program, but in April declined to elaborate much on the aircraft it will build for the Air Force.

Based on company press releases and those of its industrial partners, Boeing will build the KC-46 based on the 767-200ER commercial airliner. It will feature a KC-10-based boom refueling system; the boom operator will have a station just aft of the cockpit, with the ability to see multiple panoramic video views of what is happening at the back of the aircraft.

The KC-46A will have a digital flight deck, defensive systems, and capacity to refuel aircraft with both boom-type receptacles and probe-and-drogue systems. The new tanker will be able to refuel three aircraft simultaneously: two Navy-style probe-and-drogue type aircraft from wingtip pods and one from the centerline boom, configured either way (Air Force or Navy style).

In addition to its tanking capability, the KC-46A will be able to carry cargo, passengers, or patients. Up to 18 standard pallets will fit in the cargo deck, and seats can be installed to allow carriage of 58 passengers in normal configuration and up to 114 for contingencies. Up to 58 patients—24 on litters and 34 ambulatory—can also be accommodated in the cargo area. Seating for up to 15 aircrew will be provided in the cockpit area.

The KC-46A will be powered by two Pratt & Whitney 4062 engines, of the same kind flown on commercial 747s, 767s, and some Airbus A300s. According to Warren M. Boley Jr., former Pratt & Whitney military engines president, the engines will be specially tuned to increase their fuel burn efficiency and allow a greater gross takeoff weight. For a 179-aircraft program, Pratt expects to supply about 400 engines, Boley said, though he noted it has not yet been decided if the company will supply the engines directly to Boeing or if the Air Force will sign a separate contract with Pratt and supply the engines to Boeing as government-furnished equipment.

The first KC-46 is slated to fly in 2015. Boley said Pratt will deliver the first engines in 2013 and continue producing them for the KC-46 through "about 2027."

Although EADS charged that Boeing tendered an "extremely lowball" bid (see box, p. 43), Boeing insists that the KC-46A will be a moneymaker. According to the *Seattle Post-Intelligencer,* James F. Albaugh, Boeing's commercial airplanes president and CEO, said, "I'd rather lose than win and lose money. We're going to make money on this airplane." He said the profit margin on the KC-46 will not be "as attractive as we have on other programs," but it will still be "very profitable."

Albaugh noted that Boeing has signed up to provide a very specific airplane with specific capabilities. If the Air Force changes its mind and wants to add more capability, "that's fine, but they're going to have to pay for it."

In March 17 testimony before the Senate Armed Services Committee, Air Force Chief of Staff Gen. Norton A. Schwartz said the service will scrutinize Boeing "microscopically" to ensure that it delivers on its promises. However, because numerous USAF programs have been felled by what is called "requirements creep"—the slow adding of costly additional capabilities that wreck cost projections—Schwartz and Donley said changes to the tanker program's scope

Boeing illustration

To restrain cost growth, USAF leaders will impose tight discipline to avoid "requirements creep" on the KC-46A.

of work will have to be approved at the highest levels of the service.

"It might be at our level," Schwartz said. "We intend to maintain discipline on this." Engineering change orders will not, in any case, be approved at the program office level.

Donley, at a breakfast with defense reporters in early April, said a draft memo was on his desk for review, detailing the process by which program changes will be made.

Life cycle costs were a key in Boeing winning the tanker contest. The KC-46 is smaller than the KC-45 that EADS offered, and so presumably costs less to build and requires less fuel to fly. It also requires less hangar space to house and less runway modification than the larger airplane.

In its promotional literature, Boeing claimed that the NewGen Tanker would burn "24 to 29 percent less fuel than the Airbus A330, saving more than $10 billion in fuel costs." Overall life cycle savings "in fuel, maintenance, and initial investment for the Boeing 767 is a staggering 20 to 25 percent, and range from $11 billion to $36 billion, depending on fuel cost inflation and annual flying rates."

Rep. Norman Dicks (D-Wash.) said he felt he had helped Boeing, a major Washington-state constituent, win the contest by insisting the Air Force take a long view of fuel costs.

"I wanted 50 years" of fuel usage counted in the contest, versus the Air Force's original plan to count 25 years, Dicks told the *Seattle Post-Intelligencer.* He said that only made sense since the Air Force will be using some of its KC-135s "until they're 80 years old. Why not 50? I couldn't sell that, but at least we got 40."

Albaugh said, "That one small change was instrumental in our winning this program."

Boeing also said its tanker would support 50,000 jobs in the US.

Ralph D. Crosby Jr., board chairman of EADS North America, said his company had made a "very aggressive" bid on the tanker program and was surprised by the outcome. He urged the Air Force to hold Boeing to "what they have committed to," adding, "we stand ready with a fully developed and operational system to step in if they falter."

Schwartz, in a late February interview, was asked why Boeing was not counted as having offered a higher-risk proposal, given that USAF sought an off-the-shelf solution and the KC-46 hasn't flown yet.

EADS Concedes

At a March press conference in Washington, D.C., called to explain why EADS would not protest, Chairman Ralph D. Crosby Jr. said the cost difference between Boeing's bid and that of EADS was about 10 percent; Boeing bid $20.6 billion and EADS bid $22.6 billion in today's dollars. While Boeing enjoyed a $500 million life cycle cost advantage in fuel usage and another $300 million advantage in a lower cost to build facilities for its smaller airplane, Crosby said the Air Force determined that EADS had an $800 million advantage in operational advantages as calculated by the Air Force's Integrated Fleet Aerial Refueling Assessment, or IFARA, tool.

Those factors collectively being a wash, and both companies having offered what Air Force Secretary Michael B. Donley called "awardable" proposals, the deciding factor was price.

Boeing, Crosby charged, made "an extremely lowball offer in order to achieve their strategic objectives." Those objectives, he said, were to shore up Boeing's commercial business by gaining production volume, and to prevent EADS from using the tanker to establish ground presence in the broader American market. It was EADS' plan to establish both tanker and commercial freighter aircraft production facilities in the Gulf Coast region of the US if it won the KC-X contract.

On the issue of the Air Force's acquisition performance, Crosby was unequivocal.

"We believe that the Air Force has been absolutely scrupulous in applying the rules," he said. "In this competition, the rules were the rules, and while there is a great deal that we don't know about the acquisition decision, particularly the definition of the winning proposal, it's clear that there is no foundation for a protest," Crosby said.

In this round of the KC-X, EADS had offered its KC-45, a version of the KC-30 (based on the Airbus A330) it has sold to several countries, including Britain and Australia. In the previous iteration of the contest, EADS was teamed with Northrop Grumman, which was the team lead. They offered the same airplane—and won—but that award was thrown out after the Government Accountability Office found the Air Force didn't follow its own rules in evaluating the bids.

However, when USAF revealed its request for proposal for this round, Northrop Grumman declined to bid.

The new RFP signaled "a preference for a smaller aircraft," Northrop Grumman CEO Wes Bush said at the time, explaining why he considered it fruitless to bid. The Air Force's new evaluation rules did not "provide adequate value recognition of the added capability of a larger tanker, precluding us from any competitive opportunity."

"The bottom line is, I don't think that we necessarily mandated a machine that was flying in every respect," Schwartz said. "Clearly, the [Boeing] 767 is an established platform, as is the [Airbus] A330." Both platforms "qualified" under the KC-X contest rules, Schwartz said, so the deciding factors became life cycle costs and mission capability.

Competition Works

In February, Boeing rolled out its 1,000th 767, counting all variants.

Boeing declined to make its executives available to discuss the KC-46 for this article, but Albaugh revealed some of the thinking behind the company's winning bid during a celebration of the tanker victory in March.

Albaugh told the *Seattle Post-Intelligencer* Boeing kept in mind that the KC-135 is not the only potential plum to result from the KC-X victory. Many Air Force platforms—the E-8 JSTARS, the RC-135 Rivet Joint, the E-3 AWACS, and others—are also based on the C-135 or 707 airframe. All of these will likely need replacement programs to begin within the next decade or two.

"They all need to be replatformed, and I think this is a great airplane to do it on," Albaugh said. The Air Force has for years said it would consider the chosen tanker platform a leading candidate to replace the other, similarly sized aircraft.

Crosby, in his press conference, acknowledged that a lesson to be learned from the tanker is that "competition really does work," as evidenced by the steep drop in the price of a 179-aircraft program starting with the proposed tanker lease in 2001 until today.

Adjusted for changes in aircraft quantities, requirements, and inflation, Crosby

Boeing photo

The KC-46A will be derived from Boeing's 767, shown here in Italian Air Force livery with an F-15. New features will include both boom and probe-and-drogue refueling systems.

said the cost for leasing the new tanker from Boeing in 2002 would have been $48 billion; in 2008, Boeing bid $42 billion versus Northrop Grumman-EADS' bid of $38.5 billion; and in 2011, EADS bid $35 billion against Boeing's winning bid of $31.5 billion (in then-year dollars).

Discipline Maintained

Donley in April said there are lessons from the tanker to be applied to future big-ticket contests. "Knowing what you want and setting the requirements up front is extremely important," he said. Holding changes to the absolute minimum will also be paramount.

"There were about five reasons why we succeeded this time" in the tanker competition, Donley continued, ranging from the methodical approach to improvement and crisis management.

First, the Air Force spent months studying its failures in the 2008 competition, and "we carefully evaluated what our weaknesses had been" in its previous request for proposal.

Then, those lessons were applied to creating "as strong an RFP as we could. We skinnied down the requirements. ... Basically we got down to the essential minimums."

Next, USAF assembled "a strong team" of skilled acquisition professionals, supplemented with experts from other services and other government agencies to both look over its shoulder and vet the work as it was being done.

There were "good teaming arrangements" with the Office of the Secretary of Defense to handle letters from congressmen seeking information and press inquiries, and to coordinate messages.

"We also maintained discipline through this process" and did what the RFP said the Air Force would do, without deviation.

The service "weathered a number of crises," Donley noted. Long before the award, the RFP itself could have been protested. In fact, Crosby said his company talked with the Air Force at great length about how the competition was structured, believing it might favor Boeing's airplane. Eventually, the company acceded to USAF's methodology.

Another crisis was the late entry of a third competitor, US Aerospace, which threatened the timetable. US Aerospace proposed Ukrainian-sourced Antonovs as the tanker platform, then submitted its proposal late. When it was disqualified, the contractor filed a protest the Government Accountability Office had to quickly adjudicate. The GAO dismissed the protest.

Finally, the Air Force suffered a self-inflicted wound when it inadvertently passed to both contractors data discs comparing the two tankers. USAF eventually gave both contractors full access to the data to level the playing field.

This mistake, "if not handled properly, could have affected the whole procurement," Donley said. Indeed, the Senate held a hearing on the inadvertent disclosure and whether it could have put either bidder at a disadvantage. The Pentagon IG had to come in and investigate, "coincidental with ... our internal deliberations on the source selection. So the timing could not have been more difficult or more sensitive in that regard."

Boeing photo

A KC-135 undergoes depot maintenance. Despite the KC-46A go-ahead, the Air Force can only buy about 15 tankers a year, meaning the KC-135 will remain in service until 2050 or longer.

Donley's conclusions about all this?

"Don't be afraid to hang tough when we're buffeted by conflicting contractor interests" in a contest fraught with "plenty of political interest and sensitivity." The Air Force, he said, "staked out what we thought was the best deal" for operators and taxpayers alike, "and we stood by it."

"We have discussed this with Boeing," said Donley. "I think they have the same interest. This is a fixed-price incentive, so they aren't interested in absorbing additional costs ... unless they could get the Air Force to pay for it, and obviously, our interest is in executing the program that we just agreed on. ... We're going to set a very, very high threshold for any program changes."

Lynn said the Air Force still plans to pursue two follow-on tanker competitions: the KC-Y, to finish replacement of the KC-135, and the KC-Z, which will replace the KC-10. No firm timetables have been set for those contests, but they are likely to occur beyond 2025. ■

McNamara's "No Cities" Speech

In a famous address in Ann Arbor, Mich., in 1962, Secretary of Defense Robert S. McNamara unveiled a controversial nuclear idea; he argued that, should Moscow attack NATO with nuclear weapons, the US would hew to a "no cities" retaliation plan. In such a war, he went on, the goal should be "destruction of the enemy's military forces, not of his civilian population." His remarks kicked up a furor, and he soon de-emphasized the no-cities idea. The public feared "limited war" would make nuclear usage more likely. The Pentagon chief soon embraced "assured destruction," though plans for less-than-all-out war continued.

Commencement Address
Secretary of Defense Robert S. McNamara
University of Michigan
Ann Arbor, Mich.
June 9, 1962

Find the full text on the *Air Force* Magazine's website www.airforce-magazine.com "Keeper File"

The mere fact that no nation could rationally take steps leading to a nuclear war does not guarantee that a nuclear war cannot take place. ...

For our part, we feel—and our NATO allies must frame our strategy with this terrible contingency, however remote, in mind—simply ignoring the problem is not going to make it go away.

The US has come to the conclusion that to the extent feasible, basic military strategy in a possible general nuclear war should be approached in much the same way that more conventional military operations have been regarded in the past. That is to say, principal military objectives, in the event of a nuclear war stemming from a major attack on the Alliance, should be the destruction of the enemy's forces, not of his civilian population.

The very strength and nature of the Alliance forces make it possible for us to retain, even in the face of a massive surprise attack, sufficient reserve striking power to destroy an enemy society if driven to it. In other words, we are giving a possible opponent the strongest imaginable incentive to refrain from striking our own cities.

In particular, relatively weak [European] national nuclear forces with enemy cities as their targets are not likely to be sufficient to perform even the function of deterrence. If they are small, and perhaps vulnerable on the ground or in the air, or inaccurate, a major antagonist can take a variety of measures to counter them.

Indeed, if a major antagonist came to believe there was a substantial likelihood of it being used independently, this force would be inviting a pre-emptive first strike against it. In the event of war, the use of such a force against the cities of a major nuclear power would be tantamount to suicide, whereas its employment against significant military targets would have a negligible effect on the outcome of the conflict. Meanwhile, the creation of a single additional national nuclear force encourages the proliferation of nuclear power with all its attendant dangers.

In short, then, limited nuclear capabilities, operating independently, are dangerous, expensive, prone to obsolescence, and lacking in credibility as a deterrent. Clearly, the United States nuclear contribution to the Alliance is neither obsolete nor dispensable.

At the same time, the general strategy I have summarized magnifies the importance of unity of planning, concentration of executive authority, and central direction. There must not be the contingency of nuclear war.

We are convinced that a general nuclear war target system is indivisible, and if, despite all our efforts, nuclear war should occur, our best hope lies in conducting a centrally controlled campaign against all of the enemy's vital nuclear capabilities, while retaining reserve forces, all centrally controlled.

We know that the same forces which are targeted on ourselves are also targeted on our allies. Our own strategic retaliatory forces are prepared to respond against these forces, wherever they are and whatever their targets.

This mission is assigned not only in fulfillment of our treaty commitments but also because the character of nuclear war compels it. More specifically, the US is as much concerned with that portion of Soviet nuclear striking power that can reach Western Europe as with that portion that also can reach the United States. In short, we have undertaken the nuclear defense of NATO on a global basis. This will continue to be our objective. In the execution of this mission, the weapons in the European theater are only one resource among many. ...

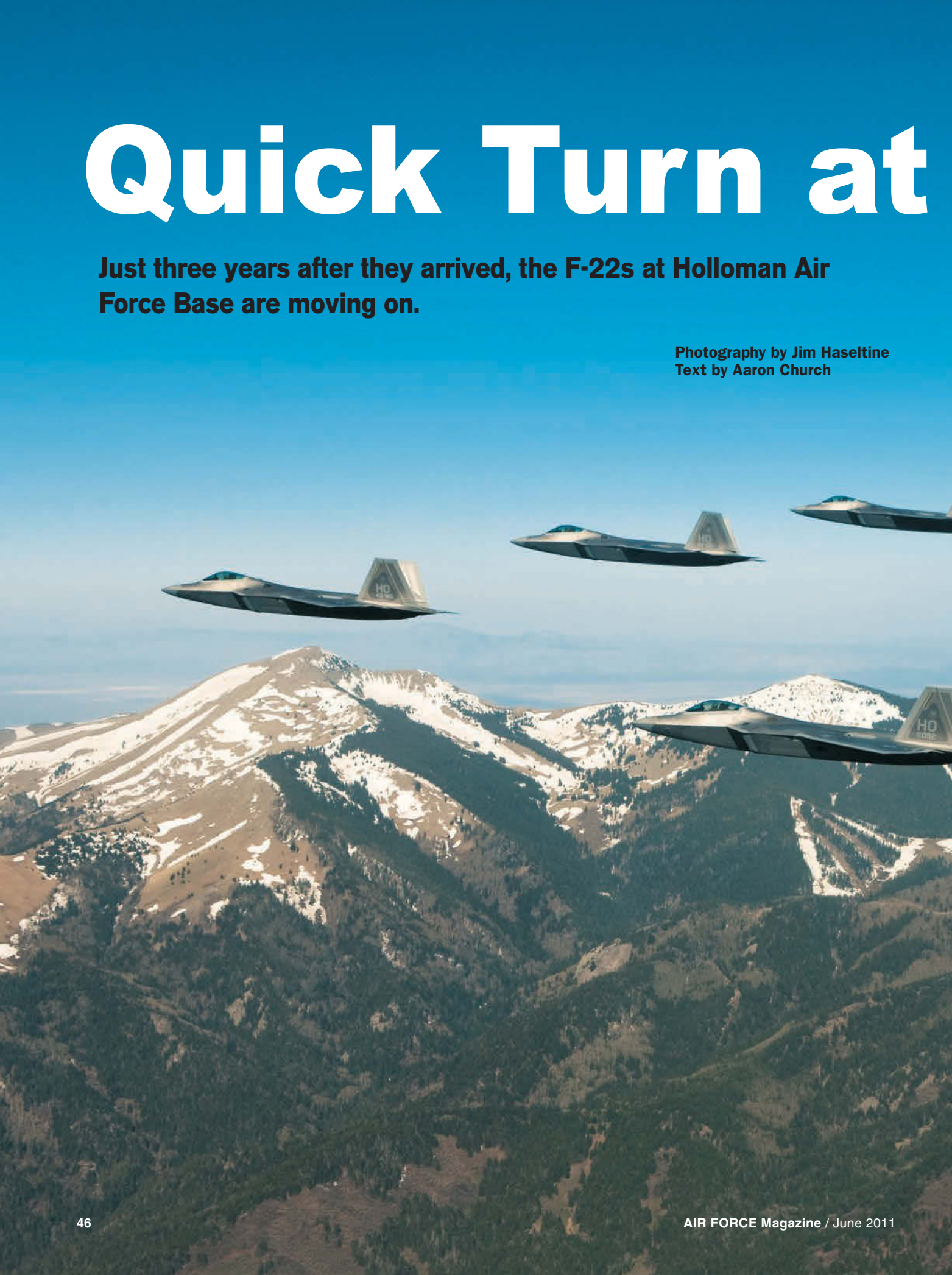
We want and need a greater degree of Alliance participation in formulating nuclear weapons policy to the greatest extent possible. We would all find it intolerable to contemplate having only a part of the strategic force launched in isolation from our main striking power.

We shall continue to maintain powerful nuclear forces for the Alliance as a whole. But let us be clear about what we are saying and what we have to face if the deterrent should fail. This is the almost certain prospect that, despite our nuclear strength, all of us would suffer deeply in the event of major nuclear war. ■

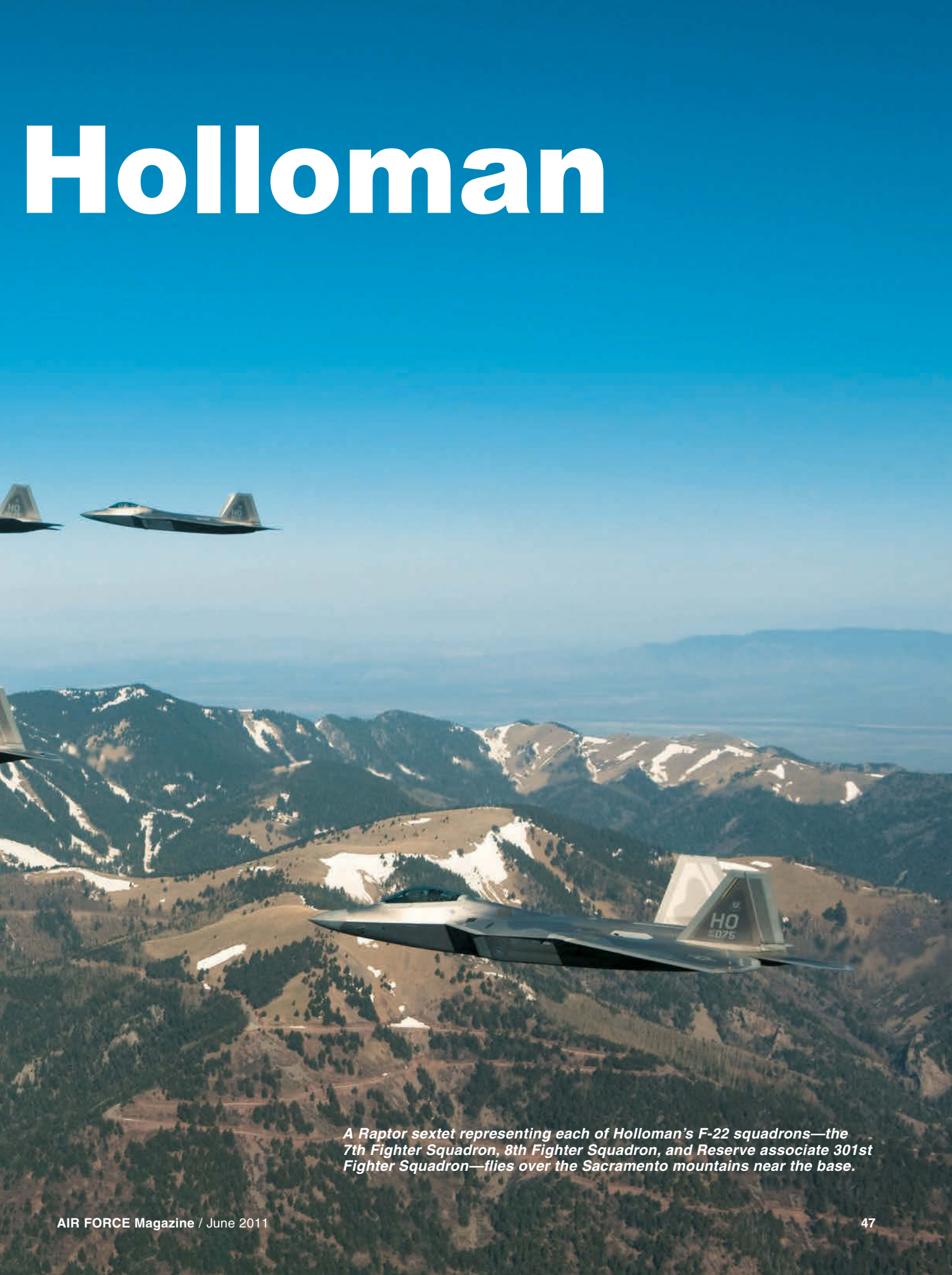
Quick Turn at

Just three years after they arrived, the F-22s at Holloman Air Force Base are moving on.

Photography by Jim Haseltine
Text by Aaron Church



Holloman



A Raptor sextet representing each of Holloman's F-22 squadrons—the 7th Fighter Squadron, 8th Fighter Squadron, and Reserve associate 301st Fighter Squadron—flies over the Sacramento mountains near the base.

Raptors settled in at Holloman Air Force Base in New Mexico three years ago, and already it's the end of an era. As USAF consolidates F-22 operations to a select few bases, Holloman's combat squadrons will soon be replaced by F-16 training units from Luke AFB, Ariz. First to inactivate this summer, the 8th Fighter Squadron will split its fleet between JB Langley-Eustis, Va., JB Elmendorf-Richardson, Alaska, and Nellis AFB, Nev. The 7th FS will stay at Holloman awhile longer—seeing the base through its transition to F-16s. Amid the shuffle, departing F-22s and T-38s used for related training will mingle with arriving Vipers and Predators on the flight line. ***I1I*** *A T-38 flies a training mission to support F-22s from Holloman.* ***I2I*** *F-22s fly in formation.* ***I3I*** *Loaders hang an AIM-120 training missile into one of the F-22's internal bays to preserve its low radar profile.* ***I4I*** *Lt. Col. Mike Hernandez (l) shares a laugh with Lt. Col. David Raggio after an F-22 training sortie.*

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I1I *A Raptor passes over the gypsum waves of White Sands National Monument, just off Holloman's runways.* ***I2I*** *An F-22 breaks away from the two-ship training sortie out of Holloman.* ***I3I*** *Canopies open to reduce sweltering in the desert heat, three T-38s hold short of the runway, preparing for takeoff.* ***I4I*** *Like the squires of old, Holloman Talons bear the heraldry of their knight—three Raptors on a fesse argent.*

|1| *Before an F-22 taxis out of its hangar, a crew chief performs a final preflight check.* *|2|* *A Raptor, wearing titles of the 44th Fighter Group, lifts off on a local training mission.* *|3|* *Halted short of the runway, a Raptor bears a much subdued version of the 7th Fighter Squadron's "Screaming Demon" on the intake.* *|4|* *A loaded F-22 taxis through the hangar area—known as "the canyon"—fitted with external fuel tanks.* *|5|* *Maj. Kurt Duffy (l) and crew chief Parris Veasley go over the log book for a T-38.*

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I1I *A brace of F-22s split during training. Under the right lighting, the gray F-22s reflect like silver. This is a by-product of their stealth coating.* ***I2I*** *Taxiing out for a sortie, a Talon receives a "good to go" from crew chief Roy Marshall.* ***I3I*** *Holloman's "Ghost Park" bespeaks a proud fighter tradition, from the F-84 through to the stealth F-117.* ***I4I*** *Holloman's T-38s carry a dual identity—each aircraft jointly serves the 7th FS and 8th FS, bearing the colors of both.*

|1| A pilot glances back while preparing to accompany Raptors on training. |2| Disrupting the aircraft's observable characteristics, external fuel tanks are nonetheless vital to some missions requiring extra range but not necessarily a full suite of stealth characteristics. |3| An F-22 taxis out for a training mission. |4| The end-of-runway crew drags away the chocks, signaling the pilot is clear to taxi.

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I1I Their iridescent paint and blended surfaces shimmering in the sun, wing-tanks stand out from the Raptor's fifth generation design. I2I Flaps lowered, a trio of Talons adds jet exhaust to the desert heat. I3I A pilot runs through positive control checks, as a crew chief visually confirms the unfettered movement of a Raptor's control surfaces. I4I While many bases offer sunshades, Holloman's Raptors enjoy the rare luxury of climate-controlled hangars purpose-built for the 7th Fighter Squadron's former resident—the F-117 Nighthawk. Raptors are not retiring, but they will soon join the Nighthawks as aircraft formerly flown at Holloman. ■

No US ground troop has been killed in an enemy aircraft attack since the Korean War.

April 15, 1953

By Peter Grier

The US Air Force is proud of the fact that no member of the American military's ground forces has been killed by an enemy air strike in more than half a century. It is an accomplishment officials have long believed speaks to the superiority of the American approach to airpower—and the need to pay the price in money and effort to maintain that superiority.

But history can be a great teacher. Perhaps there is something to be learned about the approach necessary to keep this US record going by looking back at that last ground fatality. The basic fact—no US ground troop has been killed in an attack by an enemy aircraft since 1953—is frequently repeated by airpower advocates. It neatly captures the importance of both air superiority and the Air Force's skill in dominating the skies.

But the details of that last successful enemy air attack are almost never mentioned. Who did it? What were the circumstances? What did the Air Force do in response?

Turns out, those are not easy questions to answer. However, it appears that two Army soldiers, not one, were killed in that successful enemy air raid. It was near the end of the Korean War, and it occurred on an island off the peninsula's west coast—on what is today part of North Korea. The attack was carried out by a propeller-driven North Korean light aircraft.

In fact, it is highly possible, though not certain, the Army fatalities in question were due to a biplane attack—from a Soviet-designed model that first flew in 1927.

Asked for more details about the last soldier killed by enemy bombs, Air Force historians point to a passage about a particular attack in a classic book, *The United States Air Force in Korea 1950-1953,* by Robert F. Futrell, first published in 1961. Futrell writes about a strike that occurred on the night of April 15, 1953—about three months before the armistice that halted the Korean War.

"Based on the evidence we have, this is the last instance in which US ground forces sustained any deaths from enemy aircraft," says John Q. Smith, director of the Air Force Historical Studies Office.

For nearly two hours before midnight that evening, several communist aircraft attacked US forces based on Cho-do, an island in the Yellow Sea, off the North Korean coast. They killed two Army anti-aircraft artillerymen and destroyed an unspecified weapon. "Four F-94s went to the area, but the Reds kept too low to show up in the ground clutter on the airborne radar scopes," Futrell writes.

From the context of this passage, it is clear the attack in question was a so-called "Bed Check Charlie" raid. It is mentioned in a section Futrell devotes to these strikes, carried out by North Korean airmen flying light aircraft from airfields near the fighting front. One or two North Korean aircraft would appear over a US ground unit after lights-out, flying low and slow, drop a few bombs, and leave.

Often Bed Check Charlie flew a Po-2, a general-purpose biplane that for decades served the Soviet Union as a basic civilian and military trainer aircraft. Powered by a five-cylinder radial engine, the prototype Po-2 took to the skies in 1927. Mass production started shortly afterward and continued

A soldier keeps a look out while another grabs some rest in a foxhole in Korea.

for decades, and to this day the Po-2 remains one of the most produced aircraft in history.

The Soviets turned the biplane into a night attack craft in the 1940s by outfitting it with bombs. A significant number ended up in North Korean hands after the end of World War II.

The Last Air Attack

The Korean War was notable as the first conflict in which jet aircraft played a major role, as US F-86s clashed with MiG-15s flown by Chinese and Soviet pilots in a fight to control the air. But in this context, the Po-2 biplane also served North Korean forces as an effective weapon, and it countered the US edge in high technology.

Futrell's book does not specify what type of aircraft carried out the April 15, 1953, attack on Cho-do. But he notes that four Po-2s struck Cho-do in October 1952, dropping bombs and strafing radar installations. Two Americans were wounded in this incident, and five Korean civilians killed. Bed Check Charlie struck other locations using other piston light aircraft, including the Yak-18, a two-seat Soviet monoplane first used as a military trainer. But it seems likely the last Army casualties due to enemy bombs were from an attack by an airplane with two stacks of wings.

"The little fabric-covered biplanes were too elusive for United Nations night fighters," writes Futrell.

And who were the two US anti-aircraft artillery personnel killed by North Korean bombs on Cho-do that night? The island itself was an isolated outpost at the time. It is off the Korean coast, northwest from Seoul, part of the Taedong river estuary in North Korean territory.

During the Korean War, UN naval forces controlled Cho-do and other offshore islands. These locations served as radar, radio, and electronic intelligence stations. Special operations units used them to stage raids on the mainland.

"The occupation of these offshore islands ... was classified information at the time," writes historian David Rees in *The Korean War: History and Tactics,* published in 1984.

Cho-do was a constant target of North Korean harassment, including air raids. But anti-aircraft artillery was in short supply in the Korean theater, according to Futrell. US commanders could spare only one anti-aircraft battery for the island.

A quick look through lists of US units deployed during the Korean War provides specifics: It was A Battery of the 933rd Anti-Aircraft Artillery (Automatic Weapons) Battalion.

Casualty lists maintained by the American Battle Monuments Commission provide the names of two soldiers from the 933rd who were killed on April 15: Pfc. Herbert Tucker, of Ocean, N.J.; and Cpl. William R. Walsh, from Queens, N.Y.

"It does not say they were killed by an air strike, but that is a logical conclusion. ... Absolute confirmation of a claim like that can be tricky," says Smith.

It is thus likely, but not certain, that Tucker and Walsh were the last Army fatalities caused by enemy air action. Further evidence of this conclusion comes from an online unit memorial page for the 933rd maintained by the Korean War Project, a Dallas organization dedicated to collecting reference material about the conflict. It contains a lengthy missive from a former 933rd enlisted radio repairman named Albert Villanueva, a survivor of the attack in question.

On the night of April 15, 1953, Villanueva sat on a cot on the left-hand side of a tent on Cho-do island that he shared with fellow 933rd A Battery members, listening to the radio. Villanueva was on the island because he had volunteered for the isolated post after learning that doing so would cut six months off his Korean tour of duty.

Three months into his tour at Cho-do, and so far, things were pretty quiet, he remembered. The barracks tent was on the slope of a hill facing away from the North Korean mainland. Occasionally, he and his comrades would hike to the top of the hill and watch the North Koreans shell the village down on the beach. "We were reckless to stand there and watch the shells land. The enemy never shelled us, though they could have easily raised their sights and fired away at us," he wrote in an account on the KWP in 2002.

On that April night, the radio was on because Villanueva had tired of

Courtesy of Andrey Zhirnov collection

North Korean "Bed Check Charlie" attackers often flew the Polikarpov Po-2, such as this one in Russian military markings. The light biplane could fly low enough to hide among the ground clutter.

participating in a loud discussion about baseball. The others were still going at it: Tucker and his buddy Walsh.

The Gist of the Matter

Without warning, Villanueva felt himself surrounded by a tremendous rush of air pressure. The scene in front of his eyes went black. A powerful force picked him up, shook him, and threw him to the floor.

Through the ringing in his ears, he could hear tent mates shouting to find out who was all right. His right arm and leg did not seem to work. With his left arm, he felt up and down his right side and was relieved to discover that his body was still in one piece, according to his account of the incident. Villanueva was seriously wounded. He would spend months recuperating in a hospital in Japan. But he was the lucky one.

"The gist of the matter was that Pfc. Herbert Tucker and William Walsh were both instantly killed by the blast," wrote Villanueva.

Tucker is buried at the Toms River Jewish Cemetery, Toms River, N.J., according to Korean War Project records. Walsh is interred at Long Island National Cemetery, Farmingdale, N.Y.

In the wake of the fatal bombing, US commanders attempted to bolster their defenses against the air attacks. They added anti-aircraft guns and tried to modify available aircraft to make them better able to destroy slow-flying targets. One base commander secured a B-26 bomber with 14 forward-firing machine guns, for instance, and obtained an armed T-6 trainer. But then, an F-94 crashed after it throttled back to 110 mph in pursuit of a Po-2 biplane. After that mishap, US aircraft were restricted from flying below 2,000 feet or slower than 160 mph.

Meanwhile, Bed Check Charlie increased his activities. North Korean light airplanes continued to hit Cho-do, Seoul, and other nearby targets almost every night of June 1953.

On the night of June 15, a flight of nine rattled Seoul, with some of their bombs dropping near the mansion of South Korean President Syngman Rhee. The next night saw an even more intensive raid, as 15 light Po-2s, Yak-18s, and Lavochkin La-11 piston-engine fighters started fires in Seoul and touched off a blaze at Inchon that burned up five million gallons of fuel. These repeated attacks did not, however, kill any American ground troops.

"Before another period of bright moonlight brought a resumption of the 'Bed Check Charlie' attacks, the Fifth Air Force had to find some solutions to the night-heckler raids," writes Futrell.

Commanders instituted a comprehensive defensive approach. Control of anti-aircraft guns was centralized at the Kimpo tactical air direction center. The number of radars on the air defense surveillance network was reduced, so as to keep from swamping operators with false and redundant returns. Intelligence redoubled its efforts to locate the fields Bed Check Charlie was staging from. And Air Force commanders borrowed four old, slower flying Corsair F4U-5N fighters and crews from the US Navy.

"When the Reds renewed their probing raids at the end of June, the Fifth Air Force was ready," writes Futrell. In the early hours of June 30, Lt. Guy P. Bordelon, a Navy Corsair pilot from the carrier USS *Princeton,* found two enemy targets with the help of ground-based radar. He shot down both, which he identified as Yak-18s. The next night Bordelon destroyed two more Bed Check Charlie aircraft. It turned out the old, seemingly obsolete World War II-era Corsair was still a deadly and efficient weapon against biplanes and prop trainers.

Navy Vice Adm. J. J. Clark was so impressed by Bordelon's exploits that he personally flew to meet him and presented him with two Silver Stars. He promised the young aviator a Navy Cross if he bagged a fifth North Korean aircraft. On the night of July 16, Bordelon did just that, near Pyongyang.

Bordelon was the first and only Navy ace of the Korean War, which ended by armistice only one week after his final victory. Bordelon was "the first man to become an ace by getting there last with the least," wrote a *Life* magazine reporter on July 27, 1953.

The Bed Check Charlie raids were not militarily damaging to UN forces, but were a deadly nuisance and a distraction. "The 'Bed Check Charlie' crews ... demonstrated that an air defense system could seldom be perfect, and they showed a need for dispersed air facilities and passive air defense," writes Futrell.

F-86s line the ramp at an air base in Korea in 1951. The F-86 was effective against the MiG-15, but slow-flying biplanes proved hard to find and kill.

The Air Force clearly learned the lessons from Korea well. Training, discipline, planning, and advanced aircraft and technology, properly applied, have secured the skies and defeated a wide range of threats. Since 1953, USAF has flawlessly provided top cover to the American ground troops at war in Vietnam, Iraq, Afghanistan, and the sites of many smaller skirmishes.

In those intervening decades, Air Force pilots have had ample opportunity to demonstrate their close air support and air interdiction skills, and have repeatedly defended US ground troops and killed enemy forces in the field. For 58 years and counting, however, American ground troops have not had to worry about enemy aircraft overhead about to strafe them or drop bombs on their heads. ■

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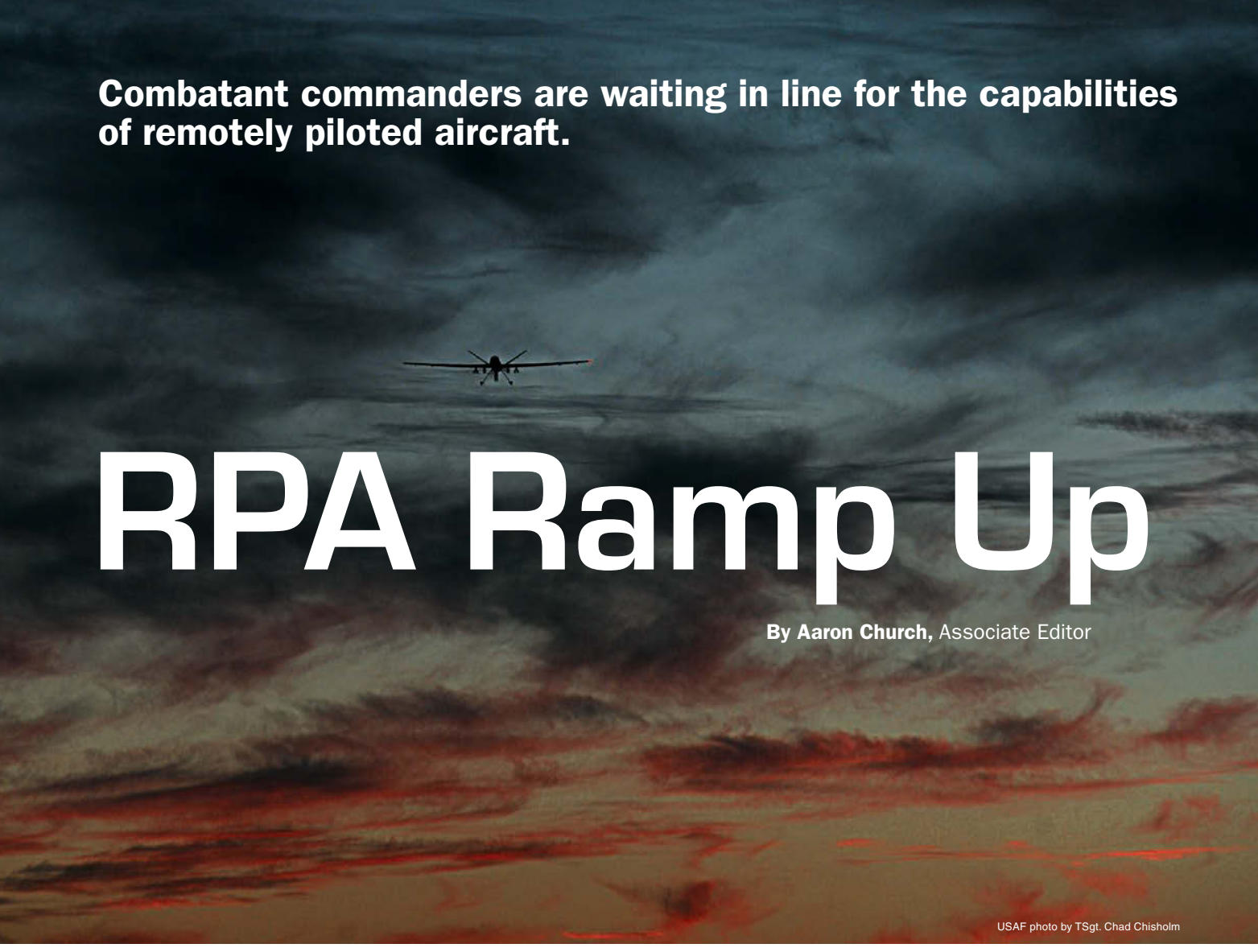
Combatant commanders are waiting in line for the capabilities of remotely piloted aircraft.



RPA Ramp Up

By Aaron Church, Associate Editor

USAF photo by TSgt. Chad Chisholm

An MQ-9 Reaper makes its final approach at Kandahar Airfield, Afghanistan. There has been a 1,200 percent growth in demand for RPAs in Afghanistan.

Despite the anticipated drawdown of operations in Afghanistan, the Air Force is actually ramping up its production of pilots for the MQ-1 Predator and MQ-9 Reaper remotely piloted aircraft. That's because the service remains under direction to achieve 65 round-the-clock air patrols by the end of Fiscal 2013, and Afghanistan is only the most pressing among many demands for RPA coverage.

Combatant commanders from the Pacific to South America and Europe are jostling to snap up MQ-9s and MQ-1s as soon as they become available. As a result, USAF is committing itself long-term to the remotely piloted mission, instituting a new career field and new undergraduate RPA training (URT) pipeline that will graduate its first pilots this year.

While the training pipeline was "certainly designed to help meet the most pressing need now, ... the demand for this type of capability from all the combatant commanders, not just the ones in CENTCOM ... is incredible," said Maj. Gen. James A. Whitmore, Air Education and Training Command director of intelligence, operations, and nuclear integration.

A Completely New Career Field

"There are things that are happening in the Pacific theater that can certainly use the information that a Predator or Reaper can provide. ... The same thing in SOUTHCOM," explained Whitmore, adding that even if the requirement in Afghanistan "shrinks significantly," commands are "standing in line" to use USAF's drone force for everything from counterinsurgency to counternarcotics, maritime surveillance, and search and rescue.

"There may be some redistribution, but I don't see a significant decrease in the requirement," Whitmore said. "We're looking long-term in the sense that we've decided to stand up a separate career field … [and] that tells me this is going to be around awhile."

Early in the Afghanistan campaign, when the term "UAV," for unmanned aerial vehicle first entered the lexicon, drone pilots were simply pulled from other aircraft. They were quickly trained and hastily pressed into service filling needed RPA slots.

The demand for the intelligence-surveillance-reconnaissance capability offered by the UAVs continued to mount, however, and the new target of 65 RPA orbits by 2013—a 1,200 percent growth in operations since the war in Afghanistan began—rendered the ad-hoc manning scheme untenable. To operate around the clock, each orbit requires 10 aircrews, including a pilot and sensor operator. That means USAF needs an estimated 1,350 RPA crews by

2013, not including reserves, according to AETC estimates.

For all major weapons systems in the inventory, the Air Force maintains "20 percent over and above what we need to specifically accomplish the mission," stressed then-Brig. Gen. David L. Goldfein, Air Combat Command operations director. Addressing RPA pilots at Holloman AFB, N.M., last June, Goldfein said these additional crews are essential to maintaining "the flexibility to fully man the mission."

Until last July when the force reached a critical mass of 600 pilots, training struggled just to keep pace with combat requirements. With no spare capacity, Air Force officials were forced to lock trained operators into the RPA career field.

Facing these daunting target-inventory numbers, "it became pretty obvious that we weren't going to be able to continue. …We were going to need to come up with another way of producing pilots," recalled Whitmore, and in early 2009, AETC began testing a solution.

Splicing together elements of several existing programs, AETC's beta test aimed to see if drone operators could be quickly and effectively trained in less than the 200 hours required for full-up undergraduate pilot training.

"We wanted to build a program so we could take somebody right out of a commissioning source and bring them into the pipeline, just like we do other undergraduate flight training pipelines," Whitmore said. That meant replacing UPT with a very basic flying and airmanship skill set, tailored to RPAs. Establishing a three-stage prototype conduit within 45 days of the go-order, AETC fine-tuned its experiment over five beta classes before normalizing the pipeline late last summer, activating the 558th Flying Training Squadron to train pilots at Randolph Air Force Base in Texas last May.

Branded "one-eights" for USAF's newly minted 18X specialty code, the first regular class of career RPA operators entered the pipeline at Randolph in January, as AETC continued to improve the system behind them.

"We're in the process of standing up a completely new career field now. ... We've just developed an RPA pilot-specific syllabus that we're rolling out in Pueblo [Colo.], pretty much as we speak," Whitmore explained in March.

One-eights begin flight training at the controls of a light single-engine Diamond DA-20 Katana trainer, flying 30 to 38 hours under the tutelage of a contract instructor from Doss Aviation in Pueblo. Progressing from ground school through solo, students flew nighttime and cross-country sorties, coming "just shy of what somebody would get going through a civilian, private pilot's license," Whitmore noted.

Since USAF already contracted with Doss Aviation to provide initial flight screening for regular pilots, the Pueblo location was a logical starting point for developing the airmanship stage of RPA training. As with the screening syllabus, beta trainees initially flew 13 to 14 hours, learning basics such as how to take off, land, and handle an aircraft.

Flying with 70 percent former military pilots, the intro provided excellent exposure to the Air Force cockpit environment, but proved insufficient to prepare trainees to actually fly Predators and Reapers in ACC's advanced training. After only 13 hours, "initial betas didn't have enough air time on them," and lacked the experience needed for successful conversion to real drone operations at Creech AFB, Nev., Whitmore said. In response, officials more than doubled flight time at Pueblo.

The Customers' Reaction

"The net effect was [that] they got about 30 hours or so of flying training," he explained, a change "strictly based on the feedback from our customers in ACC who said, 'We need these folks prepped a little bit better in airmanship.'"

From the cockpit at Pueblo, the next stop is the RPA Instrument Qualification Course (RIQ) at Randolph. Like Pueblo, the all-simulator track was formed around existing assets. "We already had pilot-instructor training going on here at Randolph," Whitmore said, and were able to set up a program using the instructor pilot school's T-6 Texan II simulators at the base.

Within six weeks, training officials invented an RIQ syllabus combining 36 to 40 hours on the T-6 simulator with roughly 140 hours of academic instruction, culminating in a simulated final "check ride."

The final stage, developed uniquely for RPA pilots, is known as the RPA Fundamentals Course, also at Randolph. During this final stage of undergraduate training, one-eights gain insight into the basic operation of "sensors, tactics, air tasking orders," and the multitude of skills needed to ensure success transitioning to the Predator.

At the end of the fundamentals course, pilots and sensor operators come together for the first time. As a graduation exercise, "the two of them work together as a team in a mission scenario on about four sorties or so," Whitmore noted. Each member of the crew gets familiar with the coordination and communication skills needed to operate the aircraft once arriving at Creech or Holloman.

The crews are seated side-by-side in the purpose-built Predator/Reaper Integrated Mission Environment, a procedures trainer closely replicating the Predator's "cockpit." It has received "rave reviews" since its debut last summer, Whitmore said.

Since MQ-1s and MQ-9s are both "crew platforms," training sensor operators is every bit as important as training pilots. Historically, "just like on the pilot side, we'd been taking sensor operators off other platforms," admitted Whitmore, adding, "We've realized that we're going to need to start growing sensor operators as well."

Beginning with the standard Aircrew Fundamentals Course for USAF enlisted aircrew, sensors airmen undergo a six-week basic sensor operator course before graduating with their wings. "They learn about just very generic principles of how sensors work," including geometry, tactics, communication, and the essentials of operating Predators and Reapers as weapons, articulated Whitmore.

Defying expectations, many betas in the latter classes compared favorably to retrained USAF pilots in advanced training at Creech and Holloman. Though results varied widely from one individual to another, "I think so far this has been a pretty good news story," Whitmore asserted. Having now adjusted the course over five trial runs, the Air Force is confident undergrad RPA training is improved enough to greatly accelerate students' progress from entry to Predator conversion.

"Time will tell on whether we've got it exactly right on the 18Xers and the new course. I suspect there'll be more tweaks that we need to do as we learn more about our graduates, but I think they're off to a pretty good start," said Whitmore.

Since the first pilots and sensor operators are still passing through the overhauled pipeline at Randolph, "we don't know what the customer's going to say," said Whitmore, though he suspects "they're going to like what they're getting."

While the 18X career field is open to airmen across the force, in keeping

with standards for regular pilot and combat systems officers, RPA slots remain highly competitive, ensuring the "highest likelihood of success," assured Whitmore.

A Corps of Professionals

Even with the training course in place, however, the Air Force will continue drawing a small percentage of pilots directly from manned aircraft, to continue to bring their experience and seasoning to the RPA force.

Though USAF officials have yet to establish an official target end strength for RPA pilots, "as we're building and trying to formalize this program, we're looking at approximately 60 or so pilots going through" annually, growing to about 170 to 180 annually over the next few years, Whitmore said.

USAF photo

USAF photo by Rich McFadden

Above: AETC Commander Gen. Edward Rice Jr. speaks to members of the 12th Flying Training Wing at Randolph AFB, Tex. The 558th FTS is now training new airmen to be remotely piloted aircraft operators. Left: SSgt. Nicolas Gassiott, a Texas Air National Guardsman, explains the sensor functions on an MQ-1 Predator to airmen at Randolph. Below: CMSAF James Roy, at Lackland AFB, Tex., briefs AETC leaders, including Maj. Gen. James Whitmore (seated right). Eventually, AETC hopes to have 170 to 180 RPA pilots go through the new training program every year. The command is building flexibility into the program in anticipation of other services and allies using it to train their own remotely piloted aircraft pilots.

USAF photo by Alan Boedeker

From the outset, AETC has factored in flexibility beyond 180, anticipating interest from other service branches and allies in the years ahead.

The stand-up has proved successful, but some hurdles remain, such as convincing the Federal Aviation Administration that drone pilots trained by the Air Force are safe and competent to operate in US airspace.

USAF boasts a long tradition of self-certifying pilots, requiring no additional license or civil certificate.

"We're the ones who are not only providing the training but are accepting the responsibility to make sure that those folks are capable and have the skills set to operate in the national airspace," said Whitmore, emphasizing that for RPAs, "we believe that's the way we should move forward."

The FAA has been invited to observe the new RPA training program, said Whitmore, adding that "from down here in the trenches," the feedback has been "very positive."

Though the immediate focus is on the near term, "we're looking long term in the sense that we've decided to stand up a separate career field," he said. Deciding to formalize and standardize the RPA pilot 18X career field demonstrates commitment to developing a corps of RPA professionals.

USAF is already training more UAV pilots than F-16 pilots. Within two to three years, Air Force officials predict, drone pilots will outnumber F-16 pilots, numbering as high as 1,100. ■

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Crunch Time for the Industrial Base

By Rebecca Grant

Lockheed Martin photo

Recent profits have masked troubling signs among DOD's suppliers.

Defense budgets are flat. Procurement is outpaced by operations and maintenance spending. The number of major aerospace programs is down. Production line workers are old, and attracting talented young engineers to careers in the defense sector is challenging.

Is it crunch time for the aerospace industrial base? A wide consensus says yes.

"It seems hard to believe: At a moment of historic highs in defense spending, there is growing concern about the future of American defense industry as well as the national security industrial and scientific base," said Michael E. O'Hanlon and Peter W. Singer in a February Brookings Institution study.

"Since the space age began, we have rarely been so reliant on so few industrial suppliers," testified US Strategic Command's Gen. C. Robert Kehler in March.

The 2010 Quadrennial Defense Review contained pointed industrial policy language: "Unfortunately, the federal government as a whole and the Pentagon in particular have not adequately addressed the changes both within the industry and in the department's needs in the current strategic environment."

Although the Department of Defense appeared more ready to take action, top-level Pentagon policymakers stumbled over a second, surprising obstacle to formulating industrial policy: strong sales. Ironically, genuine concerns about the industrial base come on the heels of a prosperous decade for most defense firms.

By any economic measure, the defense industry is coming off a healthy run due to global market growth, spending for Iraq and Afghanistan, and recapitalization programs of the past decade.

Scary Signs

The aerospace industry was part of this trend. US Department of Commerce called the years from 2001 to 2008 "the largest upturn in the US aerospace market since World War II." Last year, US firms logged $171 billion in sales. Just over half came from defense sales totaling $86 billion, while civil sales accounted for $85 billion.

Aerospace makes a big splash in the balance of payments. The US exported $77.8 billion in total civil and military aerospace products in 2010 and imported $34.2 billion, for a trade surplus of $43.6 billion, according to the Department of Commerce. Government statistics on the workforce—which make no distinction between defense and commercial work—tell the same story. Aerospace parts and product manufacturing employed 501,180 in all occupations as of 2009.

Viewed from the perspective of recent corporate earnings, most of the major defense firms are in good shape. According to the Pentagon's Office of Manufacturing and Industrial Base Policy, five major prime contractors have procurement orders stretching out for 10 years. In that group, Lockheed Martin and Sikorsky "have programs identified today that will carry production for the next 20 years," reported DOD.

Getting to a more nuanced assessment is tough. What's at stake is not the profitability of the aerospace industry itself or even its marquee names. The question is whether the cumulative impact of consolidation and cutbacks are endangering the capacity to design and produce the most technically demanding new aerospace systems. From engines to laminates, concerns abound.

The aircraft sector is a prime example. Recent assessments remain rosy. "The aircraft industrial base sector is projected to remain healthy, despite ongoing market pressures, as the vast majority of DOD aviation production programs continue to be supported near-term in the budget process," the Office of the Secretary of Defense's mandated annual report on industrial policy noted for 2010.

But this is where a broad look at sector financials fails to tell the story. Observers agree that slack in the research and development accounts for aircraft is a scary sign. The 2010 report to Congress did acknowledge the problem. "With the shutting down of the F-22 and soon the F/A-18E/F/G production, there is significant concern for the potential loss of essential military-unique design and engineering capabilities."

Boeing Phantom Works President Darryl Davis hit the nail on the head:

Left: The F-22 production line in Marietta, Ga. Below: An E-8C JSTARS aircraft undergoes an engine upgrade at a contractor facility.

Lockheed Martin photo

F-35s on the moving line. The plan for an alternate engine for the aircraft is in serious jeopardy. Moving forward with just one engine for the F-35 would save money but reduce competition in a critical area for the industrial base.

For the first time in industry history, there are currently no new, ongoing US military, manned, fixed-wing development programs. (The newly approved KC-46A begins life as a commercial airframe.)

Two factors have long held back discussions of industrial policy. The first is a longstanding assumption that market forces should sustain military industrial capability with little Pentagon intervention.

There were concerns with the industrial base back in the 1990s as procurement dipped after the Cold War and the Department of Defense famously encouraged industry consolidation. It also stepped in occasionally, such as when it stretched out solid rocket motor production for strategic missiles.

But for the most part, defense industrial policy could be summed up in two words: market forces.

An example was the 2009 Annual Industrial Capabilities Report to Congress. "The industrial strategy of the Department of Defense is to rely on market forces to the maximum extent practicable to create, shape, and sustain those industrial and technological capabilities needed to provide for the nation's defense," it stated.

Secretary of Defense Robert M. Gates appeared to be fully on board with that stance when he delivered the Obama Administration's first round of defense program cuts in April 2009. Gates admitted to reporters that the industrial base wasn't considered. "It did not play a significant role in most of the decisions," Gates told a media roundtable on April 7, 2009. "You guys know better than I do that most of these companies have multiple programs with us," he added. Congress is concerned with this attitude. The sweeping Weapon Systems Acquisition Reform Act passed in 2009 inserted a measure requiring DOD to examine industrial base effects of termination of specific major weapons systems.

Frank Kendall, the Pentagon's deputy acquisition, technology, and logistics executive, told lawmakers May 5 that DOD does "not foresee a precipitous decline" in acquisition spending like the one at the end of the Cold War. The Defense Department expects market forces to continue as "the primary mechanism by which industry responds" to coming changes, however, and DOD will only intervene "in rare exceptions" when it deems it necessary to protect critical capabilities or ensure competition. The Pentagon is launching a review to identify efficiencies and potential cuts over the next 12 years, and Kendall said the industrial base will be a factor in that review.

The Defense Science Board previously chastised the Pentagon for talking transformation without revamping its relationship with the defense industry. "There is a critical need for DOD to establish a national security industrial vision, working with industry to ensure realization of an improved customer/supplier relationship," its 2008 report concluded.

DOD photo by R. D. Ward

Secretary of Defense Robert Gates with Marine Gen. James Cartwright, vice chairman of the Joint Chiefs of Staff. Gates has said industrial base concerns are typically not a major factor when DOD makes program decisions.

The Aerospace Industries Association fired its shots with a major report on the industrial base in summer 2009. "A significant gap has developed between DOD's view of industry as an always-ready supplier of military capabilities and how industry actually makes decisions on what capabilities to offer," said AIA. "And that gap is widening."

"What Washington has not explained is how it's going to sustain a defense industrial base when it doesn't buy anything. ... Washington has not seriously worried about the industrial base since the end of the Cold War," wrote James Jay Carafano, of the Heritage Founda-

tion, in the *Washington Examiner* in August 2009.

To their credit, some new Obama Administration officials at the Pentagon were quick to pick up on the concerns.

"I feel industrial base issues are completely legitimate because having the best defense industrial and technology base in the world is not a birthright," said Undersecretary of Defense for Acquisition, Technology, and Logistics Ashton B. Carter, in a *Defense News* interview shortly after his appointment in 2009. "It's something we have to earn again and again, and that's particularly true in a globalizing and commercializing world."

In the same interview, Carter also removed one stigma by making clear that industrial policy was not a jobs program. "It's not about jobs; it's about very rare kinds of skills that are not easily replicated in the commercial world and, if allowed to erode, would be difficult to rebuild."

New programs spend dollars first on research, development, test, and evaluation (RDT&E). They move to production funding only as they pass through system development and demonstration and achieve low-rate initial production. This is partly why major manufacturers can show strong sales from production while critical RDT&E accounts wither.

Big companies aren't the only ones to feel the effects of the decline. Suppliers may experience it first. As OSD's industrial policy explains, "The reduction in RDT&E funding does not bode well for companies and their subcontractors without long-term production programs. The lower-tier supplier base continues to consolidate as the number of military programs reduces over time. Suppliers not associated with future production programs (for example, suppliers not participating in the F-35 or UH-60M) will be impacted the most."

Delving into the supply chain could be an important step.

Brett B. Lambert, deputy assistant secretary of defense for manufacturing and industrial base policy, put the problem in his sights. He immediately initiated more contacts with industry and focused attention on suppliers as well as primes.

Lambert's office is concerned about lower-tier suppliers and has an in-depth review of key sectors under way, with outbrief scheduled for late 2011.

Of course, details are hard to unearth, especially when civil and defense sales are mixed in.

Fighter aircraft engines are a case in point. Air Force Materiel Command and the Air Force Research Laboratory sponsored a study of the aircraft gas turbine engine market. It projected sales of $295 billion in this market from 2009 to 2018—a bonanza at first glance.

The study details told a different story. First, 55 percent of projected sales would come from commercial engines. The next 34 percent would come from maintenance, repair, and overhaul. Total new military engines made up just 11 percent of the projection. An even smaller slice would be high performance fighter engines.

A Supply Chain Drain

Major engine makers compete but also form alliances and consortia. The problem is not the collapse of entire firms but declining competition, capacity, and innovation in the most elite types of engines. In this case, advanced research sponsored by AFRL is helping to fund some progress. What's uncertain is whether small, focused research efforts are enough to sustain forward momentum without major programs to focus demand and stimulate innovation.

With the engine industrial base, improved engine performance is a key parameter for new programs such as next generation long-range strike. However, DOD policies, such as the elimination of the General Electric-Rolls Royce F136 engine for the F-35 program, have not been formulated with industrial policy in mind. Although GE and Rolls Royce remain leaders in commercial engine work, moving forward with just one engine type for F-35 reduces competition in this critical area of the aerospace industrial base. This is just one example of how difficult it is to fit industrial policy into overall DOD decisions.

OSD Industrial Policy issued a fairly strong warning in its 2010 report. Any impact of top line budget constraints on future RDT&E funding levels, and on future industry design and development capabilities, has yet to be determined, the department noted.

Another major drop will come when F-35 production ramps up, shifting most money out of research dollars. Suppliers supporting the F-35 may not have the opportunity to link up with new programs. In that case, the supply chain may atrophy.

"These suppliers will be forced to either exit the business or find new non-DOD programs for their products," acknowledged OSD in its 2010 industry policy report.

The snapshot of production spending and profitability reflects Cold War assumptions that industrial policy is a relatively simple matter of ensuring surge capacity at a range of firms. By this way of thinking, an aviation firm busy with civil aircraft work can switch nimbly to specialized design and production for advanced military systems.

Sophisticated capabilities require focused development and must draw on a base of talent and innovation already in place.

Take the plans for a next generation long-range strike family of systems. Modest research efforts are planned. The government may fund two or three teams to produce proposals with advanced designs for a bomber platform. However, within a few years, one team would be selected to work toward low-

USAF photo by SSgt. Samuel Morse

An HH-60G Pave Hawk takes off on a medevac mission from Bagram Airfield, Afghanistan. The H-60 is still in production, but DOD acquisition chief Ashton Carter said having the best defense industrial base is not a birthright.

USAF photo by SSgt. Aaron Allmon

Two Navy F/A-18 Super Hornets patrol over Afghanistan. Soon, F/A-18 production will end, further raising concerns about the potential loss of essential military-unique design and engineering capabilities.

rate production, leaving other teams without fresh projects.

Plans for a sixth generation Air Force fighter are years away. By that time, it's impossible to say which aerospace companies will still field advanced design teams to compete for the work. Future teams will not have the benefits from working on other programs in the interim. The very worst case could be technology stagnation—which will come with a high cost to recapture innovation.

As with aircraft manufacturing, the space sector is coming off a boom cycle—and faces its own concerns. Total world space industry revenues more than doubled from $40 billion to about $100 billion between 1996 and 2006.

Spending by the US government drove its share as well. US government spending grew 40 percent from 1997 to 2007 driven mainly by a surge in DOD spending. Significant investment over the past decade has recapitalized much of the space portfolio. Robust sales in space systems and services led the Pentagon to pronounce the sector healthy.

But big shifts have occurred in market fundamentals. "It's a far more competitive environment," observed Deputy Secretary of Defense William J. Lynn III at a Center for Strategic and International Studies forum on Feb. 16. "Twenty, 25 years ago, the US had two-thirds of the space market. Now, we're still a leader in space, but our share of the market is now 35 or 40 percent," Lynn estimated.

US trade policies for space products are highly controversial. Tight export controls implemented in the 1990s restricted US firms in the global marketplace. Foreign firms are known to advertise space systems with "no-ITAR" (International Traffic in Arms Regulations) components, meaning customers can avoid hassling with US export controls. As a result, US firms are losing out.

Beyond Laissez-Faire?

"Many struggle to remain competitive as demand for highly specialized components and existing export controls reduce their customers to a niche government market," said Kehler. Future US leadership in the domestic commercial space market and the competitiveness of certain industrial segments face challenges from the growth of foreign competition. The Pentagon has acknowledged the problem. "Our current export control regime costs us jobs and fails to protect our security," said Lynn at an April 2010 Space Foundation symposium. "The President and Secretary Gates both recognize the self-imposed folly of this system."

Closely linked to space is the problem of solid rocket motors. The missile sector—one of the Pentagon's seven key categories—has long been a worry. Kehler also expressed concern for solid rocket motor manufacturing, "an industry we cannot afford to lose."

Missiles stand alone without commercial applications in their sector.

According to DOD, the number of missile manufacturers shrank from 12 firms in the early 1990s to just six today. Lockheed Martin and Raytheon together account for about 85 percent of missile procurement, while firms such as ATK with the Advanced Anti-Radiation Guided Missile (AARGM) and General Dynamics with its 2.75-inch Hydra rockets are prime contractors for only one missile program. Funding across the sector is projected to decline as much as 50 percent from its 2007 peak.

On strategic missiles at least, industrial policy has tried to reach out. The Department of Defense intervened in 1995 to stretch out production rates for the Navy's Trident missile. "In part to forestall industrial base erosion, the procurement rate for Trident II (D5) SLBMs is being slowed, thus extending production into the next century," DOD wrote in its 1995 annual industrial report. It also pledged to explore "new ways to preserve key industrial technologies; reentry vehicle and guidance technology are particularly problematic, given the lack of commercial applications."

In recent years, manufacturers worked on programs such as the Minuteman III and NASA's Ares rocket (until its cancellation). Now the large solid rocket motor base is at risk again and limping along with slow D5 missile procurement.

No new programs are in sight. The Navy is committed to stretching out D5 motors through 2042. But, as OSD notes, this approach "does not adequately address maintaining the design and development skills required for developing our next generation strategic systems."

Is DOD ready to move beyond its laissez-faire approach? If so, the authorities exist. Title III of the Defense Production Act authorizes DOD to invest in critical segments of the industrial base if they are deemed close to failure.

"We are accustomed in the American public debate to praising men and women in uniform, and yet we often ignore or even pillory those who equip and support them," remarked Brookings' Singer and O'Hanlon. The pair notes that it has been "the scientists, engineers, industrialists, investors, and workers who make the equipment that [have] allowed the United States to dominate most forms of warfare for the last few decades."

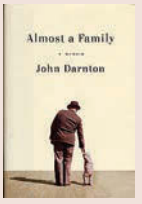
The Pentagon pledged in QDR 2010 to "create an environment in which our industries, a foundation of our nation's strength, can thrive and compete in the global marketplace." Future Air Force capability depends on it. ■

Rebecca Grant is president of IRIS Independent Research. She has written extensively on airpower and serves as director, Mitchell Institute, for AFA. Her most recent article for Air Force *Magazine, "On QDRs," appeared in the April issue.*

Books

Compiled by Chequita Wood, Media Research Editor

Almost a Family: A Memoir. John Darnton. Knopf, New York (800-733-3000). 348 pages. $27.95.



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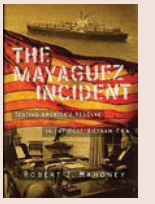
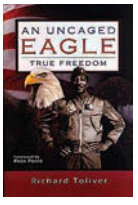
The Mayaguez Incident: Testing America's Resolve in the Post-Vietnam Era. Robert J. Mahoney. Texas Tech University Press, Lubbock, TX (800-832-4042). 336 pages. $39.95.





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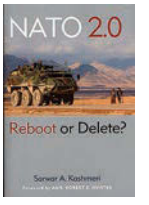

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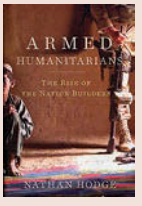

How the Helicopter Changed Modern Warfare. Walter J. Boyne. Pelican Publishing, Gretna, LA (800-843-1724). 352 pages. $29.95.

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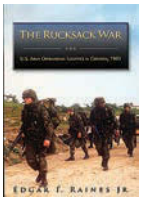

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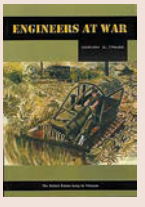

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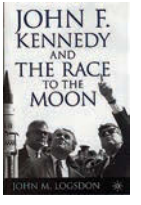

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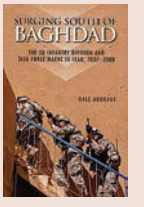
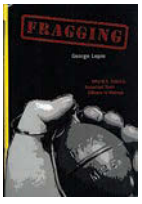
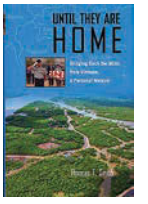




Fragging: Why US Soldiers Assaulted Their Officers in Vietnam. George Lepre. Texas Tech University Press, Lubbock, TX (800-832-4042). 318 pages. $34.95.

Keep From All Thoughtful Men: How US Economists Won World War II. Jim Lacey. Naval Institute Press, Annapolis, MD (800-233-8764). 266 pages. $36.95.



Until They Are Home: Bringing Back the MIAs From Vietnam, a Personal Memoir. Thomas T. Smith. Texas A&M University Press, College Station, TX (800-826-8911). 136 pages. $29.95.

The Air Force, to its lasting regret, got in on the ground floor of the UFO phenomenon.

USAF and the UFOs

By John T. Correll

Illustration by Zaur Eylanbekov

THE Unidentified Flying Object (UFO) era began with a bang on the afternoon of June 24, 1947, in the Cascade mountain range of Washington state. Private pilot Kenneth Arnold, bound for Yakima in his light airplane, was approaching Mount Rainier when nine disk-shaped objects, flying in formation, shot by in front of him.

The disks resembled "saucers skipping across water," Arnold said, flashing in the sun as they flitted between the high peaks. He timed them as they sped from Mount Rainier to Mount Adams and estimated that they were moving at 1,700 mph.

When Arnold landed, he told friends at the airport what he had seen. Word spread rapidly and "before the night was over, I was receiving telephone calls from all parts of the world," he said. In

the next six weeks, 850 additional sightings of flying disks were reported, no doubt inspired by Arnold's story, which received prominent play in newspapers.

In the spring 1948 issue of *Fate,* a magazine devoted to the paranormal, Arnold called the disks "flying saucers." He is often credited with coining the term, but the term had appeared previously. "RAAF Captures Flying Saucer in Roswell Region," proclaimed the front page headline of the Roswell, N.M., *Daily Record* for July 8, 1947, just two weeks after Arnold's sighting in the Cascades. "RAAF" was Roswell Army Airfield, and the "flying saucer" was wreckage from a crash in the desert 75 miles north of the base.

There was a flurry of interest, but it faded quickly when the Air Force announced the debris was from a high-altitude weather balloon experiment. The story would lie dormant for 30 years before rising again to become the most famous UFO incident of them all.

The Air Force, to its lasting regret, got in on the ground floor of the UFO phenomenon. The Pentagon, worried that what Arnold saw might be some kind of secret Soviet reconnaissance craft, directed the Air Technical Intelligence Center at Wright-Patterson AFB, Ohio, to investigate.

The scientific consensus was that Arnold had seen an inversion of refracted light—commonly known as a mirage—but the frenzy was not to be contained.

The Air Force was stuck. Previously, no government agency had been in charge of such things and none now wanted to take it off USAF's hands. The Air Force effort to collect and evaluate flying saucer data began in 1947 as Project Sign, evolved into Project Grudge and then Project Twinkle before settling down as Project Blue Book in 1952. Capt. Edward J. Ruppelt, the first director of Blue Book, introduced the term "Unidentified Flying Object" as more accurate than "flying saucer." An astronomer named J. Allen Hynek joined the program as a technical consultant. Hynek would go on to become a famous figure in the world of UFOs.

In 1952, there were 1,225 sightings to investigate. By then, two notions had taken hold. UFO buffs, suspicious of the Air Force, were convinced that UFOs were of extraterrestrial origin and that the government was lying about them. Several books appeared, notably *Flying Saucers From Outer Space* (1953) by Donald E. Keyhoe, a retired Marine Corps major and the soon to be leader of NICAP, the National Investigations Committee on Aerial Phenomena. UFO

Anthropomorphic dummies such as these were used in high-altitude balloon crash testing over White Sands Proving Ground, west of Roswell.

stories were regular fare not only in the sensationalist tabloids but also in the mainstream news media.

Airmen From Outer Space

Twice in the middle 1950s, the government convened outside panels to review sightings and investigations. The panels agreed that no threat to national security from UFOs was uncovered, and there was no indication of technology that transcended current scientific knowledge. It did not help when the Central Intelligence Agency insisted one of the panel reports be classified, lest it reveal names and positions of CIA representatives who attended some of the meetings.

"UFOlogy" moved into the new regime of abductions in 1961 when Betty and Barney Hill of Portsmouth, N.H., were—according to their later hypnotic regression—taken aboard a UFO and examined. However, for all of the saucer sightings, no one had yet seen an actual alien. This first happened in April 1964, when a police officer in Socorro, N.M., chased a flame in the sky to a mesa south of town where an egg-shaped craft landed and two strange figures got out. The craft roared away as he approached but the landing gear left indentations in the ground.

Among those studying the evidence from Socorro was Philip J. Klass, a senior editor of *Aviation Week.* Based on the wedge-shaped depressions left on the mesa, Klass built a scale model with a kitchen scouring pad and four knitting needles. It demonstrated that each landing leg would have had to be of a different length, each extending out and down at a different angle, with the craft perched awkwardly above. In addition to his duties at the magazine, Klass wrote four books on UFOs, explaining that many sightings could be explained by plasmas, ball lightning, coronas, and saucer-shaped clouds.

In 1966, 87 students at Hillsdale College in Michigan saw UFOs in flight from their dormitory windows. Michigan Rep. Gerald R. Ford demanded a "full-blown" investigation by the House Armed Services Committee. Being the House minority leader, Ford got his investigation but it lasted only an hour and 20 minutes, long enough to take statements from the Secretary of the Air Force and Blue Book officials.

In 1969, Gov. Jimmy Carter of Georgia, preparing for a speech in the small town of Leary, saw a "self-luminous" object in the western sky. He reported the elevation angle and other details of his sighting to NICAP. What he had seen was the planet Venus, which that day was in precisely the position Carter specified. Over time, more than 10 percent of the sightings investigated by Blue Book were generated by stars, planets, meteors, and other bright celestial bodies.

Aircraft and balloons also accounted for substantial numbers of UFO sightings. According to Klass, an elderly woman who said she saw three flying saucers in formation was asked to describe their appearance. "They looked just like jet fighter planes," she said.

The Air Force finally figured out a way—or so it thought—to get rid of the UFO albatross. In 1966, it engaged the University of Colorado to conduct an independent investigation, led by noted physicist Edward U. Condon. "Our general conclusion is that nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge," Condon reported in 1968. "Careful consideration of the record as it is available to us leads us to conclude that further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby." The National Academy of Sciences endorsed the Condon report, but UFO true believers denounced it.

In December 1969, the Air Force announced with barely concealed relief the end of Project Blue Book. Of the 12,618 sightings reported since 1947, only 701 were categorized as "unidentified," and most of those were cases where the available information was not sufficient for analysis. The records of Blue Book were shipped off and archived.

Nevertheless, the Air Force continued to draw sporadic fire on the UFO issue. In 1974, a UFOlogist accused the Air Force of keeping two saucers and 12 alien bodies from a saucer crash in New Mexico in Hangar 18 at Wright-Patterson Air Force Base.

However, there is no Hangar 18 at the base. Reporters were invited to tour Building 18, which housed the Aero Propulsion Laboratory, but no UFOs or aliens. Concurrently, Sen. Barry Goldwater complained that the Air Force had denied him access to a "Blue Room" at Wright-Patterson where UFO artifacts were supposedly stored.

Meanwhile, Hynek, a regular spokesman for Project Blue Book since its inception, crossed over to the other side, declaring his conviction that "the UFO phenomenon is real." He founded the Center for UFO Studies (CUFOS), which purchased the NICAP archives when that organization folded. Hynek served as a consultant to the 1977 Steven Spielberg movie, "Close Encounters of the Third Kind." The title came from Hynek's taxonomy of encounters, indicating a sighting that included creatures or crew on the UFO (Hynek had a bit part in the film).

Roswell Resurgent

The Roswell crash in 1947 had been forgotten. It did not appear on a list of the most important UFO cases published by NICAP in 1966. Three decades after the fact, however, the story would be resurrected and developed into the best-known UFO incident of all time.

In July 1947, W. W. Brazel had found "a large area of bright wreckage" on his ranch and reported it to the county sheriff in Roswell, who passed the information to Maj. Jesse Marcel, an intelligence officer at the airfield. Marcel and an assistant drove to the ranch and picked up the wreckage, which Marcel took to Eighth Air Force headquarters at Fort Worth, Tex., for examination.

Meanwhile, the base public information officer, Lt. Walter G. Haut, delivered a press release to the local newspapers and

radio stations, saying the base had gained possession of a "flying disk." Only two weeks had elapsed since Kenneth Arnold's saucer sighting in the Cascades. The Associated Press picked up the Roswell story and inquiries poured in from all over the world.

At Eighth Air Force, weather officer Irving Newton identified the debris as parts of a high-altitude balloon and a metallic target that helped radar track the balloon assembly in flight. Photos were taken and announcements made. The news media lost interest and the case lay dormant for 31 years.

In 1978, UFO researcher Stanton Friedman discovered Jesse Marcel in Houma, La., where he had retired and was running a radio-TV repair shop. Marcel said that in 1947, he had been ordered not to talk about the true nature of the debris, which he described as "nothing from this Earth." In the photographs, phony wreckage was substituted for the actual materials. Among the items not revealed, he said, were wooden beams "with some sort of hieroglyphics on them that nobody could decipher."

Marcel's revelations were reported in an article in the *National Enquirer* tabloid in 1978 and achieved warp speed with the 1980 publication of *The Roswell Incident* by Charles Berlitz and William Moore. Berlitz and Moore also recounted UFO crashes elsewhere in the New Mexico desert in 1947 where dead aliens were seen at the crash sites. The witnesses, stumbling upon the scene of the mishap by chance, were chased away by military personnel before they got a close look. (With only one exception, the "witnesses" were repeating accounts they had heard from others.) The aliens were hairless, had pale complexions, wore one-piece silver-gray suits, and had only four fingers on each hand. They were only about four feet tall.

The Roswell story gathered momentum in books, articles, TV specials, and movies. One of the strangest segments was the "Majestic 12" episode in 1984-1985. Filmmaker Jaime Shandera received in the mail two rolls of film from an anonymous sender. They held images of two documents from 1947 and 1952 in which the White House appointed 12 individuals (the "Majestic 12") to guard the secrets of Roswell. Shandera and a colleague "discovered" a third document, dated in 1954 and confirming the first two, in the National Archives.

Among the Majestic 12 was Secretary of Defense James V. Forrestal. In the interpretation of some UFOlogists, Forrestal's suicide in 1949 was a cover story and "the reason for his murder was that he was no longer trusted by those within the security services who had control over the captured saucer," according to Rupert Matthews in his 2009 book, *Roswell: Uncovering the Secrets of Area 51 and the Fatal UFO Crash.*

The Majestic 12 story had several weaknesses. The typewriter used for the 1947 document was a Smith Corona model that did not exist until 1962. Formats and date styles were wrong for the period. The National Archives acknowledged the third document was in its files but did not know how it got there. The document did not have a register number and it bore a National Security Council marking that did not come into use until the Nixon Administration.

The Undertaker's Story

In the summer of 1947, Glenn Dennis was an apprentice mortician at Ballard Funeral Home in Roswell, which had a contract with the air base for mortuary and ambulance services. In 1989, he told his story to Friedman, the same researcher who found Jesse Marcel in Louisiana. Friedman was referred to Dennis by Walter Haut, who had put out the Roswell flying saucer press release in 1947 and who said he was "a friend of many, many years" of Dennis.

Dennis recalled a night in July 1947 when he accidentally got close to an autopsy in progress at the Roswell base hospital. Before he could learn much of what was going on, a redheaded captain (or, in some versions told by Dennis, a redheaded colonel) had him ejected from the building, but not before he encountered a nurse friend who was visibly upset. She had entered a room to get supplies and saw two doctors she didn't know conducting an autopsy on three small, black, mangled bodies, one of them with an exceptionally large head. The nurse disappeared from Roswell within a day. Dennis was unable to get in touch with her despite attempts to help by the chief nurse, Capt. "Slatts" Wilson, who was known to them both. He remembered "Slatts" as unusually tall, 6 feet 1 inch or taller. The missing nurse became part of the UFO canon.

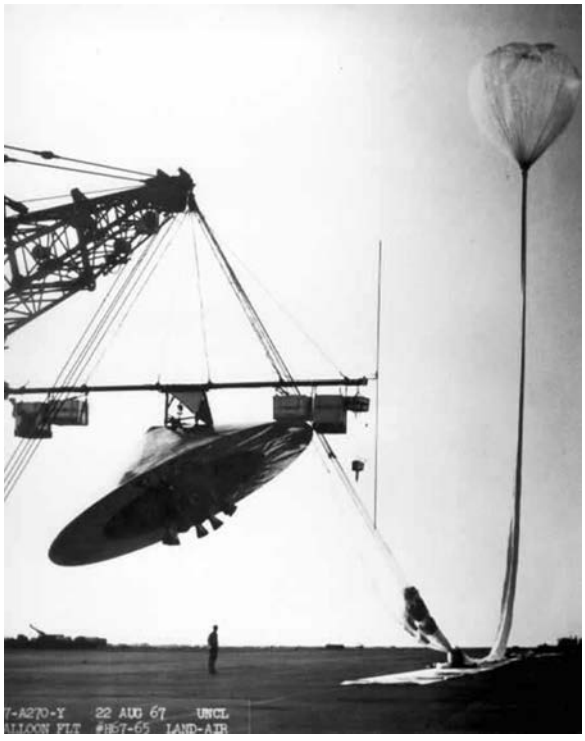
In 1991, Glenn Dennis, Walter Haut, and a third partner opened the International UFO Museum in Roswell. Haut was the first head of the museum. He and his wife had car tags that read, "Mr. UFO" and "Mrs. UFO."

Although it was not apparent at the time, matters were approaching resolution. In 1993, Rep. Steven Schiff of New Mexico made inquiries about the Roswell incident. Careless handling of his questions by the Pentagon prompted him to conclude he was getting the runaround so he called for an investigation by the GAO (then the General Accounting Office, since renamed Government Accountability Office). Since the GAO reported to Schiff's Government Operations Committee, he got swift attention.

The Air Force heard about the investigation from the newspapers and decided to move on its own. This time, USAF pulled out all the stops, digging deep into old records and hunting down persons, long retired, who had taken part in events of many years ago. This led to lengthy reports (one of them almost 1,000 pages long) in 1994 and 1997, filled with extraordinary details and photographs of the incidents in and around Roswell.

The wreckage at the Brazel ranch in July 1947 was the remains of a 60-foot-long train of 23 weather balloons and a cluster of metallic targets to enable tracking by radar. It was launched the previous month from Alamogordo Army

Maj. Jesse Marcel displays the debris found northwest of Roswell in 1947. USAF says the debris is from a standard radar target used in Project Mogul.



The aeroshell of a NASA Voyager, shown here being prepared for a high-altitude test flight. Space probes, such as this one, suggest a "flying saucer" shape common among UFO sightings.

Airfield (now Holloman AFB, N.M.) as part of the "Project Mogul" program to develop a capability for high-altitude monitoring of Soviet nuclear tests. The objective of this particular flight was to perfect the handling and use of large balloon trains.

Big Balloons and Bald Aliens

The USAF report included statements from the two scientists who launched the balloon train and photos of it on the ground and in the air. There were also statements from the assistant who accompanied Jesse Marcel to the crash site and from the weather officer who identified the debris at Eighth Air Force headquarters, as well as photos of Marcel and others with samples of the wreckage.

The "hieroglyphics" were easily explained. The radar targets were produced by a firm that also made toys. The manufacturer used some in-stock plastic tape on which were pink and purple geometric designs and flower and heart symbols.

Reports of the short four-fingered aliens at the other crash sites may have sprung from events glimpsed at a distance in the 1950s, not in 1947 as the witnesses said. The "dead aliens" resembled anthropomorphic "Sierra Sam" crash test dummies used in high-altitude balloon drops over White Sands Proving Ground west of Roswell. As seen in the photos in the USAF reports, the dummies were hairless, chalky pale, wore silvery one-piece suits, and were often shortened by loss of arms, legs, and fingers from landing damage.

Former undertaker Dennis may likewise have time-shifted and jumbled events that he did not understand, perhaps combining bits and pieces of unrelated things that happened over a spread of 12 years or so. In 1956, a KC-97 aircraft crashed near Walker (formerly Roswell AAF) AFB, N.M. The autopsy of three of the casualties was performed at Ballard Funeral Home where Dennis worked, not at the base, and was performed by two out-of-town specialists. The bodies were badly burned, black and mangled, and shortened by the loss of lower extremities. The hospital commander at the time was a redheaded colonel, Lee Ferrell.

In 1959, two pilots were injured in a balloon gondola accident northwest of Roswell and were treated at the Walker Air Force Base hospital. The "alien" with the big head may have been Capt. Dan D. Fulgham, whose head was so swelled by hematoma that he could not open his eyes and his wife did not immediately recognize his face. The team leader on the scene was Capt. Joseph W. Kittinger Jr., who had red hair.

The Air Force accounted for all of the nurses who had been at Roswell. "Slatts" Wilson may have been another composite. The only nurse known as "Slatts" was Capt. (later Lt. Col.) Lucille Slattery, who did not arrive until after the July 1947 crash and who was 5 feet 3 inches, not 6 feet 1 inch or taller. There was a nurse Wilson, but her first name was Idabelle and she had never heard of Dennis or the events he reported.

The only nurse who left Roswell on short notice went to San Antonio for special medical treatment, which led to her eventual medical retirement. She was not removed because of something she had seen.

In 1996, Glenn Dennis succeeded Walter Haut as head of the International UFO Museum in Roswell. The current director is Haut's daughter, Julie Shuster. The museum attracts about 150,000 visitors a year, and a second UFO museum has opened in town. Lamp posts, street signs, and shops display an alien motif with bubble heads and big eyes. The annual UFO festival over the July 4 weekend is one of New Mexico's premier tourist attractions.

Suspicions about Roswell never die. In 2007, when running for the Democratic nomination for the presidency, New Mexico Governor (and former Secretary of Energy) Bill Richardson promised, if elected, he would work on reopening the files on a case that had never been adequately explained.

UFO country in the southwestern United States includes the Air Force's fabled Area 51, a classified development area on the shore of the Groom Lake salt flat in Nevada. UFOlogists claim the crashed saucer from Roswell was taken there and the Air Force uses the site to reverse engineer UFOs and hold meetings with extraterrestrials. UFO sightings have been reported around the perimeter.

Among the aircraft tested at Groom Lake were the SR-71 Blackbird, the F-117 stealth fighter, and the B-2 stealth bomber, which looks something like a saucer if seen from certain angles. The UFO reports "made it easier to conceal what we were doing," says one Area 51 old-timer. "We were the UFOs."

Polls find more than half of the adult American population believes the government is concealing information about UFOs. Almost half of the public believes that aliens have visited the Earth.

Last year, seven former Air Force officers, including the former deputy base commander from RAF Bentwaters in England, held a news conference at the National Press Club in Washington to tell about UFO visits to Air Force bases. They said that in 1967, UFOs disabled ICBMs at Malmstrom AFB, Mont. Their program was mostly a pastiche of stories that had been told before.

Nobody paid them much attention. Perhaps, in the context of the world today, there are more disturbing and important things to worry about than UFOs. ■

John T. Correll was editor in chief of Air Force *Magazine for 18 years and is now a contributing editor. His most recent article, "The Poltava Debacle," appeared in the March issue.*

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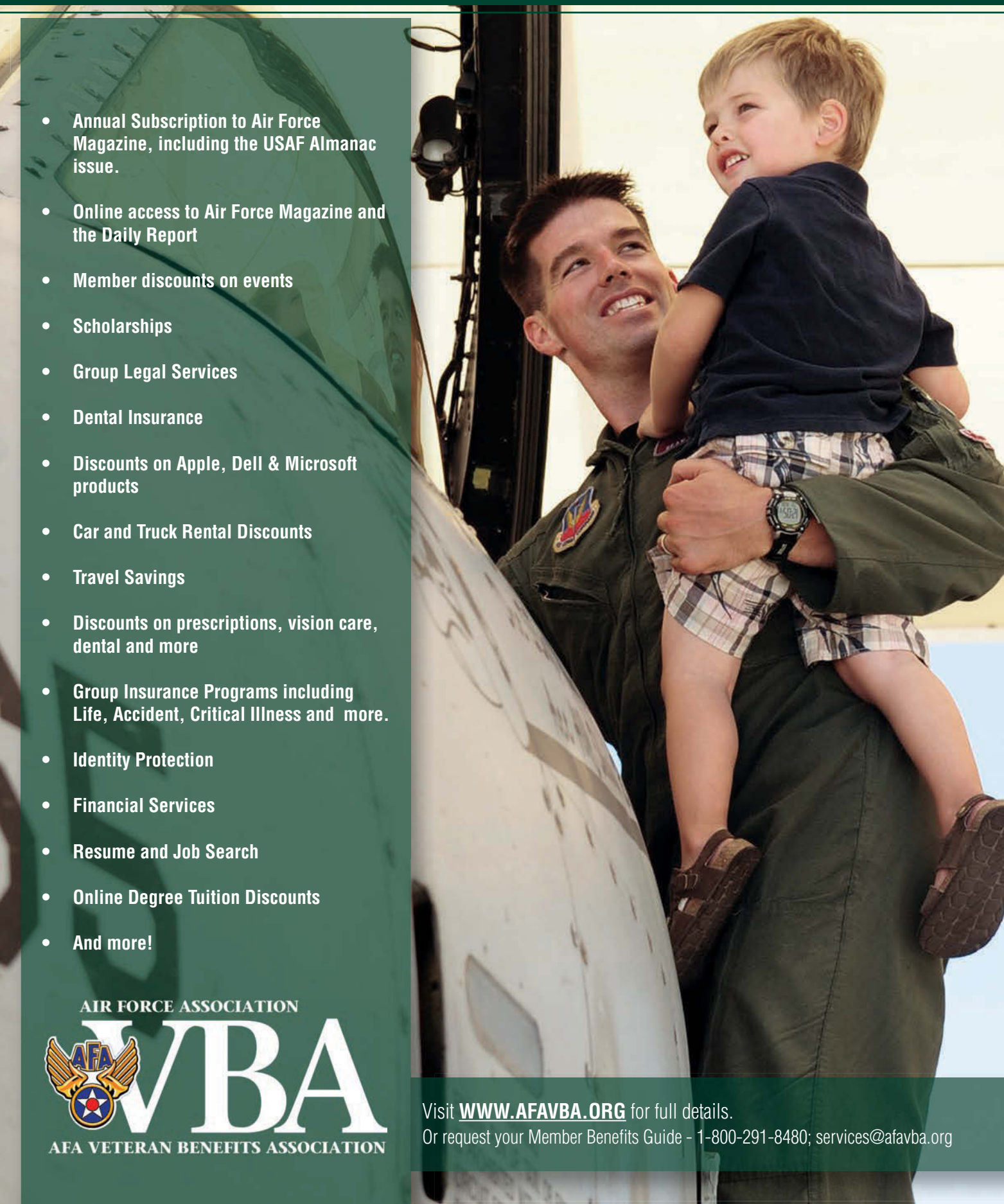

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AFA National Report

natrep@afa.org

By Frances McKenney, Assistant Managing Editor

Role Models

Their peers were probably still asleep when, on a recent Saturday, AFJROTC cadets in Clinton, Md., assembled to hear two members of the **Thomas W. Anthony Chapter (Md.)** inspire them through stories about their lives and their Air Force careers.

Col. David Koontz, commander of 11th Security Forces Group at JB Andrews-NAF Washington, Md., and retired CMSgt. Joseph L. Hardy, the AFA Maryland state president, spoke to 75 cadets at Surrattsville High School in March.

The two speakers stressed the importance of studying science, technology, engineering,and math,encouraging the cadets to take challenging classes; it'll make a difference when you enter the job market, they told the students.

They spoke about the CyberPatriot program and passed out brochures to a dozen students who expressed interest in forming a team for the next competition.

But what were the cadets most interested in? Koontz's and Hardy's personal experiences.

Hardy, for one, recounted growing up on a North Carolina farm, in a family with eight children. He told the cadets that when he finished high school, "I had no money and no hope." He went on to a 30-year military career, starting first in the Army and then on to the Air Force, along the way earning a bachelor's degree magna cum laude and a master's degree in procurement and acquisition management.

Hardy said afterward that he wanted the students to know "no matter what your circumstances, ... you can make it."

The Two Cyber Champs

The Air Force Association's CyberPatriot III National High School Cyber Defense Competition concluded April 1 at the Gaylord National Resort and Convention Center outside of Washington, D.C., with the Civil Air Patrol's Team Wilson named as the All-Service Division champions and Team Mantrap from Red Bank Regional High School in Little Silver, N.J., named as winners of the Open Division.

Team Wilson beat more than 450 other teams originally registered, while Team Mantrap bested 186 entrants to take home the President's Trophy.

Team Wilson comprised cadets Josh Dovi, Reid Ferguson, Evan Hamrick, Isaac Harding, Michael Hudson, and Shawn Wilson. Nina Harding coached them.

Team Mantrap's members were Chris Barry, Adam Cotenoff, Josh Eddy, Jack Kelleher, Colin Mahns, and Jared Katzman. Their coach was Amanda Galante.

Each championship winner received a $2,000 scholarship from Northrop Grumman, CyberPatriot's presenting sponsor.

AFA National Director John Timothy Brock of the **Central Florida Chapter** later attended the Civil Air Patrol Florida Wing Conference April 16. Brock recognized the CAP winning team, which is from the Orlando CAP Squadron.

He then helped present framed citations to the Team Wilson cadets and coach and re-presented the CyberPatriot Commander In Chief Trophy to them.

CyberPatriot provides high school students with experiential learning about cyber security, prepares them to be the nation's next cyber defenders, and encourages them to study science, technology, engineering, and math.

Staff photo by Eric Chang Lee

AFA Board Chairman Sandy Schlitt (center) makes a point during a meeting of the association's Senior Leader Advisory Group in April. Listening to the discussion are O. R. Crawford (left) and George Douglas (right).

More photos at http://www.airforce-magazine.com, in "AFA National Report"

An ISR Update in Tennessee

At a gathering co-sponsored by the **Tennessee Valley Chapter** of Huntsville, Ala., nearly 300 people attended a presentation by recently retired Lt. Gen. David A. Deptula, former Air Force deputy chief of staff for intelligence-surveillance-reconnaissance.

Chapter Aerospace Education VP Russell V. Lewey reported that Deptula talked about "Current and Future Challenges in Joint ISR," saying that intelligence disciplines must move beyond individual excellence toward integration.

Deptula's examples of successful integration included the Navy's hunter-killer submarines and P-3 surveillance aircraft armed with anti-ship Harpoon missiles. Deptula challenged programmers and planners to consider ISR an integral part of operations, to drive and shape intelligence for joint decision-makers, Lewey said.

Lewey counted representatives from more than 20 companies in the audience for this luncheon presentation.

Local chapters of the Armed Forces Communications and Electronics Association, the National Military Intelligence Association, and the National Defense Industrial Association cohosted the event with the Tennessee Valley Chapter.

"Welcome to Your New Job"

Retired Maj. Gen. Mark A. Pillar addressed a dinner meeting of the **Southern Indiana Chapter** in Bloomington, Ind., in March, recounting his dramatic first day on the job, back in 2001, at US Strategic Command.

Today a resident of Columbus, Ind., Pillar is a Vietnam War veteran who transferred to the Reserve in 1978 and held numerous leadership positions in the 434th Air Refueling Wing, Grissom ARB, Ind., before retiring in 2008.

Pillar called his chapter presentation "Welcome to Your New Job" and described his first day 10 years ago, as mobilization assistant to the commander at STRATCOM, Offutt AFB, Neb. With other Guardsmen and Reservists, he was to participate in regularly scheduled training that simulated an attack on the US: the annual Global Guardian nuclear readiness exercise.

However, this time it happened to be the morning of Sept. 11, 2001.

As the group assembled, terrorists struck the World Trade Center in New York City. Pillar described how the exercise shifted from simulation to actual crisis.

Chapter President James Fultz wrote that Pillar's firsthand account of events that day made chapter members feel like witnesses to history. "Many of those at the chapter meeting that night felt it was one of our finest presentations," Fultz said.

Also at the meeting, Jacob Huston received an AFA Civil Air Patrol Cadet award. He is from the CAP Monroe County Composite Squadron, Indiana Wing.

Ten Exclamation Points

In his e-mail describing the Pilot for a Day program at JB Lewis-McChord, Wash., **McChord Chapter** President Tommy L. Carson rapped out 10 exclamation points in a row. He was that enthusiastic about it.

Pilot for a Day takes place at several Air Force bases, and at McChord is hosted by the 4th Airlift Squadron. It brings seriously ill children and their families to the base for a close-up look at the Air Force. The aim is to give a child the chance to momentarily set aside worries about illness and medical treatment.

Owain Weinert, a nine-year-old with leukemia, became pilot for a day in February, with a local Fox news station tagging along to record his visit.

In his flight suit and cap, Weinert took part in the kid-oriented activities with gusto. He held on to a fire hose as a torrent of water rushed from it. At the explosive ordnance disposal unit, he worked the joystick on a bomb disposal robot and cheered at the EOD team's explosion demonstration. He watched the security forces squadron's military working dog lunge at a trainer's heavily protected arm.

In the pilot's seat of a C-17, he called out, "Pull back" and yanked on the yoke like he was reeling in a fish. With great animation, he explained to the TV reporter that he'd been in the cockpit of a commercial airliner before but this experience far outclassed it. "This is awesome—I mean, wow," he exclaimed.

The McChord Chapter's Community Partners foot the bill for this program, with the chapter's Robert Branscomb heading the fund-raising effort. In the McChord area, the program takes place several times a year and has been receiving regular newspaper coverage.

The Young and the Old

In North Carolina, the **Blue Ridge Chapter's** March meeting highlighted the young and the old: Kelsey Lynch, an AFJROTC cadet, and Ernest A. Andrews, a World War II veteran.

Lynch, from T. C. Robertson High School in Asheville, N.C., thanked the chapter for paying for her utility uniform, helping her attend an AFJROTC Aerospace and Technology Honor Camp.

Guest speaker Andrews was drafted into the Army in June 1943 and served in the 1st Infantry Division, participating in the D-Day invasion and the Battle of the Bulge. Andrews spoke about his training, the Normandy invasion, as well as his injuries during battle, encounters with German soldiers, and his unit's march across Europe.

Maryland State President Joe Hardy (second from left) and Col. David Koontz (far right) spoke to the AFJROTC unit at Surrattsville High School, Md., for a Thomas W. Anthony Chapter outreach program. L-r are cadet Christan Jones, cadet Michael Carter, and retired Lt. Col. Daryl Umstead, senior aerospace science instructor.

"This ... old soldier wowed the membership with his enthusiasm and spirit," wrote Chapter Secretary William D. Duncan Jr.

The month before, Duncan, Chapter Treasurer Alicia Hughes, and Communications VP Tary Wiley had stepped forward to volunteer when a Western Carolina University professor visited community groups in the Asheville area, seeking judges and trophy sponsors for a science fair.

The three chapter members served as judges for 10 projects entered into the Region Eight Western Regional Science Fair, held at the university in February.

The chapter members presented three aerospace excellence award medals to winners in the junior and senior high divisions: Jason Rogers of Waynesville Middle School for his project on an eco-friendly battery made from materials found at home; Justin Coye of Brevard Middle School, for his project called "How to Lift a Top Gun"; and Forest Beaudet of Madison Early College High School, whose project replicated capabilities of an infrared camera on an airplane.

Tennessee Valley Chapter's guest speaker, retired Lt. Gen. David Deptula (right), chats with chapter member Otha Vaughan.

It's Back

Last year, it had to be canceled when not enough teams signed up, but this March, the **Chuck Yeager Chapter's** annual AFJROTC competition in Parkersburg, W. Va., came back to life: Five schools took part in the meet, held at Parkersburg South High School.

Teams came from South Charleston (W. Va.) High School; Woodrow Wilson High School in Beckley, W. Va.; Nitro (W. Va.) High School; and Springboro High School in Ohio.

For the out-of-staters—who traveled nearly 200 miles from their school, located south of Dayton, Ohio—it was well worth the trip. Springboro took home the most hardware: trophies for overall champion, as well as for first-year unarmed drill and advanced armed drill.

Parkersburg South—hometown favorites—equaled that number, with

the grand champion traveling trophy and the top awards for first-year color guard and advanced drill. Nitro cadets took home top honors for advanced color guard, while South Charleston received the trophy in the inspection category.

Chapter President Ira Latimer noted that the chapter's drill meet is open to units from all service branches. ■

AFA Conventions

June 2-5	**California State Convention,** Vandenberg AFB, Calif.
June 4	**Virginia State Convention,** Danville, Va.
June 25	**North Carolina State Convention,** Raleigh, N.C.
July 8-9	**Florida State Convention,** Ocala, Fla.
July 22-24	**Texas State Convention,** Fredericksburg, Tex.
Sept. 17-18	**AFA National Convention,** Washington, D.C.
Sept. 19-21	**AFA Air & Space Conference,** Washington, D.C.

reunions@afa.org

Reunions

2nd BG. Aug. 17-20 at the Academy Best Western in Colorado Springs, CO. **Contacts:** 2nd Bombardment Group Reunion, C/O CTCM-ACR, PO Box 25806, Colorado Springs, CO 80936 or Sherry or Kaitlyn (719-380-1412) (info@ctcm-acr.com).

5th Aerial Port, Evreux-Mildenhall. Aug. 18-21 in Fairborn, OH. **Contacts:** Bill Bishop (w_i_bishop@yahoo.com) or Lee Jarrett (leejarrett@cox.net).

13th Fighter-Interceptor Sq. Aug. 31-Sept. 4 at the Crowne Plaza Hotel in Colorado Springs, CO. **Contact:** Ray Ball, 1406 Farm Mkt Rd. 1499, Paris, TX 75460 (903-785-7777) (rayball028@gmail.com).

39th BG, Guam (1945). Aug. 3-7 in Dayton, OH. **Contacts:** Liz Van Kampen (608-385-0923) (liz.vankampen@sprint-print.com) or Peter Weiler (941-377-2451) (webmaster@39th.org).

39th Fighter Sq Assn, including **31st Pursuit Gp, 35th Fighter-Interceptor Wg, 39th Flying Tng Sq,** and **39th, 40th,** and **41st FS,** all eras. Oct. 12-16 in Bellingham, WA. **Contact:** L. Haddock (719-687-6425) (comm63@mac.com).

48th FS, FIS, and **FTS.** Sept. 28-Oct. 1 at Columbus AFB, MS. **Contact:** Joe Onesty, 455 Galleon Way, Seal Beach, CA 90740 (562-431-2901) (jonesty2@roadrunner.com).

489th BG, (WWII). Sept. 7-13 in Dayton, OH. **Contact:** Bill Smith, 6016 Yarmouth Dr., Dayton, OH 45459 (937-435-1585) (bsmith2040@hotmail.com).

613th, 847th, 848th Sqs and **511th AC&WG.** Sept. 19 at the Isle Casino Hotel in Biloxi, MS. **Contact:** Don Simmons (972-231-6518) (dona7112@sbcglobal.net).

Tan Son Nhut Assn. Oct. 6-9 at the Blake Hotel in Charlotte, NC. **Contact:** Rich Carvell (870-932-8085) (rcarvell@suddenlink.net).

UNT 87-06. Sept. 6-8 at the Tuscany Casino in Las Vegas. **Contact:** UNT 87-06, PO Box 874, Box Elder, SD 57719. ■

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "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.

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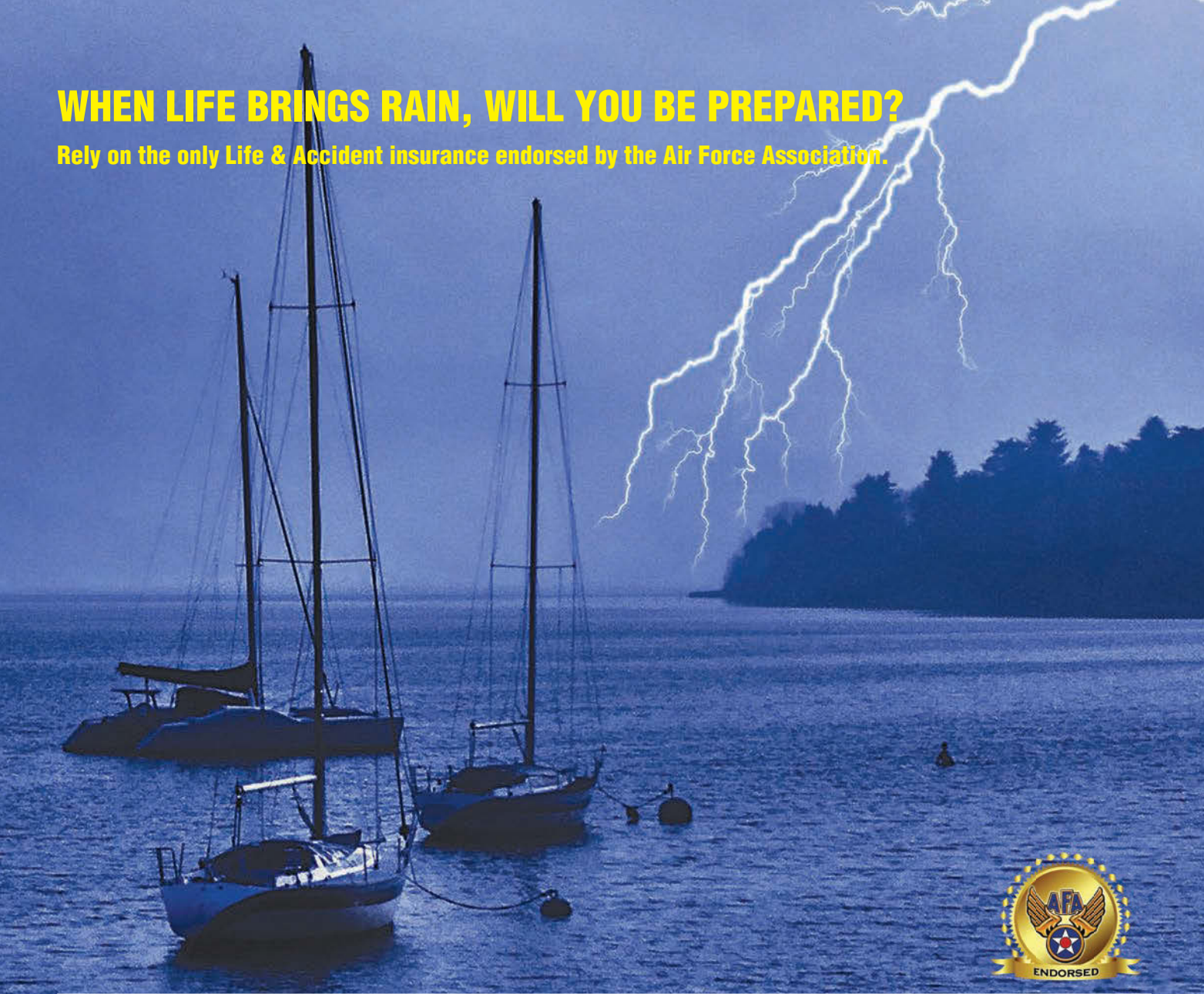

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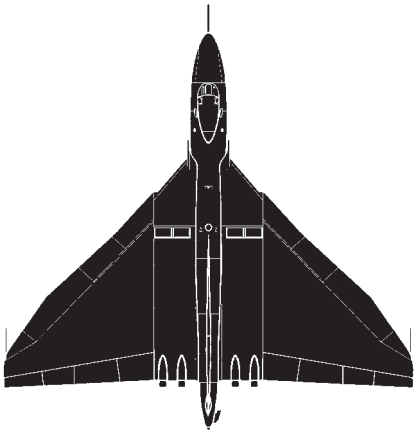
Vulcan



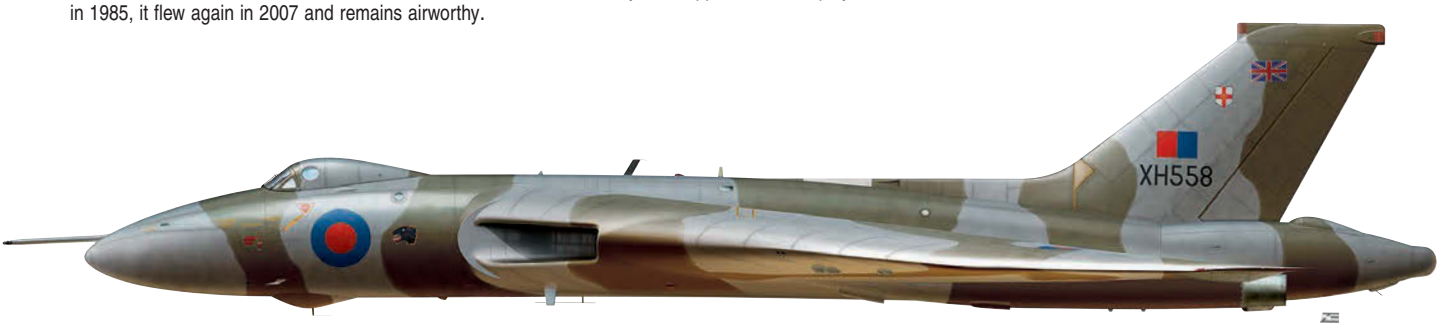
The delta-wing Vulcan is to British bombers what the Spitfire is to British fighters—a beautiful icon symbolizing the best the Royal Air Force has produced. Avro built it for the nuclear deterrent, but in time the Vulcan played a key conventional bomber role in combat. Highly maneuverable—even aerobatic—the Vulcan's superb flying qualities were beloved of a generation of RAF crews, and its sheer style produced a worldwide following.

Use of delta wings was cutting edge and daring in the 1950s. These wings were selected for their large load capacity and were carefully tested on one-third scale Avro 707 prototypes. In flight, the bomber was surprisingly agile, and was even somewhat stealthy, sometimes vanishing from radar screens. Over the years, new wing shapes and other modifications came along. Initial mods included upgraded engines and electronic countermeasures gear. Vulcan B.Mk 2 had air refueling and more weapons-launch capabilities.

With introduction of Polaris nuclear submarines in the 1960s, Vulcan's deterrent mission ended, and it became a low-level conventional bomber. Five Vulcans were modified for the 1982 Falkland Islands war, where they proved highly effective. Vulcans based at Ascension Island flew 4,000-mile raids against airfields and radar sites held by Argentina at Stanley. These were, at the time, the longest combat air missions ever executed.

—Walter J. Boyne

This aircraft: Vulcan B2 XH558, the last to serve on RAF active duty, as it appeared, on display, in 1990. Retired in 1985, it flew again in 2007 and remains airworthy.



In Brief

Designed, built by Avro Aircraft ★ first flight Aug. 30, 1952 ★ crew of five (two pilots, two navigators, one air electronics officer) ★ number built 136 ★ **Specific to B.Mk 2:** four Rolls Royce Olympus turbojet engines ★ armament one Blue Steel standoff nuclear missile, 21 1,000-lb gravity bombs ★ max speed 632 mph ★ cruise speed 625 mph ★ max range 4,600 mi ★ weight (loaded) 200,000 lb ★ span 111 ft ★ length 99 ft 11 in ★ height 27 ft 1 in.

Famous Fliers

Test pilots: Tony Blackman, Roland Falk. **Record Setter:** Michael Beavis, fastest nonstop flight Britain-Australia. **Notables:** Michael James Beetham, Ray Bray, Harry Broadhurst, Milt Cottee, David Craig, Ron Dick, Jimmy Harrison, Robby Robinson, Martin Withers.

Interesting Facts

Appeared in 1965 James Bond thriller "Thunderball" ★ nicknamed "Tin Triangle" ★ carried nuclear bombs named Yellow Sun, Violet Club, Blue Danube, Red Beard ★ performed near-vertical bank, upward barrel roll at 1955 Farnborough air show ★ flew Britain-Australia route in record 20 hours, three minutes (1961) ★ modified for maritime radar reconnaissance and air tanking ★ began as a radically new tailless design ★ had only two ejection seats (for pilots) ★ crashed into Detroit suburb in 1958.

For its time, the delta wing was cutting edge.

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[1]**Savings based on the monthly average of actual new vehicle member prices compared to MSRP for the time period 6/1/2010 to 11/30/2010. The savings calculation does not include the savings from the USAA-exclusive manufacturer incentives.** [2]Loans and financing subject to credit and property approval. Total loan amount cannot exceed USAA's determination of vehicle's value plus tax, title and license. Rates are subject to change. To qualify for USAA's lowest loan rates, you must have excellent credit and sign up for automatic payments. [3]Finance charges will accrue during the deferral period. [4]**Average annual savings based on countrywide survey of new customers from 10/1/09 to 9/30/10, who reported their prior insurers' premiums when they switched to USAA. Savings do not apply in MA.** AFA receives financial support from USAA for this sponsorship. No Department of Defense or government agency endorsement. 131328-0611

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