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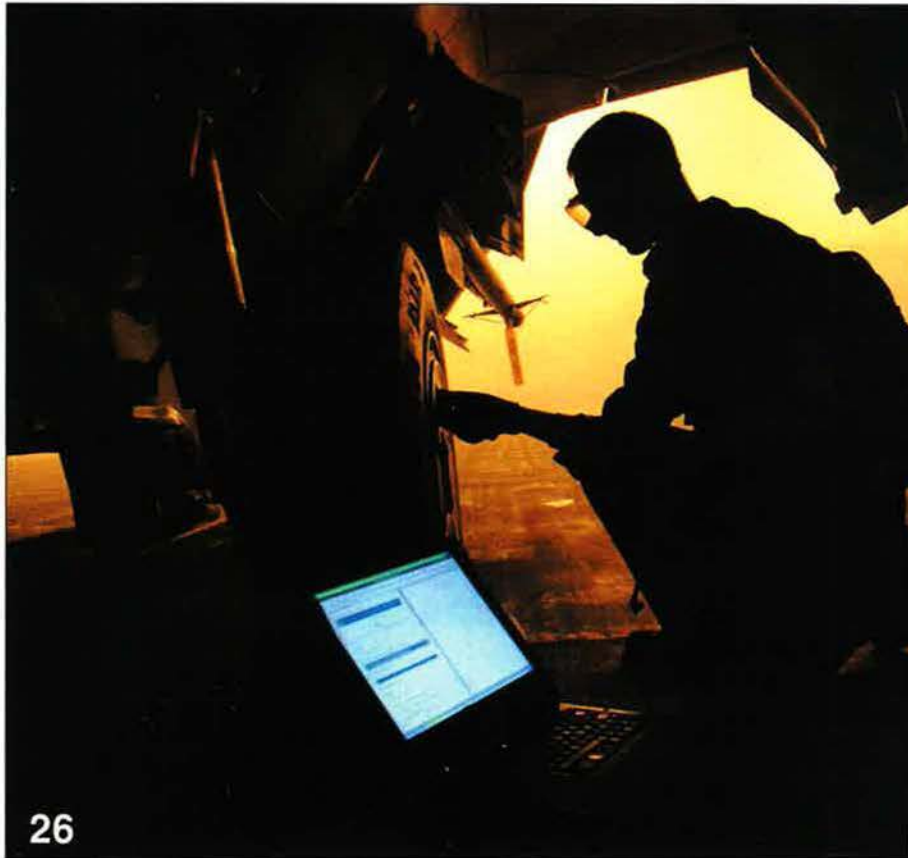
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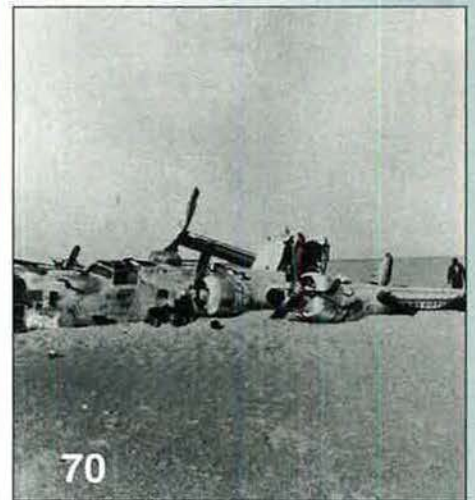
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Compensation Controversies

THE recently approved bipartisan 2014 defense budget deal gives the Air Force a measure of desperately needed predictability and flexibility.

The aspect of this budget deal that got the most attention, however, was a provision to reduce pensions for working-age military retirees. The plan would reduce cost of living adjustments to one percent below inflation for retirees until age 62, when they would see their COLA restored.

Although this is a lousy provision, it may serve a very valuable purpose by bringing DOD's unsustainable pay and benefit trends under a spotlight. Over the past decade, Total Force pay and benefit expenses increased as the force shrunk.

"Although we employ fewer people, compensation costs continue to climb at unsustainable rates," Chief of Staff Gen. Mark A. Welsh III said in November. "Together we must address the issue of compensation, or it will consume our warfighting spending over the next few decades. Our airmen and retirees deserve every dollar they earn, [but] we need to look at slowing pay raises, reforming how housing allowances are determined, and restructuring health care to ensure world-class care at a sustainable cost."

The Air Force Association agrees. It is true that airmen cannot be paid enough for their hardships, dedication, service, and sacrifice. But it also true that the nation cannot afford for pay and benefits to relentlessly trend upward toward infinity. The best compensated force in the world has no value if it cannot defend the nation.

This winter's budget deal addressed this growing problem in entirely the wrong way. The COLA change would save \$6 billion over 10 years but unacceptably cut earned benefits.

The congressionally chartered Military Compensation and Retirement Modernization Commission is studying these programs and is scheduled to deliver pay and benefit recommendations in early 2015.

"We should not break faith" with airmen and their family members, AFA Executive Vice President Richard Y. Newton III told the commission at a November hearing. "AFA urges a whole-of-government approach,"

added Newton, a retired lieutenant general who once served as USAF's personnel chief. "Congress should be just as diligent examining the entire federal employment and benefits system as it is focused on our men and women in uniform."

This requires careful consideration. The MCRMC must be wary of unintended consequences and cascading effects on the force. The troops will be watching to see if the nation keeps its word to its veterans.

The nation needs to rein in personnel costs, but it must first keep its promises.

The all-volunteer force is dependent on fair pay for its troops. In the 1970s and 1990s they were not adequately compensated, and recruiting, retention, and the quality of the force suffered. Since the late 1990s, however, Congress has steadily increased pay and benefits for troops and retirees. What began as a needed correction became an easy way for lawmakers both left and right to demonstrate their support for the troops.

Over the past decade, we have seen large pay raises, survivor benefit improvements, Tricare for Life, reducing concurrent receipt penalties, extraordinarily slow growth in medical coverage costs, and other benefit improvements. Each of these benefits has value, but they now meet the need and are cumulatively breaking the bank.

Even though today's force faces repeated war-zone deployments and an extraordinarily high operating tempo, recruiting and retention are at historically high levels.

Through their actions, airmen are saying that today's compensation is fair. And no wonder—a recent Pentagon study determined enlisted troops are paid better than 90 percent of comparable civilians, while officers are paid at the 83rd percentile of their civilian peers.

A frequent argument is that personnel expenses make up a third of the DOD budget, the same ratio as for decades. This figure, however, does not include government furnished child

care, commissary expenses, DOD schools, and family housing.

It also does not count the cost of some 800,000 civilian employees. Ponder for a moment how Air Force Space Command or Air Force Materiel Command would perform their missions without their civilian workforces.

When these other people-related expenses are factored in, personnel costs reach roughly half of the Air Force's budget.

As Welsh noted in November, "When I entered the Air Force in 1976 we had ... 585,000 [airmen] on Active Duty." Today USAF has 329,000 airmen on Active Duty. As a ratio, personnel costs have held steady, but the size of the force has shrunk more than 40 percent. The cost-per-person has soared.

Airmen join to serve their nation, and "service before self" is an Air Force core value. But an entitlement culture is built slowly, one benefit at a time. Congress must rein in expenses while keeping its promises.

Four things are needed.

First, the cut to retirees' COLAs must be reversed. The \$6 billion needs to come from somewhere else. If COLAs need to be adjusted, the existing force must be grandfathered in, with reductions made for future airmen only.

Second, structural changes are needed, so airmen should be surveyed to determine what compensation they really desire. A new system must offer the same value for less money. For example, the average American lives to 84. Today's retirement system allows many airmen to work for 20 years and be paid for 66 years—but only 17 percent ever qualify for this retirement package. A vested 401(k)-style system may offer greater value to future airmen.

Third, when the military compensation system is changed for the future force, the current force must have the option of sticking with existing programs. Promises must be kept.

Finally, AFA believes that compensation, modernization, and readiness must all be kept in balance. Benefits should not be cut to pay for hardware any more than procurement should be cut to pay for training. A balanced force is vital to keep USAF the world's best. ■



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Feeder Force and the Candy Bomber

I read your article with great interest ["The Feeder Force," January, p. 67]. In 1941 I was not in college but working. Graduated from high school in 1939.

Mr. Robert Hinckley was head of the CAA then I think. He started a "Non-College CPT" program. In Utah, they had ground schools in Salt Lake City, Ogden, and northern Utah. Had about 120, all told, with ground school to pass the private pilot written. I was in northern Utah. After the test they awarded 10 flight scholarships for a private license.

I got one of them and did my flight training in Brigham City, Utah. Got my license in September 1941. Joined the Civil Air Patrol and did some search missions. I still have my Civil Air Patrol wings! I have a photo with Cub and instructor somewhere.

Joined the Army Air Corps in June of 1942. Put on reserve to attend Utah State University. Called to Active Duty spring of 1943. Put in pilot training pipe line. I got RAF wings and then Army Air Corps wings June 1944.

I was grateful that I could get in the program although not in college.

Col. Gail S. Halvorsen,
USAF (Ret.)
Amado, Ariz.

Imagine All the People

Adam Hebert's suggestion that we reconsider the efficacy of the nuclear triad (*Air Force Magazine*, December 2013, p. 4) is both timely and appropriate. The arguments for looking at the future of our reliance on the deterrent power of land-based ICBMs, strategic bombers, and sea-based submarines is compelling in light of the age of these delivery systems and developing technologies. Plus the nature of warfare has changed from that which existed in World War II when atom bombs were developed.

But it may also be time we reconsider whether the concept of nuclear deterrence remains relevant in a world where the historic response to US nuclear arms development was an arms race, rather than intimidation into submission or inaction. This arms race, in turn, generated our MAD national security strategy based on Mutually Assured Destruction building a nuclear arse-

nal so large that we could absorb an enemy's nuclear attack and still have sufficient surviving nuclear warheads to annihilate the aggressors. Would we really ever employ nuclear forces to annihilate a sovereign nation we see as our enemy?

As an officer assigned to the Headquarters Strategic Air Command DCS for Operations in the early 1970s, I earned my "BS in SAC-ology." Peace was our profession. Peace through strength and deterrence.

I remember when SAC daily launched nuclear-equipped strategic bombers toward the Soviet Union while the Soviets launched their own bombers toward the US in a dangerous game of chicken, each looking for a weakness in the other's defenses.

The value to the US of the nuclear triad may not have been deterrence. Instead, the decision by the Soviet Union to build forces to defend against (or to neutralize and successfully attack the US despite a three-pronged nuclear force), coupled with the "space race," led to the economic destabilization and ultimate collapse of the Soviet Union. Our touting of our nuclear arsenal may be responsible for mobilizing enemies to spend more, not less, on nuclear weapons and focus on figuring ways to attack us rather than being deterred.

We should eliminate nuclear weapons from our national arsenal.

Space surveillance, precision navigation, guided munitions, and satellite communications allow us to engage an enemy with knowledge of the enemy threat and a precision unimaginable in World War II, when nuclear weapons were deemed necessary to ensure target destruction because guidance and delivery systems lacked the precision we enjoy today.

Our use of atomic bombs against Japan in World War II demonstrated to the world that we would employ nuclear weapons against civilian populations in war. Our national propensity to attack other foreign powers to advance our national security interests culminated in the bombardment of Baghdad in March 2003 on suspicion of the presence of weapons of mass destruction and communicated to the world that the US is a dangerous aggressor willing to ignore its own national security policy,

which stated that we would never attack another sovereign nation unless they first attacked us.

As the world's leading military power, we are clearly willing to do the unthinkable, including unilateral pre-emptive strikes in direct violation of the United Nations charter. No wonder terrorists are able to sell their hatred of the US to radical Islamists.

Suppose we took the moral high ground and stopped the development of nuclear warfare [and] retired and unilaterally destroyed our nuclear arsenal. Would this really place our nation in harm's way? Nuclear weapons had no role in deterring the Soviets during the Cuban missile crisis; they were deterred by the presence of US naval forces. Nuclear forces did not end the Vietnam War; this was brought about after intensive B-52 bombing strikes against Hanoi. Nuclear forces did not deter the terrorists who struck the World Trade Center. Nor has the existence of nuclear weapons ended conflict in Afghanistan or ended nuclear development in Iran or North Korea.

Can we believe US nuclear weapons will deter an enemy from poisoning our water supply, commandeering commercial aircraft to crash into iconic buildings on our homeland, interrupting our power grid, or making a cyber attack on our command and control systems?

By eliminating all US nuclear weapons, could we not then insist other nations follow our lead to make the world a safer place? Could we not focus our efforts and resources on rendering nuclear warfare obsolete?

Let's move forward and turn from our past as a nation that unleashed

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the atomic bomb, killing as many as 100,000 innocent noncombatants, including 3,000 Americans who were in Hiroshima on Aug. 6, 1945. Let's give up on our arrogant belief that we can create a lasting peace by initiating pre-emptive strikes on enemy nations.

Let's preclude the possibility of the enemy infiltrating our armed forces with a couple of undetected terrorists able to launch an ICBM or commandeer a nuclear-equipped bomber or submarine and start a nuclear holocaust.

Let's eliminate from our military budget all expenditures on the development and preservation of weapons of mass destruction in the mistaken belief that these weapons, whose employment could turn the entire world against us, will deter potential enemies from seeking to destroy us. History simply does not bear this out.

Col. Robert J. Sallee,
USAF (Ret.)
Colorado Springs, Colo.

The Times They Are A-changin'

While visiting my daughter (a member of AFA and an Air Force nurse for five years, married to a USAF major currently serving in Afghanistan), I was browsing through your December issue and read an interesting letter sent in by retired Maj. Paul Hooper

[*"Letters: We Make Both Sides Mad," December, p. 7*]. It seems he strongly resents the increased presence of women in USAF, and attributes this to "social engineering" and "insane policies." It isn't clear when he served on Active Duty but since he claims to be an AFA member for 30 years, I will assume he was Active during the 20 year period from which he has derived his statistics ('70-'90). I too was on Active Duty during that time frame ('72-'98). My first assignment was as personnel psychologist and test control officer at an Armed Forces Examining and Entrance Station (AFEES). In this assignment I witnessed truly egregious sexist policies used in the recruiting of females to USAF. Females had to meet standards far above any male counterpart. They had to be a high school grad (GED need not apply); they had to score in the first category of the AFQT (two standard deviations above the mean); and the requirement that amazed those of us in the other services was the sending of full-length and close-up photos of USAF female candidates to somewhere at Lackland Air Force Base for review and approval. What purpose could this possibly serve since heights and weights were already a matter of record? The Air Force certainly wasn't reviewing photos

of male candidates. In my opinion, if policies ever needed changing it was to correct obviously prejudicial rules designed to eliminate fully qualified female candidates simply because they were female or, worse, because they didn't meet some "appearance standard." So the real reason that the number of females in the Air Force (and the other services) has risen is the elimination of discriminatory policies and the recognition that females can and do serve key roles shoulder to shoulder with men. Major Hooper and Colonel Sexton (another sexist letter writer) need to move into the 21st century. The bottom line: Female service members are here to stay. We need them, and they are pulling their weight everyday.

Col. Joel S. Dickson,
USA (Ret.)
Freedom, Pa.

I am replying to the November 2013 letter entitled "No Offense Intended, Ladies," [p. 10] specifically the sentence, "I would bet that there have been few clinical studies that address these issues." The following comments, while not taken from clinical studies, come from women in the military.

First, a 2013 article in *National Geographic*, by Anna Mulrine, states that



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"top US defense officials are actively studying other militaries around the globe that have already sent women to combat. The review includes researching the experiences of Australia, Canada, and other nations with whom American troops have worked closely in Iraq and Afghanistan. ... There are roughly a dozen nations that have opened 'close combat roles' to women."

Second, there is the issue of women in primarily male units. Someone who has "been there and done that" is Kayla Williams, who wrote the book, *Love My Rifle More Than You*. Kayla was a young female in the Army and in Iraq.

Kayla has since been interviewed and spoken on the topic of women in combat and her experiences. Specifically, in an NPR interview, when asked about the idea that allowing women into combat units could put that unit in a "compromising situation" where emotions could get in the way of the task at hand, she replied, "I do not believe that that is a fair concern. I never saw that happen while I was deployed when we were in dangerous situations. I also find it a little absurd because we reserve our nation's highest honors for troops who risk their own lives for the lives of their comrades. Why it would be a sign of valor for them to do so for their male comrades but somehow damaging to the military if they were to do so for a female comrade seems a little baffling to me."

Lastly, from a more academic perspective, the University of Michigan houses the Women Veterans Project. This project is studying how deployment affects the mental, emotional, and physical health of US women and men serving in Iraq. The researchers are interviewing "2,200 Air Force women and men stationed in Iraq and other sites around the world. The goal of the studies is to determine the impact of various deployment experiences and family stressors on physical and mental health and on the likelihood that participants will remain in military service."

Thus, in response to the issues of effectiveness of women, impact on fellow combatants, and relevant research, mentioned by the original writer, I hope my comments show that both inside and outside of the military, this issue is being discussed, although further research is needed.

Janice G. Rienenrth
Professor of Sociology
Appalachian State University
Boone, N.C.

Who Really Runs the Show

"Life Flight" [December, p. 28] brought back many memories of airevac missions that I had flown as

a C-141/C-130 pilot and the deep admiration I had for the flight nurses and docs who crewed those flights.

1970: C-141s were flying "pipeline" missions to Vietnam and regularly bringing the wounded back to State-side facilities.

Our crew departed Yokota on Christmas Eve with several dozen critically wounded soldiers. As always, although the pilots were flying the aircraft, we knew that the real commander on airevac missions was the chief flight nurse—usually very authoritarian and opinionated (read: bitchy).

As we landed at Elmendorf, the staging crew picked up the airplane and pressed on. MAC had arranged for all the other staging crews to be home for Christmas, but our crew was designated to remain at Elmendorf until the next C-141 came through on the 26th.

On Christmas morning, the crew had a bad case of the blues since they couldn't be home with their families. But as we were having lunch at the dining hall, we received a written invitation to join the flight docs and nurses at their dorm for a party and Christmas dinner. The previously described chief flight nurse was there and just as warm and friendly as one could imagine. Her crew even presented each of our crew with a Christmas present; mine was a book entitled *Alaska Sourdough*, which I still have.

The next day, we were alerted for an airevac on its way to Travis AFB, and sure enough, our chief flight nurse was back in her bitchy self as a no-nonsense, authoritarian commander of her mission.

Several weeks later: As tough and calloused as the flight nurses were, one of them lost her patient in flight; she came up to the flight deck and cried like a baby for quite some time.

Truly, these airevac crews are the angels of the skies! And to the "Sourdoughs" of 10-350 from Elmendorf, Christmas 1970, thanks for the memories!

Mike Winslow
Olney, Tex.

The C-130J medevac photos on p. 30-31 are eerily similar to the photos that I shot in 1969 or 1970 of my C-130E during a medevac mission. I never saw anyone work harder than med techs in-country. They literally jogged through our 12-hour days, in the heat. Medevacs were our most satisfying in-country missions. A few of mine were also quite difficult, technically. A heck of a lot better than our KIA missions, for sure.

James C. Miller
Buffalo, Wyo.



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AFA's Mission

Our mission is to promote a dominant United States Air Force and a strong national defense and to honor airmen and our Air Force heritage. To accomplish this, we:

Educate the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure US national security.

Advocate for aerospace power and STEM education.

Support the Total Air Force family and promote aerospace education.

Complexity costs for the F-35; JSF is the first real joint aircraft; 2030 Air Dominance fighter?; That F-35 is a pretty good deal, actually

AN EXPENSIVE JOINT

"Contrary to expectations," joint service aircraft programs historically have cost more than single-service airplane projects, according to a recent RAND Corp. study. The study's authors recommended the Pentagon "avoid" joint fighter programs in the future. Nevertheless, the next big fighter project, now entering its early stages, is being considered—at least initially—for joint service use.

The December 2013 RAND study—"Do Joint Fighter Programs Save Money?"—was requested by former Air Force Materiel Command chief Gen. Donald J. Hoffman. He wanted to know if there really has been a payoff in commonality and life cycle costs from the often exasperating process of harmonizing the disparate requirements of the Air Force, Navy, and Marine Corps in combat aircraft. RAND studied 11 previous efforts at joint service fighter programs—notably including the (infamous) TFX of the 1960s, the Advanced Combat Fighter of the 1970s, the A-12 attack aircraft, and the current F-35 strike fighter—and found no evidence that commonality delivered savings.

RAND compared the cost growth of research, development, test, and evaluation and procurement of single-service programs—both real and "notional"—with joint programs, accounting for inflation and measuring them at a similar stage in their progress.

"Our analysis ... shows that nine years past" Milestone B, when a program gets underway, the F-35's life cycle costs "are higher than if the services had pursued three separate fighter programs," the RAND team determined. The best possible savings in development is about 30 percent, the authors said, and the Joint Strike Fighter's overruns have already consumed those savings by a wide margin.

Just as troubling, RAND said that consolidating all the fighter work in one industrial basket—Lockheed Martin is the only company making fifth generation fighters for the Air Force, for example—has led to "declining numbers of credible fighter/attack aircraft prime contractors, a situation that is likely to reduce competition and innovation in the future."

Those risks are well-understood by senior Pentagon officials, who said they only resort to joint programs when it's clearly necessary for interoperability and worth the acknowledged extra expense. (Read more about joint programs online at www.airforcemag.com. Search "Out of Joint.")

Mark A. Lorell, senior political scientist at RAND and lead researcher on the joint fighter study, told *Air Force Magazine* the main work on the joint fighter study was completed in 2011, because Hoffman wanted a "fast turnaround" to get basic answers to his questions. The work was thus based on the Pentagon's Cost Assessment and Program Evaluation (CAPE) shop's 2010 life cycle cost estimate for the F-35 JSF—the cost to procure and operate the fleet for 53 years—which was in excess of \$1.7 trillion.

Last August, however, the F-35 system program office told the Senate its new life cycle cost numbers were \$857 million—a 22 percent reduction—and those numbers were expected to decline. More recently, Lockheed Martin

estimates the cost at around \$782 billion. The official life cycle cost will be revealed this spring in the Pentagon's next Selected Acquisition Reports, which benchmark the department's biggest acquisition programs.

Although RAND was not charged with "evaluating the F-35 program per se" and didn't consider recent cost reductions, Lorell said the JSF probably won't break even versus separate-service efforts. While there are potentially significant life cycle savings in the long run, he said, they don't offset far higher upfront "complexity" costs stemming from chronic design changes needed to satisfy all users.

"I have nothing but incredible admiration for the contractors and engineers ... who are rolling these extremely divergent requirements" into as common an air vehicle as possible, Lorell said.

"It's incredibly technologically challenging" to design a single platform able to fulfill the Navy's need for a stealth bomber, the Air Force's need for a stealthy fighter/attack aircraft, and the Marine Corps' desire for a close air support platform capable of vertical takeoffs and landings, he said. As a result, the JSF really is three different airplanes with a degree of commonality.

RAND pegged the F-35's commonality at around 40 percent.

HARD TO COMPARE

In the fighter study, RAND acknowledged the "impossibility" of comparing the JSF to a previous joint fighter production program because it's the first to have made it this far. In previous efforts, one service—usually the Navy—backed out when it felt its needs weren't adequately addressed, lowering production runs and increasing development and unit costs.

The authors conceded that the F-35 is "not only the largest, most ambitious, and complex joint fighter program in history; it is the only fully joint fighter program ... in the past 50 years to have progressed beyond the joint development stage into the joint procurement phase." The TFX, for example, never entered service in both the Navy and Air Force; only USAF bought it, as the F-111. The Navy refused to buy the single-engine F-16 and opted instead for the dual-engine F/A-18; there was zero commonality between the two.

The F-4 Phantom and the A-7 Corsair were technically joint in that both the Air Force and Navy/Marine Corps flew them, but they were both developed by the Navy alone and the Air Force was obliged to buy them later, for the sake of commonality. As USAF tweaked them for its own needs, however, they grew increasingly less common with the Navy aircraft, RAND said.

Because no truly joint program has ever come to fruition from its inception, RAND also sought context by examining several nonfighter joint aircraft programs, including the T-6 Texan trainer, the E-8 JSTARS radar surveillance aircraft, and the V-22 Osprey tilt-rotor—none of them a star performer in meeting predicted costs.

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Based on its research, RAND recommended that “unless the participating services have identical, stable requirements,” the Defense Department should “avoid future joint fighter and other complex joint aircraft programs.”

The JSF program office, through a spokesman, said, “We appreciate the study; affordability is the No. 1 priority on the program and we are seeing some signs of progress.” He said unit prices on new F-35s “continue to go down with each production lot of aircraft and our operations and sustainment estimates are going down as well.” However, “we’re nowhere near where we need to be, and we’re working with industry on a number of initiatives to continue to reduce F-35 costs.”

ENTER THE NEW JOINT FIGHTER

The Air Force and Navy will investigate a successor to the F-22 and F/A-18, respectively, with an analysis of alternatives due to get underway in 2015, Pentagon and industry officials said. Jointness is an early consideration. The project is notionally called the “2030+ Air Dominance” fighter.

The ground rules for the AOA are being coordinated among the two services and the Office of the Secretary of Defense, and one of the questions it will answer is whether a single-type solution for both services is warranted and practical. If not, they are to look for ways to at least find commonality in major subsystems—such as in engines, radars, other sensors, or reuse of software from other projects. The Navy’s effort, in the conceptual stage for a few years, is called the F/A-XX.

The 2030+ fighter project at this stage is similar to the Joint Advanced Strike Technology program of the 1990s. The JAST effort was intended to be a survey of advanced and impending technologies that would influence air combat in the 2010 to 2030 time frame, but as post-Cold War defense budgets shrank and new fighter needs loomed, it morphed into the Joint Strike Fighter program.

JAST absorbed the Air Force’s Multirole Fighter program meant to replace the F-16, the Navy’s A/F-X project to replace the A-6, and the Marine Corps Advanced Short Takeoff and Vertical Landing (ASTOVL) project to replace the AV-8B. The JAST project was initially headed by Lt. Gen. George K. Muellner, now the Air Force Association’s Chairman of the Board.

Like JAST, the new project will first survey the art of the possible in the 2030-plus time frame, with an eye on both manned and unmanned capabilities as well as new propulsion, advanced stealth, sensor technology, laser weapons, and sensor fusion, to include a high degree of automation and use of artificial intelligence. Pentagon officials have stressed that there are no presumptions about what capabilities the aircraft will have or indeed whether it must be a sixth generation fighter. Operational conditions in the 2030s may or may not warrant a generational improvement over the F-22, they said, and competition from other projects—the Long Range Strike Bomber, recapitalization of the tanker fleet, and ongoing F-35 production—may not allow it.

▶ (For more on the sixth gen fighter, visit airforcemag.com. Search “Sixth Generation Fighter.”)

When it was pointed out in 2010 that the earliest F-22s will reach retirement age in the late 2020s, and such programs typically take 20 years to gestate, Michael B. Donley, then the Air Force Secretary, told *Air Force Magazine* that an F-22 replacement project would—or should—likely get underway in 2015. Air Combat Command chief Gen. Gilmory Michael Hestage III made similar statements last year.

Although Air Force officials have long said that hypersonic flight is probably too far of a technological reach to incorporate in its next generation fighter, Lockheed

Martin has recently unveiled concepts for a manned Mach 5 reconnaissance aircraft, and the Air Force Scientific Advisory Board will look at the readiness of hypersonic flight for reconnaissance or strike as one of its areas for investigation in 2014.

Air Force Chief of Staff Gen. Mark A. Welsh III, meeting with defense reporters in November, said USAF’s experience with the X-51 WaveRider program “indicated that hypersonic flight for a purpose is possible. It’s a plausible investment approach.”

Welsh added that hypersonic flight for a combat platform “appeals to me for a very simple reason. Not because it’s cool, but because speed compresses decision timelines. That’s actually a very good thing from a military perspective.” If it turns out to be practical, “it’s worth pursuing.”

He also said that there’s no “preconceived notion of what kind of platform” to pursue for air-breathing hypersonics, but “I think it will probably start small”—he suggested a missile-sized system comparable to the X-51—and then who knows where it will go after that.”

F-35 C-NOTE

Lockheed Martin delivered the 100th F-35 in December, expressing confidence that the cost of the fighter will not only come down, but will be cheaper than any potential competitor.

The F-35 will eventually cost “less than any fourth generation fighter in the world,” company F-35 Executive Vice President and General Manager Lorraine M. Martin told reporters. The F-35 is touted as a “fifth generation” fighter, meaning it employs a blend of stealthiness, sensor fusion, and advanced sensors. Fourth generation aircraft, making up the bulk of Air Force, Navy, and Marine Corps inventories, lack at least the stealth and many of the advanced sensor capabilities of the F-35 and its Air Force F-22 stablemate.

Five years from now, Martin said, the F-35’s unit cost will be about \$75 million in today’s dollars (\$85 million in 2018 dollars). Though competitors—such as Boeing’s F/A-18 Super Hornet—may offer a lower sticker price, she said, “look at what’s included,” suggesting that much of the gear that “comes standard” on the F-35—including targeting pods, radars, additional fuel tanks, additional sensors, etc.—are sold separately with the Super Hornet.

Briefers at the event also described the training concept of operations at Luke AFB, Ariz., for the F-35, because the 100th airplane will be the first delivered there to support F-35 combat training for Air Force and international pilots. Both Air Force and international pilots and maintainers will work on a joint training force of aircraft, which are so common that maintenance will simply generate aircraft and pilots will fly them, regardless of the nationality of either. Thus, Turkish pilots could be flying Italian F-35s, and US pilots could be flying Dutch or Australian airplanes.

Asked about liability for these aircraft—if a foreign pilot, through his own error, destroys a US airplane, for example—the F-35 program office said the participating countries have agreed to an “at your own risk” arrangement. That means whatever nation loses an aircraft will bear the cost.

“We have a similar arrangement” at Eglin AFB, Fla., an F-35 spokesman said. There, British and Marine Corps pilots are jointly operating F-35B models, and if one is destroyed, the owning nation will bear the liability.

The spokesman said this is not unusual; Marine Corps pilots serve as exchange pilots with USAF, and if one were to “break an F-15,” the Air Force would bear the expense. It is acknowledged as “the cost of doing business” by all the F-35 partners, the spokesman said. ■

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Four Airmen Dead in Pave Hawk Crash

Four airmen assigned to the 56th Rescue Squadron at RAF Lakenheath, UK, were killed when their HH-60G Pave Hawk crashed on the Norfolk coast of eastern England Jan. 7, according to a base release.

Killed in the crash were TSgt. Dale E. Mathews, SSgt. Afton M. Ponce, Capt. Sean M. Ruane, and Capt. Christopher S. Stover.

"The aircraft, assigned to the 48th Fighter Wing, was performing a low-level training mission along the coast when the crash occurred" at approximately 6 p.m. local time, officials stated. A second HH-60 involved in the exercise landed to render aid, but the first aircraft's four-man crew was pronounced dead at the scene, according to local law enforcement.

"Police continue to work with various partner agencies to piece together the exact circumstances concerning the crash," Norfolk Constabulary Chief Superintendent Bob Scully said in a statement. "It remains a challenging, lengthy process due to the difficult terrain and the size of the area." The recovery was hampered by incoming tides that forced officials to move the wreckage and that scattered live ammunition, according to police.

Airman Killed in Afghanistan

Capt. David I. Lyon, 28, of Sandpoint, Idaho, died from wounds suffered when a vehicle-borne improvised explosive device detonated near his convoy in Kabul, Afghanistan, announced the Defense Department. The deadly attack took place on Dec. 27.

Lyon was a member of the 21st Logistics Readiness Squadron at Peterson AFB, Colo. He was on a year-long deployment, working with Combined Joint Special Operations Task Force-Afghanistan in advising Afghan army commandos, according to a Peterson news release.

Lyon was an Air Force Academy graduate who had been in the Air Force for five years, stated the base release. He was scheduled to return from the deployment in February, reported the *Colorado Springs Gazette*.

James Sworn In as Secretary

Deborah Lee James became the 23rd Air Force Secretary after her swearing-in at the Pentagon on Dec. 20, 2013.

"I think our Air Force is in great shape given that we've been living through some difficult times," said James in her first comments as Secretary during the ceremony. "I'm enormously optimistic about the future of our Air Force. We have nothing but opportunities to face in the upcoming years."

James said she was confident the Air Force is "going to remain No. 1," but would become "smaller," according to the service's news release. As the Air Force begins force management programs to cut end strength by some 25,000 over the next five years, she said service officials "are going to be as transparent as possible" and get information to airmen as quickly as possible.

James, nominated by President Obama in August, replaces Acting Secretary Eric Fanning, who had led the service since Michael B. Donley stepped down in June 2013. She is the second woman to hold the position and comes to the Air Force

from Science Applications International Corp. where she was president of the company's technical and engineering sector.

The First Step

Defense Secretary Chuck Hagel outlined eight cuts across the department, calling them the "first step" toward



meeting 20 percent staff reductions by Fiscal 2019—a goal he announced last summer.

They include: restructuring the Office of the Undersecretary of Defense for Policy; realigning the Office of the Director of Administration and Management and its components under the Office of the Deputy Chief Management Officer (DCMO); transferring certain information technology systems business from DCMO to the Pentagon's chief information officer; combining the Office of the Assistant Secretary of Defense for Intelligence Oversight and the defense privacy and civil liberties offices; creating a new reporting structure for the Office of Net Assessment; and rebalancing resources for the undersecretary of defense for personnel and readiness across the three assistant secretaries of defense.

"Most of the reductions in OSD staff that I announced today will occur through a process of natural attrition in order to minimize the impact on our workforce," said Hagel during

a Dec. 4 Pentagon briefing. However, he also said "additional reductions" will become necessary if sequestration continues.

Bronze Star With Valor

Nicolo Solarino, a special agent with the Air Force Office of Special Investigations, received the Bronze Star Medal with Valor device, recognizing his heroism in helping to save a fellow airman's life during an enemy rocket attack in Iraq back in 2004.

The Air Force honored Solarino, who is currently assigned to Davis-Monthan AFB, Ariz., during a late November ceremony there, according to a Dec. 30 base release.

On Sept. 11, 2004, Solarino, then a senior airman, was serving with a security forces unit at Balad AB, Iraq, when an enemy rocket detonated near his post, throwing him approximately 10 feet, stated the news release. Once he recovered, Solarino saw that now-retired SrA. Brian Kolfage Jr. had sustained life-threatening injuries.



1.16.2014

SrA. Douglas Prewitt, 621st Contingency Response Wing, marshals in a C-17 during a field exercise at the Joint Readiness Training Center, Fort Polk, La. The joint exercise trained service members in combat patient care and aeromedical evacuation in a simulated combat environment.

USAF photo by 1 Sgt. Matthew Smith

Solarino and another airman performed emergency medical care on Kolfage and shielded Kolfage from enemy fire.

Solarino stayed with Kolfage until emergency medical personnel arrived and transported him to a field hospital.

Find out more on www.airforcemag.com. Search "Solarino."

14th Air Force Chief Confirmed

The Senate confirmed the nomination of Maj. Gen. John W. "Jay" Raymond to receive a third star for his new assignment as commander of 14th Air Force (Air Forces Strategic) at Vandenberg AFB, Calif. In this role, he will oversee the Air Force's space forces.

Senators approved Raymond's nomination on Dec. 20.

Raymond has been US Strategic Command's director of plans and policy at Offutt AFB, Neb., since July 2012.

In his new position, Raymond will serve as STRATCOM's joint functional component commander for space, leading the joint space forces assigned and attached to STRATCOM.

He will succeed Lt. Gen. Susan J. Helms, who is retiring.

SASC To Review Military Pension Cuts

Senate Armed Services Committee Chairman Carl Levin (D-Mich.) said the committee would review a proposed cut to military pensions in 2014 following backlash from numerous veterans organizations, reported *Stars and Stripes*.

A Stronger Hercules: *SSgt. David Billings, a C-130 flight engineer, walks the wing of a C-130H Hercules during an inspection on Jan. 9 before a flight out of Bagram Airfield, Afghanistan. The C-130H models are permanently relocating from Bagram to make room for newer C-130Js.*

Scorpion's Maiden Flight

Scorpion—Textron AirLand's new light attack intelligence, surveillance, and reconnaissance aircraft—lifted off on its maiden flight from McConnell AFB, Kan., in December, company officials announced.

Test pilots flew a series of handling checks, landing safely back at McConnell after 1.4-hours aloft, stated the Dec. 12 news release. "It showed impressive stability and responsiveness closely matching all of the predicted parameters for today's maneuvers—it's going to be a highly capable aircraft for the ISR and homeland security mission set," company test pilot Dan Hinson said after landing.

Scorpion's design team developed, built, and flew the experimental jet in less than two years, borrowing heavily on existing technologies and techniques, the company said. The straight-wing subsonic jet is designed for a variety of light surveillance or attack roles in permissive threat environments, including counterinsurgency, narcotics interdiction, and anti-piracy.

The aircraft's twin engines allow it to carry a 3,000-pound sensor payload internally in addition to precision guided weapons on the wing stations. Scorpion cruises at 517 miles per hour, with a 2,400 nautical mile ferry range.

"When the design phase began, ... we were confident that we would deliver a uniquely affordable, versatile tactical aircraft," said Textron CEO Scott C. Donnelly. "Today's flight met all expectations and keeps us on track towards certification and production."

—Aaron M. U. Church

USAF photo by SMSgt. Gary J. Rahn





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Our new T56 Series 3.5 engine enhancement package will save an estimated \$2 billion over the lifetime of the Air Force's fleet of C-130s, according to an Air Force study. The package is easy to install, improves engine performance, reduces maintenance and, of course, saves operators money. The T56 is already one of the most trusted and reliable engines in military service and our engine enhancement package just made it even better. If you operate C-130 aircraft, you can't afford to fly without it.

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Offload in Afghanistan	\$XXXXX
- Versatile mission options	\$X
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- 9.7% percent fuel savings	\$XX
Land at Home Base	\$XXXX
- Improved reliability	\$XXX

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Operation Enduring Freedom

Casualties

By Jan. 17, a total of 2,307 Americans had died in Operation Enduring Freedom. The total includes 2,304 troops and three Department of Defense civilians. Of these deaths, 1,802 were killed in action, while 495 died in noncombat incidents. There have been 19,573 wounded in action during OEF.

Helicopter Crash in Afghanistan

Six US soldiers were killed when their helicopter crashed in southern Afghanistan in December 2013; one American onboard survived, reported an International Security Assistance Force statement. The cause of the incident is under investigation; however, according to initial reports there was no enemy activity in the area of the crash.

Killed in the crash were CWO2 Randy L. Billings, CWO2 Joshua B. Silverman, Sgt. Peter C. Bohler, Sgt. 1st Class Omar W. Forde, SSgt. Jesse L. Williams, and Spc. Terry K. D. Gordon.

The Defense Department's Dec. 19 announcement identifying the soldiers confirmed they were supporting Operation Enduring Freedom when their aircraft crashed in Now Bahar, Afghanistan. The incident was still pending investigation, stated the DOD news release.

The crash is the single deadliest incident for ISAF troops operating in Afghanistan since seven Georgian soldiers were killed in a suicide bombing in Helmand province last June.

More than 150 ISAF members were killed in Afghanistan in 2013, according to the report.

Pakistani Supply Routes

Defense Secretary Chuck Hagel urged Pakistan to keep NATO supply routes to Afghanistan flowing or it may risk losing some financial aid, reported Bloomberg's *Business Week*.

Pentagon Assistant Press Secretary Carl Woog confirmed that Hagel "raised the importance of keeping the ground supply routes out of Afghanistan open" during Dec. 9 meetings. Hagel met with Pakistani Prime Minister Nawaz Sharif, Minister of Defense Khawaja Asif, Minister of Finance Mohammad Ishaq Dar, Chief of Army Staff Raheel Sharif, National Security and Foreign Affairs Advisor Sartaj Aziz, and other Pakistan officials in Islamabad and Rawalpindi, Pakistan, according to a December statement by the Pentagon.

The Pentagon was forced to halt shipments on one of the main routes in and out of Afghanistan in December as hundreds of Pakistanis blocked parts of the route in Peshawar and other northwestern towns in protest of US drone strikes in the region. The Tehreek-e-Insaf party began the blockade Nov. 23. The group governs the northwestern area and said Hagel's visit is proof the blockade is successfully pressuring the US, reported Bloomberg.

The one percent cut in annual cost-of-living allowance increases for nondisabled veterans under the age of 62 was included in the two-year budget deal signed by President Obama in December. However, the pension cut does not fully go into effect until December 2015, giving Congress time to make adjustments.

In mid-December, Levin said the ongoing review by the Military Compensation and Retirement Modernization Commission also "may further bear on this issue."

The fact that between Fiscal 2002 and Fiscal 2012, "payments to military retirees from the Military Retirement Fund rose by 49 percent" is one of the reasons Rep. Paul Ryan (R-Wis.), House Budget Committee chairman, argued the system must be reformed, according to the statement.

The Air Force Association "is appalled with the provision cutting the COLA for military retirees," wrote AFA President Craig R. McKinley in a Jan. 7 letter to members. "Please be assured we will put all our effort behind removing the section of the budget deal affecting military retirees. ... We have already heard from several offices in both the House and the Senate saying they will work to get this done ASAP!"

Reserve RPA Squadron Stands Up

Air Force Reserve Command recently activated the 429th Air Combat Training Squadron at Holloman AFB, N.M., as a new remotely piloted aircraft instructional unit, base officials announced.

The geographically separated Reserve unit now augments the 926th Group at Nellis AFB, Nev., which supplies MQ-1 and MQ-9 flight and crew instructors, in addition to providing test and evaluation to Nellis' Air Force Warfare Center, according to Holloman's Dec. 6 news release.

"Gaining the 429th ACTS highlights the Reserve Command in the RPA enterprise and our projected growth into a wing with a dedicated RPA operations group," said 926th Group Commander Col. John J. Breeden.

The unit began operations at Holloman as a detachment of the 301st Fighter Wing at NAS JRB Fort Worth, Tex., in 2010, before it was redesignated as a squadron on Nov. 19.





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BOEING

One for the Qatars

The US and Qatar have renewed their defense cooperation agreement governing training, exercises, and other “cooperative activities” between the two militaries, said Assistant Pentagon Press Secretary Carl Woog in a statement.

Defense Secretary Chuck Hagel and Qatari Minister of State for Defense Affairs Gen. Hamad bin Ali Al-Attiyah signed the agreement on Dec. 10, during Hagel’s six-day trip to the Persian Gulf region.

After the signing, Hagel visited airmen and troops serving at the 379th Air Expeditionary Wing and combined air and space operations center at Al Udeid AB, Qatar.



General Paul Selva @AMC_CC

We have learned we can be efficient & effective at the same time. Combat effectiveness is our watch word.



James A. Lewis @james_a_lewis

Time for other countries’ leaders to talk about changes to collection programs, what legal safeguards they’ll follow. PS: don’t hold breath.

Faster, Faster, Go, Go, Go! SrA. James Mullen (l) from the New Jersey Air National Guard’s 177th Fighter Wing, operates a jammer vehicle lifting a GBU-10 Paveway II while MSgt. Keith Williams (r) acts as a guide. Mullen and Williams on Jan. 9 were participating in Day One of an annual load crew competition at Atlantic City Arpt., N.J. Both are aircraft armament systems specialists.

USAF To Deploy New AEF Model

The Air Force will begin deploying airmen in most Air Force specialty codes under a new deployment model, known as AEF Next, beginning Oct. 1, Col. Stephen Hart, chief of the war planning and policy division, told *Air Force Magazine*.

Under the new air and space expeditionary force construct, airmen will deploy with their units instead of the piecemeal approach adopted after more than a decade of fighting simultaneous wars in Iraq and Afghanistan. The goal is to create more predictability and stability for airmen by creating a unified battle rhythm that includes a one-to-two deployment-to-dwell ratio for Active Duty airmen and a one-to-five deployment-to-dwell ratio for the reserve component, said Hart.

“The concepts of AEF Next, which were approved by the [Chief of Staff of the Air Force] and incorporated into the existing AEF processes are focused on stabilizing the force,” said Hart. “However, the Air Force’s ability to prevent any airmen from deploying at less than one-to-two [deployment-to-dwell ratio] is situation dependent and not absolute.”

The Fiscal 2015 Global Force Management Allocation Plan—expected to be signed in early 2014—will determine which career fields will remain at the higher operational tempo, said Hart. “It’s important to note that it is individual airmen who deploy at less than one-to-two, not the AFSC,” he added.

▶ Read more background on AEF Next at www.airforcemag.com. Search “What’s Next for the AEF?”

—Amy McCullough

ANG photo by TSgt. Matt Hochst



Senior Staff Changes

NOMINATIONS:

To be Major General: Bart O. Iddins. **To be Brigadier General:** Roy-Alan C. Agustin, Robert G. Armfield, Mark A. Baird, Dieter E. Bareihs, Mitchel H. Butikofer, Mark D. Camerer, Douglas A. Cox, Stephen L. Davis, Eric T. Fick, Keith M. Givens, Paul H. Guemmer, Gregory M. Guillot, Gregory M. Gutterman, Darren E. Hartford, David W. Hicks, Brian T. Kelly, David A. Krumm, Peter J. Lambert, Evan M. Miller, Thomas E. Murphy, David S. Nahom, Mary F. O'Brien, Stephen W. Oliver Jr., Scott L. Pleus, John T. Rauch Jr., Christopher M. Short, Kirk W. Smith, Robert W. Stanley II, Mark E. Weatherington, Stephen C. Williams.

CHANGES:

Brig. Gen. Kory G. Cornum, from Cmdr., 81st Medical Gp., AETC, Keesler AFB, Miss., to Command Surgeon, AMC, Scott AFB, Ill. ... Brig. Gen. Jerry D. Harris Jr., from Vice Cmdr., 5th AF, PACAF, Yokota AB, Japan, to Dir., Prgms., DCS, Strat. Plans & Prgms., USAF, Pentagon ... Maj. Gen. (sel.) Bart O. Iddins, from Command Surgeon, AMC, Scott AFB, Ill., to Cmdr., 59th Medical Wg., AETC, JBSA-Lackland, Tex. ... Brig. Gen. Scott F. Smith, from Dep. Cmdr., Combined Jt. Task Force, Horn of Africa, AFRICOM, Camp Lemonnier, Djibouti, to IG, AMC, Scott AFB, Ill. ■

By publicizing his visit and remarks, Hagel lifted a DOD gag rule on the facility's location. For years, media organizations have had to sign nondisclosure agreements, due to Qatari sensitivities, regarding the CAOC's location at Al Udeid, noting only its location in "Southwest Asia."

A senior official traveling with Hagel said his public acknowledgment of the base's role in regional security is part of an effort to raise the visibility of US-Qatari cooperation with allies, with both nations wanting to "reassure our allies and our partners."

Attacking Sexual Assault

As the long process of finalizing the Fiscal 2014 defense authorization bill concluded Dec. 26, the initiatives to address the issue of sexual assault in the US military were ready to take form. But while the bipartisan agreement includes a package of 36 provisions that boost prevention efforts, enhance response tactics, and reform standing policies, it does not include some of the highly publicized amendments introduced in recent months.

Missing from the bill is Sen. Kirsten Gillibrand's (D-N.Y.) controversial proposal to take military sexual assault cases outside the chain of command. Sen. Claire McCaskill's (D-Mo.) competing, and less severe, amendment also is absent. McCaskill's bill would have removed the commander's ability to change or dismiss court-martial convictions in cases of sexual assault.

What the approved authorization bill does include are changes to the Uniform Code of Military Justice, insertion of new amendments, and introduction of new studies and reviews to be conducted as well as new policies to be implemented.

"We ... really worked hard on this issue and came up with some very good changes," said House Armed Services Committee Chairman Rep. Buck McKeon (R-Calif.) during the Dec. 9 initial introduction of the agreement, which took place between House and Senate Armed Services Committee members. "I am very pleased with the things that they were able to work out to [address]



By The Numbers

34 The number of missile launch officers assigned to the 341st Missile Wing at Malmstrom AFB, Mont., initially implicated in a cheating incident during a nuclear proficiency test.

CRH and the Sequester

In recent years, the Air Force struggled to recapitalize its fleet of HH-60G rescue helicopters. Now, with the sequester, the service may have to defer yet again the contract award planned for early next year to field new rescue helicopters.

"It's a program that we must have at some point, but we're talking about lots of things that we must have," Chief of Staff Gen. Mark A. Welsh III told reporters at the Pentagon on Dec. 13 when discussing the fate of the combat rescue helicopter acquisition program. He added there would be no modernization programs outside of the Air Force's top three acquisition priorities (KC-46 tanker, F-35 strike fighter, new bomber) until the service knows what its budget topline will be.

"It's not an option of awarding [CRH] this [fiscal] year or killing it. ... It's an issue of prioritizing and rephasing," said then-acting Air Force Secretary Eric Fanning at the same briefing.

The day before, some 70 House members urged Defense Secretary Chuck Hagel to preserve funding for CRH. "We

sexual assault for prosecution and prevention. That's a cornerstone of our bill."

One "major change," as SASC Chairman Carl Levin (D-Mich.) described it, was modifying the military court-martial proceeding, similar to that of a preliminary hearing in a civilian trial process, to more resemble a grand jury procedure, with the purpose of determining "probable cause rather than a discovery proceeding." This would not require victims to be present, so they would not be subjected to cross-examination during the initial proceeding, Levin said.

Other provisions include:

- Elimination of the five-year statute of limitations on trial by court-martial for additional offenses involving sex-related crimes;
- Discharge or dismissal for certain sex-related offenses and trial of such offenses by general courts-martial;
- Prohibition of retaliation against members of the armed forces for reporting a criminal offense;
- Designation and availability of special victims' counsel for victims of sex-related offenses; and
- Review by the service Secretary before a convening authority can decide not to prosecute certain charges of sexual offenses if the staff judge advocate recommends prosecution.

Read more of *Air Force Magazine's* coverage of sexual assault on www.airforcemag.com. Search "sexual assault."

—Merri M. Shaffer

believe this mission is too important to allow arbitrary budget pressures to thwart providing these lifesaving aircraft," stated their Dec. 12 missive.

Turkish Aerospace's F-35 Fuselage

Northrop Grumman F-35 subcontractor Turkish Aerospace Industries (TAI) delivered the first Lightning II center fuse-

lage built on its line in Ankara, Turkey, in mid-December, announced Northrop Grumman in a news release.

The fuselage—destined to become a US Air Force F-35A—will now be shipped to prime contractor Lockheed Martin's facility in Fort Worth, Tex., for mating with other major assemblies and completion.

"Turkish Aerospace Industries has played an integral part in the development and production of the F-35 for more than a decade," said Stephen F. O'Bryan, vice president of F-35 program integration and business development for Lockheed Martin. "The delivery of the first center fuselage ... marks a key milestone for the program and TAI."

Once full rate F-35 production begins, the company will eventually produce a fuselage every 10 days bound for US, Turkish, and Italian strike fighters, according to the release. ■

Shenanigans in Russia

A recent report from the Air Force inspector general found that Maj. Gen. Michael J. Carey, former commander of 20th Air Force, violated Article 133—conduct unbecoming an officer—during a trip to Russia in July. According to the report, Carey, who was leading a US delegation of military and civilian nuclear security experts in Moscow for a joint nuclear security exercise, was repeatedly drunk and often rude during the trip.

While having drinks with his team on July 15, Carey boasted about "the importance of his position" and complained that "his group had the worst morale and that the leadership wasn't supporting him," according to the report.

During a lunch banquet on July 16, Carey made inappropriate comments about Syria and National Security Agency leaker Edward Snowden that "were not well-received." He then went on to announce he had met "two hot women the night before," stated the report.

The same day, during a tour of a local monastery, Carey slurred his words, interrupted the tour guide, and attempted to give the guide a "fist bump." One witness described Carey as "pouting" and "sulking" over the day's activities while another said "he was not totally coherent" and didn't have "all his faculties," stated the report.

Air Force Global Strike Command chief Lt. Gen. James M. Kowalski relieved Carey of his duties as 20th Air Force commander in October, citing "loss of trust and confidence in his leadership and judgment." He was later reassigned to Air Force Space Command headquarters.

In December, Maj. Gen. Jack Weinstein was named the new commander of 20th Air Force. Weinstein had previously served as the 20th's vice commander.

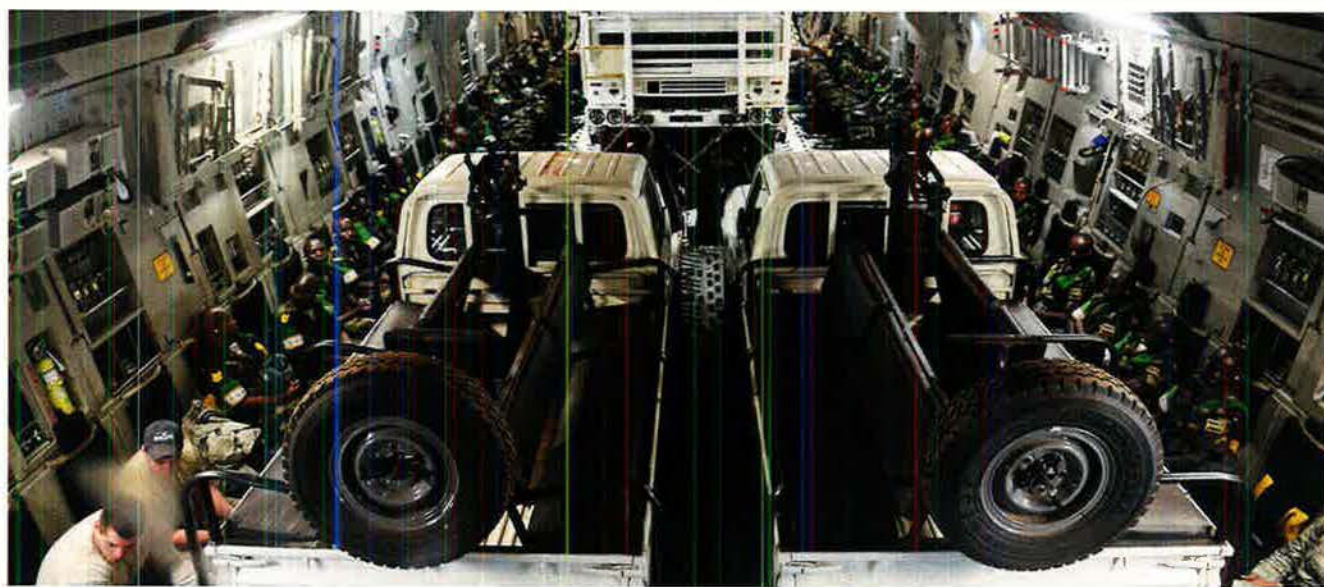
—Amy McCullough

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Logistical Peacekeeping: A USAF C-17 based at JB Lewis-McChord, Wash., is packed with Rwandan soldiers and equipment while flying from Rwanda to the Central African Republic Jan. 19. US forces transported nearly 1,000 Rwandan troops and more than 1,000 tons of equipment to the violence-plagued region as part of a three-week operation helping French and African Union peacekeepers defend against militants.



USAF photo by SSGT Ryan Crane



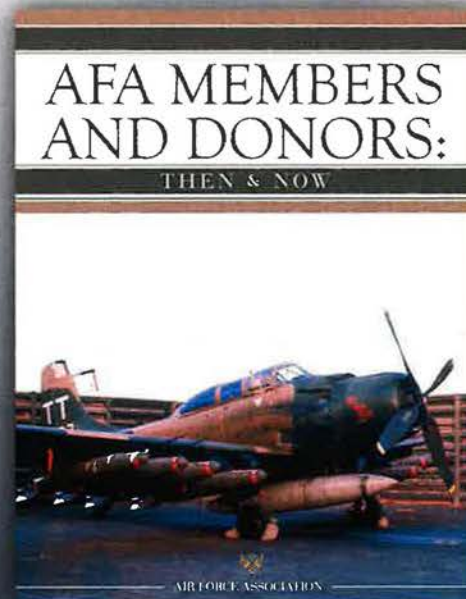
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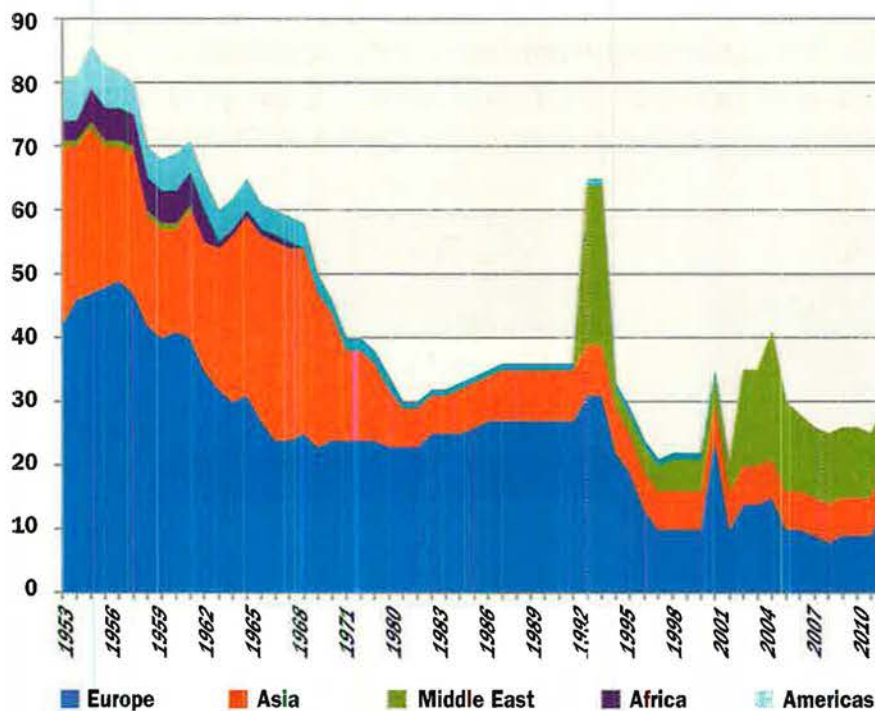


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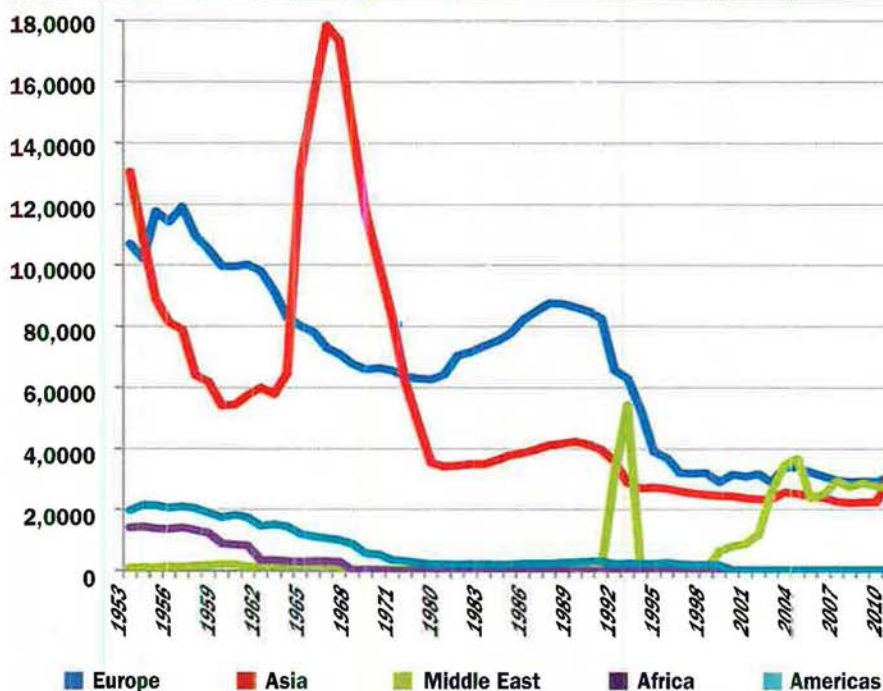


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Major USAF Bases Overseas, 1953-2011



Active Duty Airmen Deployed Overseas, 1953-2011



Not Over There

Since the onset of the Cold War, the Air Force has relied on a chain of foreign bases to maintain an enduring military presence worldwide. This once-enormous network has been geographically realigned and greatly reduced. Fig. 1 shows the scope of the decline—from nearly 90 to fewer than 30 major bases over six decades. Bases in Europe, Africa, Asia, and the Americas have faded away while the Middle East has grown in importance. Fig. 2 presents a mirror image in numbers of airmen. Today, USAF has only seven overseas fighter bases (RAF Lakenheath, UK; Spangdahlem AB, Germany; Aviano AB, Italy; Osan AB, South Korea; Kunsan AB, South Korea; Misawa AB, Japan; and Kadena AB, Japan). These are supplemented with dozens of smaller facilities and forward operating locations. Keeping even this remnant won't be easy. In the US, support for a large overseas presence has dwindled. This problem has been compounded by Pentagon budget pressure, foreign anti-Americanism, and emerging long-range strike threats that make it increasingly dangerous to keep troops in exposed locations.

Source: "The Posture Triangle: A New Framework for US Air Force Global Presence," by Stacie L. Pettyjohn and Alan J. Vick, RAND Corp.'s Project Air Force, published by the RAND Corp., Santa Monica, Calif., Dec. 5, 2013. Find the report on the RAND website at http://www.rand.org/content/dam/rand/pubs/research_reports/RR400/RR402/RAND_RR402.pdf.

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Sharpening the Raptor's Talons

By John A. Tirpak, Executive Editor

Though there are potential fifth generation challengers on the horizon, pilots and maintainers of the stealthy F-22 Raptor say they'll own the competitive edge in air combat for years to come, not just because of the advanced technology embodied in their fighter but because of their comprehensive training.

In the period immediately following the F-22's initial operations in 2005, pilots focused mainly on honing dogfighting skills and on a few large-scale exercises where Raptors were set apart from the bulk of the force. After eight years of exploring what the F-22 can really do, the Raptors have become more than a limited, silver bullet force and can now partner and integrate with other USAF combat systems and with those of the other services and allies.

At JB Langley-Eustis, Va., Col. Kevin A. Huyck, commander of the 1st Fighter Wing—the flagship F-22 unit for USAF—said the Raptor is the “enabler” of the US military and bears a heavy burden of expectation from combatant commanders to provide unquestioned air superiority.

Air Combat Command “has said that [the] F-22—fifth generation capability—is a priority,” Huyck noted. Because the F-22 would be first to go into a fight with any well-equipped, real-world adversary, ACC gives the 185-airplane fleet solid support in flying hours, simulators, maintenance, people, and training overall.

The smallness of the fleet and the priority it receives is not lost on the unit, Huyck said.

“We know we have a national treasure out on this ramp,” he said during an interview in his Langley office.

The service is “well aware of the importance to the nation of keeping [the F-22] up and running and continually improving,” Huyck said, adding that the wing makes every effort to extract full training value from the resources it gets. Flying hours are “precious,” he said, and a host of tasks are accomplished on each sortie.

Frequently, challenging missions are rehearsed in the simulator so that maximum benefit can be squeezed out of real flying time. Moreover, for every sortie of about 90 minutes, the debrief can last as much as six hours, as pilots scrutinize their every move in the airplane, looking for ways to improve.

In countless practice engagements with any other type of aircraft, the Raptors invariably come out on top with a wildly lopsided margin of victory, its sparring partners “destroyed” before they even knew the F-22s were there. This performance is not a secret, and Huyck said it provides real deterrent value.

“We make it very difficult on ourselves,” he said of F-22 training. Scenarios played out in training are “very realistic. All of our training needs to be realistic.”

To keep combat readiness at a peak, training is incessant, and the aircraft are extremely well-kept. For two years, the 1st FW has beaten ACC's goal of achieving an 80 percent mission capable rate. The stealth features of the F-22 are constantly checked and refurbished to go to war anytime. With little prep time likely if called to a real-world conflict, the F-22 fleet has no “tiered” readiness, Huyck said.



JSAF photo by SrA. Cynthia Spalding

Because the F-22 performs so many missions—although air superiority is its primary function—“it takes about five or six months to go from basics all the way through every basic mission set that we train to,” said Capt. Marcus McGinn, chief of weapons for the 94th Fighter Squadron and builder of the master training plan for that unit.

“Normally, I will look about a year ahead,” planning engagements with adversaries from other services and allies, deployments to Red Flag and Razor Talon exercises, weapon system evaluations where F-22 pilots will drop live bombs or shoot real missiles, and practice of all variations of air combat, McGinn said. “It’s an evolving cycle” with constant changes.



A1C Robert Miller checks the pressure on an F-22 tire at JB Elmendorf-Richardson, Alaska. Below: SrA. Simon Zemanek marshals an F-22 during a Phase One Operational Readiness Exercise in 2012. USAF's premier fighter is now fully integrated into the fleet.

The F-22 is the air dominance cream of the crop. USAF intends to keep it that way.

USAF photo by SrA. Kasey Close





USAF photo by SRA Cynthia Spalding

Raptor pilots leave Tyndall with basic proficiency in the F-22. It's up to the receiving squadrons to see that they are developed into wingmen, then flight leads, and eventually into squadron leaders.

Experienced Raptor pilots at Langley get about eight flying sorties and two simulator rides per month, while young pilots get up to 10 sorties and three simulator sessions.

"Within those sorties, I have certain requirements" that must be met to ensure pilots remain proficient, Huyck said. For example, each pilot must fly in a four-ship employment, fly in day and night, fly with night vision goggles, perform aerial gunnery, aerial refueling, practice



USAF photo by A1C Daniel E. Liedicoat

Top: A1C Jennifer Craig works with Australian pilot Maj. Matthew Harper to prepare an F-22 for a flight from JB Elmendorf-Richardson, Alaska, to Tyndall AFB, Fla. **Here:** A Raptor takes off from the runway at Holloman AFB, N.M., during the culmination of a Phase One Operational Readiness Exercise.

Operational F-22 pilots start out at Tyndall AFB, Fla. Some are veterans of other fighters, such as the F-15 or F-16, while some come right out of undergraduate pilot training. The young officers began coming to the program early in its operational life, in order to grow future F-22 leadership.

Even in initial training, a sort of triage is applied to spend flying hours as efficiently as possible. While the typical pilot gets 19 flights and 29 simulator rides at Tyndall, "somebody with 2,000 hours in the F-15 may not need 19 sorties," said Huyck, himself a former Eagle driver.

Such pilots already have a firm grasp of air combat maneuvering basics, radar theory, and other skills, he said, and likely will progress rapidly, while the young officers may need more flying time. It's extremely competitive to be selected to fly the F-22 straight from undergraduate pilot training; officers must have demonstrated that they can rapidly master flying skills and have impeccable qualifications.

alert and alert scrambles, and complete composite force training.

The latter—usually conducted with dissimilar aircraft from other USAF units or aircraft from other services—is essential, Huyck insisted.

"I need to find a way to integrate because it's not just the strength of our platform. The strength of our Air Force is the systems integration, data link integration, fighter integration, composite force integration through all the services and all the platforms." The F-22s are good, but they can make everyone better, he said.

Within those mandatory tasks, he said, are subtasks such as electronic attack, "going against jamming," or operating under degraded or denied conditions.

such as the loss of radio communications or GPS signals. Other subtasks that must be demonstrated on a 30-, 60-, or 90-day cycle include dropping bombs, shooting missiles, and distributed mission operations. In a DMO, F-22 pilots, either in the aircraft or in the simulator, fly with and against aircraft from around the world brought together in a virtual battlefield.

Simulators No Substitute

Maintaining proficiency is a never-ending task, McGinn said. "I never want to have [pilots] go months at a time and not see one of those scenarios," he said.

Simulators—Langley has four—are used to practice emergency procedures too dangerous to try in the real airplane. They also let pilots rapidly cycle through a series of combat "setups," where the simulator can put the pilot right at the scene of action without the need for the ground prep and transit time a real flying sortie would require.

The simulators also provide a channel for the DMO virtual exercises—something that Huyck anticipates will increase with time. All F-22 bases (save JB Pearl Harbor-Hickam in Hawaii) have simulators, and Hickam will have them in 2015. Until then, the Hawaii-based pilots travel to other F-22 bases for sim time every few months.

An ACC spokesman said the F-22 units have not resorted to offsetting flying hours with simulator time to save money and that "there has been no increase in simulator facilities." However, Huyck said that during the recent sequester-driven stand-down of one F-22 squadron—and before that, the grounding of the F-22 fleet due to a cockpit oxygen issue—simulators were used heavily to try to keep pilots minimally proficient until the stand-downs were over. But simulators are simply "not a substitute" for live flying; the two complement each other, he said.

When the F-22 was new at Langley, the base also had F-15C fighters, providing at-hand adversaries for the Raptors. It wasn't a fair fight, though, since the F-15Cs were easily seen on radar and the F-22s were invisible.

When the F-15s went away due to force structure cuts, the F-22s were left without a sparring partner on base, so the squadrons began to solicit training opportunities with Navy F/A-18s from NAS Oceana, Va., or Marine Corps F/A-18s and AV-8Bs from MCAS Beaufort, S.C. The F-22s also began to engage with Navy aircraft embarked on carriers in the Atlantic Ocean.

Those engagements have grown into a periodic exercise called Razor Talon, usually hosted by Seymour Johnson AFB, N.C. Typically in four-ship deployments, the F-22s get to fight against and alongside other services' aircraft and F-15Es from Seymour Johnson. The battlespace is usually area Whiskey 122, off the East Coast.

"It's still evolving," McGinn said of Razor Talon. During a November iteration, there were more than 40 Blue Air players. "We had 16 Red Air and then multiple air and ground threats," he said.

The exercise included Marine and Navy F/A-18s, F-16s from Shaw AFB, S.C., both an E-3 Sentry and a Navy E-2 Hawkeye for airborne warning and control, an E-8 JSTARS for ground target tracking, and KC-135 tankers for refueling.

Organizing the exercises with the other services is crucial because that's how it must work in wartime, Huyck said, and the Raptor pilots must be conversant with all the players they'll have to coordinate with during combat.

McGinn said it is "an end state goal" to make the exercise a kind of miniature Red Flag, such as the one run at Nellis AFB, Nev.

"The infrastructure is not really there; it isn't and never will be Nellis," McGinn said. The East Coast simply doesn't offer the same space, ground threats, or range instrumentation that the Nellis range does. But considering the 94th Fighter Squadron—one of the 1st FW's two—hasn't been to Red Flag in four years, "we'll take Razor Talon, absolutely."

Unlike a Red Flag, where the aircraft marshal together at a single base and brief the day's missions en masse, players in Razor Talon brief together via teleconference and launch from their own bases. Moreover, while a deployment to Red Flag may take a year's worth of planning and most of a squadron, the Razor Talon exercises can be thrown together in a few weeks and may involve only four of Langley's jets, McGinn said.

For a Red Flag, virtual DMO exercises are often practiced beforehand with the same units that will go to Red Flag, said Maj. Henry Schantz, an F-22 instructor pilot and ACC's Raptor demonstration pilot.

Just like rehearsing a complex flight in the simulator before a mission, the DMO rehearses techniques that will be used at Red Flag "with the same guys," he said. During the live-fly, they have familiarity with the other players, as in, "Hey, remember when we did this two or three weeks ago? Remember what we learned here?" ... And it will end up making Red Flag a much better experience," Schantz said.

Even Getting Close Is a Win

When not working up to a Red Flag, DMOs are run as often as weekly, he reported. A "white force" organizes them, administratively.

Dissimilar air combat training is vital for F-22 pilots, but one Air National Guard pilot said it can be hard recruiting F-22 adversaries.

"You don't want to play if you never see the F-22 and you just keep getting shot down, no matter how many runs you make," she said. "If you're the adversary, you're not getting good training."

To provide more cost-effective dissimilar air combat training, the 1st FW hosts a unit of T-38s, which play the role of Red Air. Fourteen aircraft are currently on station at Langley, said Lt. Col. Brian Kelly, director of T-38 operations at the 1st FW.

The aircraft—Air Force-owned and -flown but contractor-maintained—are ex-Republic of Korea T-38A and B trainers once leased from the US, then returned when the ROK got T-50 trainers.

"It does its mission great," Kelly said. "It's a low-cost, high utility-type aircraft that can present air-to-air targets [and] simulate fighter-type targets." The purpose of the T-38s is not to engage the F-22s in visual-range dogfights but to "provide long-range targeting problems," Kelly said. Should a T-38 actually close to "the merge" with an F-22, "the training point has been made," he said, meaning that if the T-38s got through, the F-22s did something wrong.

Besides Langley, Tyndall also has T-38s. The F-22s at JB Elmendorf-Richardson, Alaska, tangle with F-16s assigned as dedicated aggressors at Eielson AFB, Alaska, while JB Pearl Harbor-Hickam relies on transiting fighters, Navy aircraft, and other F-22s using embedded simulator training as their adversaries.

Huyck pointed out that F-22s fighting F-22s is like two blindfolded boxers feeling around for each other, trying to land a lucky blow. It's not especially useful training.

The F-22s typically take on much larger forces and nearly always fight outnumbered. They practice this scenario



USAF photo by Christopher Bush

or better enemies in real war? Why not use, say, F-16s or F-15s to simulate the Su-27 Flanker?

"If I tell you a Flanker is not going to see me and I'm going to be victorious at range, ... why would I waste all the money to pay for an advanced generation fighter to go against when I can get the same training benefit out of a T-38?" Huyck asked.

"That's the fiscal prioritization that the 1st Fighter Wing, the Air Combat Command, [and] ... our Air Force, quite frankly, has to make with this F-22 platform."

While he would "love to have a few extra millions around to have an adversary fighter squadron here," it wouldn't provide any additional training benefit, Huyck said.



USAF photo by A1C John Nieves Camacho

Top: A Raptor from Elmendorf-Richardson moves to a final parking position at Andersen AFB, Guam. It arrived as part of US Pacific Command's theater support package. Here: F-22s and F-15Es ready for takeoff during Exercise Razor Talon at Seymour Johnson AFB, N.C., in November. Razor Talon enables the F-22 crews to test the Raptor against F-15Es and aircraft from other services.

on the F-22, the T-38s can be made to look like just about any other kind of threat aircraft.

"The importance of the T-38" cannot be overstated, Huyck said. Its value is not that it's a nimble aircraft—which wouldn't help it in an engagement with the Raptor anyway—but because "it's another manned platform with a decision-maker" onboard, "a seasoned fighter pilot who is trained in air combat tactics, trained in adversary air." When it shows up on the F-22's radar as a foreign threat aircraft, "I can react based on that," he said.

Why, though, use a T-38 when the F-22 is likely to face fourth generation

"When I look at the way we fight, ... the tactics and techniques that we use, the scenarios that we fight in, I can get myself to a level of training that's fiscally responsible in the budget and flying hours we've been given, and I can transfer just a little of that into the simulator, to increase the fidelity of my training."

McGinn said the T-38s also save money by relieving the Raptors of playing Red Air against other Raptors.

"If we don't have the T-38s, then we have to provide our own Red Air" for day-to-day training. "Those Red Air sorties count as our combat mission readiness. ... So that is a huge benefit

constantly because it is probably the situation they'll encounter early in a conflict. With embedded simulation

we get from the T-38s.” Instead of half of a 10-sortie mission being dedicated to Red Air, he said, eight or nine can be Blue Air missions, providing more realistic training.

The T-38s are also better than the computer-generated threats of the simulator, McGinn said.

“Even the best video game in the world can’t compare to a slightly dumbed-down live-fly event,” he said.

Keeping Nimble

Asked what the biggest adjustment is for pilots coming to the F-22 from other fighters, McGinn said it’s the Raptor’s stealth.

“Incorporating the stealth piece ... is a significant mind shift,” he said, because the pilots have to unlearn the idea that everyone can see them, and they can operate “in that same portion of the airspace” and proximity to adversaries and remain undetected.

“That tactical jump is significant,” he said—the idea that “somebody isn’t necessarily shooting back.” The other adjustment is the change in spacing. Fourth gen fighters tend to fly closer together, while F-22s fly with “geographic separation.”

Besides pilot training, the day-to-day prepping, launching, and fixing of F-22s provides on-the-job training for the maintainers.

Capt. Travis Hilliard, 1st Aircraft Maintenance Squadron officer in charge, said, “Really, our guys are training right along with the pilots.” As the pilots do, the techs go to schools, but nothing keeps them mentally agile in supporting the F-22, particularly on a deployment, like the daily effort of identifying problems and fixing them. When F-22s don’t fly, skills get stale.

Another piece of maintenance training is “just the exercise of movement,” Hilliard said. “We are getting tasked to deploy more, now, so when we go” to a weapons-firing exercise, or a Red Flag, or another destination, “our guys learn how to get ready, deploy, get there, unpack everything.” They do this “in a place that’s probably not as nice” as home base, “and get the jets ready to start flying again. We’ve gotten very good at that.”

An added benefit of the ability to “tailor” the number and types of technicians who go on deployments, along with their gear, is that it has reduced the number of C-17 loads required for a deployment. In the early days of the F-22, without long-term experience, it was thought the requirement for C-17-loads of people and gear could never be met. Now, that metric rarely even comes into the conversation.

Part of the reason the support package can be tailored for a deployment is that the F-22 works pretty well, according to SSgt. Stanley Nelson, an F-22 crew chief at Langley.

“I really like this jet,” he said. “I can’t think of anything negative to throw at [it]. It’s ... maintenance-friendly. I don’t work the crazy amount of hours I did on my prior airframe: Strike Eagles, F-15Es.” The F-22 is easier to fix than other aircraft, Nelson said, and when an engine change is done, it’s almost always to comply with time-compliance technical orders, not because there’s something wrong.

TSgt. Arron Schultz, who works on the F-22’s stealth materials and coatings, said the F-22 is a leap ahead of his previous jet, the F-117. While there still is some “art” to maintaining the F-22’s low observable (LO) systems, gone are the days of tape and caulk, he said. Each F-22 gets a look-over after every mission, he said, and computer programs tell maintainers when coatings need fixing. All the LO except for a few “certain areas” can be repaired by squadron techs, he said. If those areas need work, they call in the engineers.

Hilliard said that when the F-22s were grounded during the oxygen issue—and again during sequester—the backshops

did a lot of LO remediation. When flying resumed, “we were able to manage these jets as if they had a brand-new” stealth level.

While the F-22 units are not technically part of the air and space expedition force, Huyck said they mimic the AEF timetables to provide predictability for their personnel. The F-22s aren’t necessarily tagged to a particular combatant commander. An ACC spokesman said that F-22 units do participate in theater security packages and theater security cooperation deployments, such as one to South Korea early last year that was seemingly effective in quieting North Korea’s belligerent threats. If the units know they’ll be making a deployment to, say, Kadena AB, Japan, they will “work up” to that deployment, emphasizing the threats in that area.

Given that Russia and China are both developing fifth generation fighters that they say they will export, do the F-22s ever train against a notional fifth generation threat?

Huyck did not address the question directly, but offered two comments.

Make It All That It Can Be

“One is that there is no fifth generation threat,” he said. “There is a challenge of a fifth generation threat [and] advancements in fourth generation.” At some point, he said, “there may be competition,” but he thinks it will be a long time before any potential adversary takes a fifth generation machine and wrings it out enough and trains with it enough to operate it systematically and reliably. Secondly, that challenge will only be a problem “if the F-22 is stagnant in training and capabilities and modernization and upgrades and maintenance, ... which I don’t see happening.”

Senior USAF leaders have said in recent months that in addition to the F-35, KC-46 tanker, and Long-Range Strike Bomber, a top spending priority under sequester is to continue to enhance the F-22 and make it, as Chief of Staff Gen. Mark A. Welsh III said, “all it can be.”

Asked about photos circulating on the Internet of an F-22 in the crosshairs of an F/A-18 or French Rafale or Indian Su-27, Huyck said “Adobe Photoshop is a wonderful thing.” More seriously, he said Raptors have to practice fighting within visual range, just in case something goes wrong and they find themselves in that situation. The Raptor is considered the most maneuverable airplane in the world, so that situation isn’t a crisis.

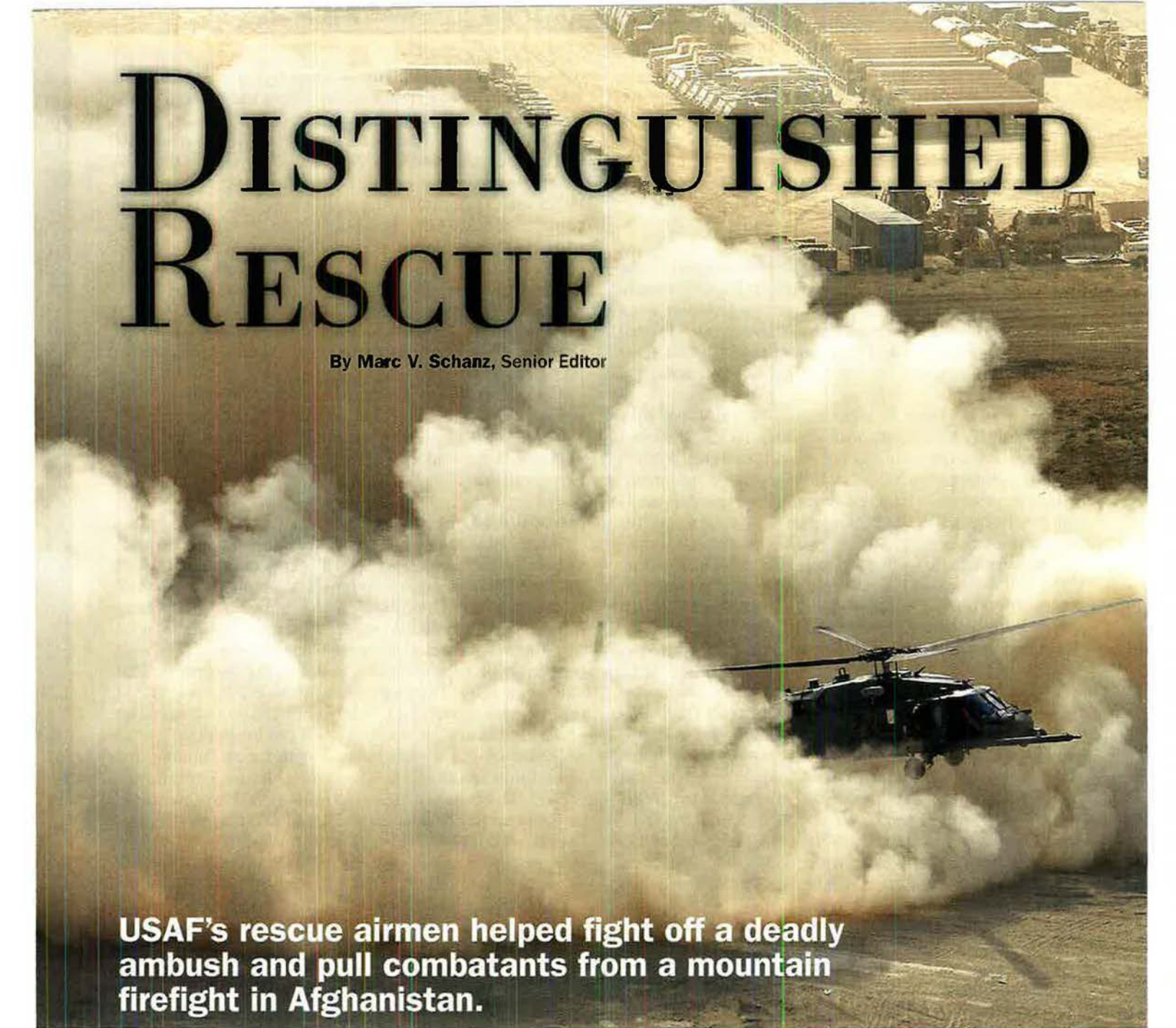
“We know how to fight within visual range. We win, pretty much all the time, because of [our] advanced maneuverability,” he said. Moreover, while the F-22 always flies at its full combat configuration—full fuel tanks and weapons bays—most adversaries “probably [don’t] show up to that fight in anything other than a demo-clean configuration” and “maybe they burn off some gas on the way in, to get the max performance they can out of their airplanes.” The Raptor “puts ‘cuffs’ on itself” so adversaries can get something out of the engagement as well.

While an opponent may grab a rare photo of an F-22 in its sights during a dogfight, “you know what that does? That increases the stock of the F-22’s air dominance capability,” Huyck insisted.

“Everyone puts the prize fighter up on the wall as the target. We don’t do that as the F-22. We go out on a daily basis, we do realistic training, we know that we are the most effective combat force in our United States Air Force. ... Our mission is to fly, fight, and win. We don’t need to go post pictures.” ■

DISTINGUISHED RESCUE

By Marc V. Schanz, Senior Editor



USAF's rescue airmen helped fight off a deadly ambush and pull combatants from a mountain firefight in Afghanistan.

DURING a 7.5-hour mission, two HH-60 Pave Hawk crews made a 320-mile trip, rescuing six wounded New Zealand soldiers, an Afghan soldier, and an Afghan national and recovered the remains of two New Zealanders killed in action. They did all of this while under heavy direct fire and in temperatures sometimes rising above 100 degrees, completing their mission with just minutes of fuel remaining.

For their actions on Aug. 4, 2012, members of two pararescue crews—Pedro 83 and Pedro 84 of the 83rd Expeditionary Rescue Squadron at Bagram Airfield,

Afghanistan—received the Distinguished Flying Cross with Valor device. USAF Chief of Staff Gen. Mark A. Welsh III presented the awards at Kadena AB, Japan, this past August.

Welsh said it was his honor to present five of the airmen from the mission with the medal, one of USAF's highest decorations, and do so in front of their peers.

"They embody the spirit of airmen, by coming to the aid of others under the most difficult of circumstances," Welsh said. "This is what they do."

Recognized were Capt. Michael H. Kingry, Capt. Gavin H. Johnson, Capt. Matthew M. Pfarr, TSgt. Scott D. Lagerfeld, and SSgt. Robert G. Wells, all

assigned to the 33rd Rescue Squadron at Kadena.

Capt. Matthew Carlisle, Capt. John Larson, MSgt. Scott Spangler, and SrA. Joshua Brown also received the DFC with Valor at other presentations.

Even within a community known for heroism, Welsh said the mission that day truly stood out as an example of airmen at their finest.

The crews of Pedro 83 and Pedro 84 came to their deployment with the 83rd ERQS that August from many corners of the rescue and pararescue jumper (PJ) community. Kingry's history is typical: He deployed seven times between 2007 and 2013 to places such as Balad AB,



USAF photo by SSgt. Christopher Bóris

Iraq; Camp Bastion, Afghanistan; and two hitches at Bagram, as well.

PJs and Pedros from across the Air Force joined the Kadena airmen at Bagram.

“Our formation was a pretty good mix of experienced aircrew and GA [Guardian Angels, the PJ complement to the aircrew], along with really sharp young guys,” Kingry said in an interview.

MSgt. Tracy Debbs, for example, was a seasoned PJ. He was the team leader for the GAs. Spangler was on his fifth deployment.

A Matter of Minutes

In contrast, Pfarr (Kingry’s copilot in

Pedro 83) and Brown (the ship’s gunner) were on their first deployments.

Pedro 84 was Larson’s flight. He was on his second deployment, as was his copilot, Johnson. Lagerveld was Larson’s flight engineer and a seasoned pro, having earned a previous DFC with Valor for a mission flown in Kunar province.

The crews had just come on duty and were beginning the daily ritual of preparing their kits when the call for help came in.

“We essentially ... were immediately launched. If the mission had dropped five minutes earlier, it would have been the other guys who would have executed,” Kingry said.

The radio came alive: “Attention on the net, attention on the net, scramble, scramble, scramble.” It meant someone faced a life-or-death situation, and the crews needed to get airborne immediately.

Kingry’s and Larson’s HH-60s spooled up and took off, headed north toward the wilderness of Afghanistan’s craggy mountains. Two New Zealand troops were wounded in a firefight with enemy forces, they were told.

As Pedro 83 and 84 sped toward the call, the mission picture started to fill in: The pickup location was farther north of Bagram than their usual range, located in the jagged mountains and valleys of the nominally peaceful Bamyan province.

The target lay in the middle of a steep mountain range, and the Pave Hawks couldn’t climb over the mountains or they’d burn all their fuel too early. Kingry plotted a course through valley passes at lower altitudes, saving fuel but extending the journey. The crew knew they’d need air refueling and called the operations center for tanker support.

Halfway there, the ops center called back: They were flying in to save five patients now, not just two. The site was likely still a hot combat zone, and coalition troops were still under fire and taking casualties.

Details slowly emerged as the two-ship of Pave Hawks approached the target. A B-1 overhead would provide close air support, and they got the frequencies so they could talk directly to the bomber.

Thirty minutes from the extraction site, Kingry helped develop a plan with the B-1 and the joint terminal attack controller on the ground for the Pave Hawks to approach, land, and get the casualties out.

“We were able to go in there with a weapons pattern. ... We didn’t want to just fly in and land ... because we knew there would be enemy presence,” Kingry said in an official Air Force interview.

The formation was lucky. There was a lull in the fighting, and the B-1 crew saw no immediate threats to the choppers. On the approach to the landing zone, however, Kingry got another update: There were now seven casualties waiting for rescue.

Steep cliffs flanked the landing zone, located in a valley. Kingry and Pfarr in Pedro 83 stayed overhead while Larson and Johnson brought Pedro 84 in for a landing, taking on three patients. After lifting off, Pedro 83 came in, picking up the other four.

They weren’t going to make it back to Bagram in a direct shot, though. The engines were guzzling fuel to stay aloft in the thin mountain air, and the crews had to dump some gas to accommodate the weight of the patients.

Pfarr watched the gas gauge level fall. “It was a very tricky balance between keeping enough fuel to get somewhere, and dumping enough fuel so that we could [extract wounded] on the site,” he said in the Air Force interview.

With fuel dwindling and their patients in critical condition, the flight had to get to the nearest forward operating base, Combat Outpost Khilagay, in Baghlan province. As they bore down on it, Kingry recalled, his PJ team told him two of the first casualties had been killed in action, and they were working hard to keep the others alive.

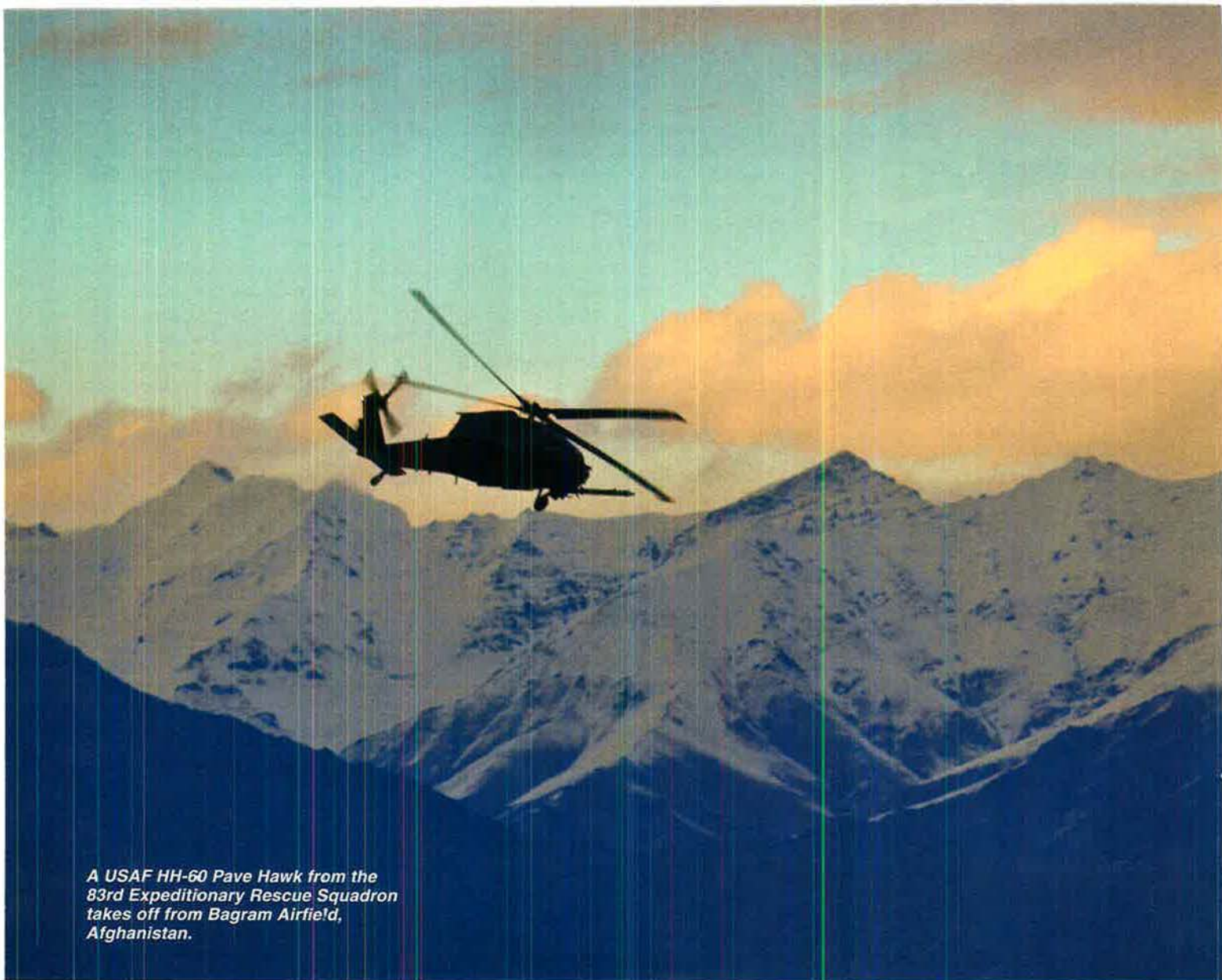
Once both helicopters touched down and the patients had been offloaded, Kingry looked at the fuel gauge: about 300 pounds, or just 15 minutes of flying time, left.

“I had never seen the gauge read that low and I just felt thankful that we had made it” to the combat outpost, he said. “That’s when we got the call that the New Zealand forces had taken additional casualties.”

After a hurried ground refueling, Kingry and Larson took their Pave Hawks up again. The Kiwi troops had three more wounded. The HH-60 pilots coordinated with an F-16 in the area to make a “show of force” in the valley before they returned; the jet screamed down at low level, making a deafening noise and letting the bad guys know that airpower was on the scene.

But things got worse on Kingry’s and Larson’s second trip into the valley. The fighting had picked up again. Pedro 83 infilled its PJs, then covered the team from above.

Geography didn’t cooperate. On this extraction, the rescue airmen would have to use a hoist, hovering over the extraction site—leaving helicopter, crew, PJs, and



A USAF HH-60 Pave Hawk from the 83rd Expeditionary Rescue Squadron takes off from Bagram Airfield, Afghanistan.



USAF photo Scott M. Alth



Bitter Pills \$

By Frank Oliveri



USAF photo by A1C Dillon Davis

More than a decade of war has come at great cost to the US military and its people. Casualties—physical and mental—along with high operational tempos and broken families have taken their toll.

Congress and the past two presidential Administrations tried to offset the

The US can't pay its troops enough for their service, but it also can't afford continually rising compensation.

demands in part by enacting consistent pay and benefit increases. But in recent years, the Obama Administration has attempted to increase Tricare fees for retirees' health care and reduce the rate of growth of military pay raises, as the nation struggled to cope with a congressionally imposed fiscal crisis. Congress has resisted slowing down the rate of pay and benefit increases, and with each passing year the emotions

on both sides of this issue become more heated.

The Budget Control Act of 2011 would reduce planned military spending by about \$500 billion through Fiscal 2021 in addition to the Administration's commitment to reduce Defense Department spending by \$487 billion during the same period. Buffeted by these demands, Pentagon leaders will again press Congress to take unpopular steps to rein in salary growth and ask retirees to pay more toward their medical coverage, while offering reduced benefits to new military members.

Such measures are bitter pills—very bitter pills—for military members, retirees, and many lawmakers, but indications are that Congress has become more amenable to them. Indeed, lawmakers established the nonpartisan Military Compensation and Retirement Modernization Commission (MCRMC), to look at the issue in a way that reflects the lifetime costs associated with military service, much as the Air Force must consider the life cycle costs of the F-35 Lightning II fighter. The commission is tasked to make recommendations to the President and Congress early next year.

The President and Congress already have taken a step toward reform in the Bipartisan Budget Act of 2013, or BBA, negotiated by Senate Budget Committee Chairwoman Sen. Patty Murray (D-Wash.) and House Budget Committee Chairman Rep. Paul Ryan (R-Wis.). The legislation includes a provision that modifies the annual cost-of-living adjustment (COLA) for working-age military retirees until age 62 and was signed into law in December. It will phase in adjustments that will make the COLA for working-age retirees equal to inflation minus one percent.

"Service members would never see a reduction in benefits from one year to the next and it will save approximately \$6 billion over 10 years," states the summary of the legislation. Unless

group of Tucson civic boosters decided to present the Raiders with a special gift of 80 silver goblets, each one engraved with the name of a Raider. In fact, each goblet had the name engraved twice: once right side up and once right side down. That ensured the name would still be legible if the goblet is turned over.

They were designed to serve as a "last man" memento. At each reunion, the Raiders would toast their fellowship. Those who had died since the previous meeting would have their goblets turned over. When only two Raiders remained, they were to open a special bottle of vintage 1896 Hennessy cognac presented to Doolittle on his 60th birthday. That toast would be the group's last.

For years, the goblets were on display at the Air Force Academy in Colorado Springs, Colo. Since 2006, they've been on show at the Air Force Museum. The Raiders have ensured that the goblets are flown in their special wooden traveling case to each reunion site. The toast has been a solemn ritual for the men involved, with even waiters asked to leave the room at the crucial moment.

Over the years, more and more of the goblets have been turned over. Doolittle himself died in 1993 at the age of 96. In 2013, due to advancing age, the remaining Raiders decided it was time to end the tradition. Four survive, but Hite is not able to travel. Cole is 98. Saylor is 93, and Thatcher 92.

In April 2013, Cole, Saylor, and Thatcher held their last public reunion in Fort Walton Beach, Fla. Then, on Veterans Day weekend, they came together at the Air Force Museum for their last toast.

The festivities began on the Friday of that weekend with a family dinner at the museum for the three Raiders and family members of deceased Raiders. At the dinner, Jas Hennessy & Co., the primary sponsor of the weekend events, presented each of the survivors with a special aged bottle of cognac in a wooden case. Inside the case was a quote attributed to Doolittle: "There's nothing stronger than the heart of a volunteer." In 1942,

all the Raiders had raised their hand and volunteered for a hazardous mission of which they knew few details.

They Gave Us Hope

Early Saturday afternoon of the weekend, the museum hosted a public arrival ceremony. Hundreds of people waving flags lined streets of Wright-Patterson near the museum and cheered as the three Raiders and family members of deceased Raiders drove in with police escort.

The Raiders and family members then took part in a wreath-laying ceremony at the Doolittle Raiders Memorial in the museum's outdoor memorial park.

"We all shared the same risk and had no realization of the positive effect ... on the morale of Americans at a time of great national peril," said Cole at the wreath-laying. "We are grateful we had the opportunity to serve and are mindful that our nation benefited from our service. Thank you for joining us today." A flyover of B-25s in "missing man" formation capped the wreath-laying while bagpipes played "Amazing Grace."

The final toast itself was in a hangar-like area of the museum itself. Some 250 attended. All were friends and family or invited guests.

AFA was one of the event's sponsors. Former AFA Board Chairman Sutter attended, as did the AFA President, retired Gen. Craig R. McKinley. "AFA is honored to have had the opportunity to be a part of this monumental moment in airpower history," said McKinley in a statement. "The men on stage were part of an extraordinary mission in the darkest days following Pearl Harbor when US morale was at its lowest. They took the battle to the enemy

and gave us hope. They are indeed part of the greatest generation and we owe them our deepest gratitude."

The last toasting ceremony took about 45 minutes. Those who were there say it was a moving event and that the survivors handled their role with aplomb.

"I was just blown away by the turnout and the reception for them and how these guys reacted to it," said retired Lt. Col. Wes Stowers, chairman of Stowers Machinery Corp., another event sponsor.

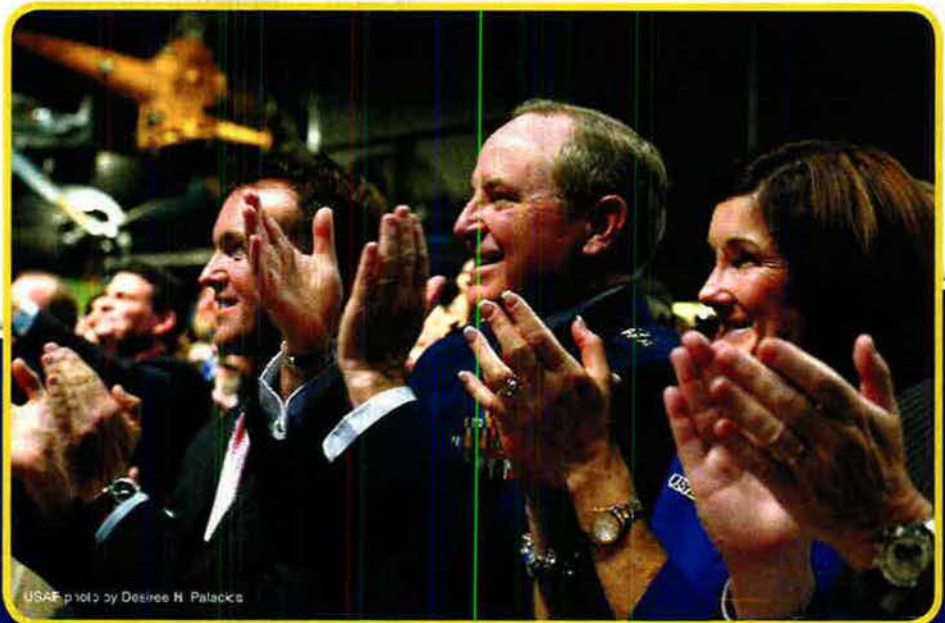
Stowers himself has a connection to the proceedings. As a young Air Force Academy cadet in the mid-1970s, he was standing in front of the Doolittle goblets when he met a young woman from Colorado College who had come to the academy for a lecture. They've now been married 36 years.

At the academy, "Jimmy Doolittle himself would speak to us every year. We all put these guys on a pedestal," said Stowers.

When the final toast activities came to a close, the audience rose to give the three surviving Raiders a standing ovation. They likely will never gather in public again. Author and honorary Raider Glines had the last word. "This concludes the ceremony and also completes a mission," he said. ■

Peter Grier, a Washington, D.C., editor for the Christian Science Monitor, is a longtime defense correspondent and a contributor to Air Force Magazine. His most recent articles, "Finding Luc Gruenther" and "AFJROTC in a Holding Pattern," appeared in the January issue.

L-r: Acting Secretary of the Air Force Eric Fanning, USAF Chief of Staff Gen. Mark Welsh III, and Betty Welsh applaud after the last Doolittle Raiders toast at the National Museum of the US Air Force.



USAF photo by Desiree N. Palackas

one exception: the B-25 flown by Capt. Edward York was especially low on fuel and diverted to Vladivostok in the USSR. The Soviets confiscated the bomber and interned the crew members, who managed to escape after 13 months and made their way home via Iran.

In China, one Raider, Cpl. Leland D. Faktor, died as a result of a parachute accident. Two, SSgt. William J. Dieter and Sgt. Donald E. Fitzmaurice, drowned after water landings. The rest survived, and over the next several weeks, most made their way to Chongqing and friendly territory. Many ordinary Chinese helped the Raiders immeasurably, since Japanese forces controlled much of eastern China.

These civilians bore the brunt of Japan's anger. Japanese authorities sent 53 battalions to what was then called Chekiang province, where most Raiders landed. These troops engaged in a three-month search and reprisal campaign that leveled entire villages and left some 250,000 Chinese dead.

The Japanese captured eight Raiders. They tried each and sentenced them to death, ultimately executing three: two pilots—Lt. William G. Farrow and Lt. Dean E. Hallmark—and one engineer/gunner, Sgt. Harold A. Spatz. The remaining five—Lt. George Barr, Lt. Robert Hite, Lt. Robert Meder, Lt. Chase J. Nelson, and SSgt. Jacob D. Deshazer—became POWs.

The Doolittle Raid shocked Japanese citizens, who had been told their island nation was untouchable. But it was too small to depress national morale for long. What it did do was help tip the balance in an ongoing debate within the Japanese military. Army and Navy leaders were weighing whether to further extend their

defensive perimeter. The ease with which the B-25s had penetrated to Tokyo argued for pushing the perimeter out, perhaps as far as Midway, New Caledonia, or even the Aleutians.

A Secret Base in Shangri-La

In June 1942, Japanese forces tried to seize Midway, an atoll that, as its name suggests, is roughly midway between North America and Japan. They suffered a defeat widely considered today to be the turning point in the Pacific theater of the war.

"Finally, the Tokyo raid was a hypodermic to the morale of the United States, which had suffered the worst series of military reverses in its history," states *The Army Air Forces in World War II*.

In the immediate aftermath of the raid, Doolittle thought he would be court-martialed. He had lost all the B-25s under his command, after all. But news of the successful blow against Japan hit the United States like a thunderclap. The public was ecstatic. President Franklin D. Roosevelt was so pleased with the result that he joked at an April 21 press conference that the bombers had come from "our new secret base at Shangri-La," the hidden Tibetan valley at the center of the then-popular novel *Lost Horizon*.

Within days of the raid, the AAF promoted Doolittle to the rank of brigadier general, bypassing the rank of colonel. He received the Medal of Honor at a White House ceremony on May 19. Army Chief of Staff Gen. George C. Marshall read the citation and FDR himself pinned the medal on Doolittle's uniform.

"With the apparent certainty of being forced to land in enemy territory or perish at sea, General Doolittle personally led a

squadron of Army bombers, manned by volunteer crews, in a highly destructive raid on the Japanese mainland," reads the citation in part.

Doolittle eventually commanded Eighth Air Force in Europe as a lieutenant general. But as World War II ended, he still had one unfinished piece of business pertaining to the Raiders.

On the deck of *Hornet*, the day before mission takeoff, Doolittle had promised his men that "when we get to Chungking, I'll throw you fellows the biggest party you've ever seen." The fortunes of war had prevented him from fulfilling that promise. So he invited all the surviving Raiders to a hotel in Miami to help celebrate his birthday on Dec. 14, 1945.

It was a celebration that those who were there would never forget. Most Raiders attended. The tone of the event is caught by the memo written to hotel management by the night watchman.

"The Doolittle boys added some gray hairs to my head," wrote the watchman. "Fifteen of them with girls went swimming in the hotel pool at 1 a.m.," he complained. He told them there was no swimming at night, then went up twice more to try and stop them, with no result. They were noisy until 5 a.m. "Yes, it was a rough night," according to the watchman.

Presented with this report, the hotel manager took it straight to Doolittle himself, according to retired Col. C. V. Glines, historian and author of several books on the attack and an honorary Doolittle Raider. The manager told Doolittle that his men had earned the right to make all the noise they wanted. "Then he asked them to autograph the report, which they did," said Glines at the Nov. 9 gathering at the Air Force Museum.

A tradition was born. Since then, the Doolittle Raiders have held reunions most years, spread at sites all across the country. Their 17th reunion took place in Tucson, Ariz., in 1959. Before the gathering, a



Saylor, Cole, and Thatcher (behind Cole) drink a toast to their fallen comrades. Hite is seen via video.



the Golden Gate Bridge toward the open sea and toward history.

Doolittle hoped to reach a point 450 miles off Japan before launching. That was not to be. In the early hours of April 18, the *Hornet* task force encountered a Japanese patrol boat. US guns sunk the vessel, but commanders had to assume the mission's secrecy had been compromised. The fleet was still 800 miles from the B-25's targets.

"This contingency had been foreseen and it had been agreed that rather than endanger the carriers, the planes would be sent off despite the remote chance that they could reach China from such a distance," wrote Craven and Cate.

Vice Adm. William F. Halsey Jr. ordered that the strike begin at 3 a.m. local time, some 10 hours earlier than planned. Doolittle roared off first into the teeth of a 40-knot gale. The 16th and last bomber lifted off at 9:21 a.m. All had gone without a hitch.

The patrol boat had indeed radioed a warning, but Japanese authorities thought any attack from that distance would not arrive until the next day. Thus, the Raiders faced little opposition as they swept in low over the coast. Doolittle reached Tokyo at 12:15 p.m. and unloaded his 500-pound and incendiary bombs. B-25 after B-25 followed him over Japan's largest city, aiming for oil stores, factory areas, and military installations. Other B-25s hit Kobe, Yokohama, and Nagoya. One lucky bomb

scored a hit on a Japanese carrier in dry dock at the Yokosuka naval base. Anti-aircraft fire hit one B-25, but caused little damage.

"The successful bombing of Tokyo indicated that, provided the element of surprise is possible, an extremely successful raid can be carried out at low altitudes with great damage and high security to equipment and personnel," wrote Doolittle in his July 1942 report to Army Air Forces headquarters on the mission.

In truth, the actual harm the B-25s inflicted was moderate. Some bombs missed the mark. And once the 16 bombers cleared Japan's islands, they remained in great danger. Their enemies were not bullets, but weather and time.

A fortunate tailwind pushed them toward China. They were aiming for Chongqing (Chungking), wartime capital of Nationalist Chinese forces, where officials were supposed to be expecting their arrival. But clouds thickened as they crossed the East China Sea and they approached the coast in darkness, rain, and wind. Pilots and navigators realized they would not be able to reach their intended airfields. To make matters worse, no one had informed their Chinese allies they would arrive earlier than previously planned.

Some B-25s ended up crash-landing in rice paddies or along narrow stretches of beach. Many crews bailed out, including Doolittle and his men. There was

The Raiders (Doolittle is standing, left) pose with a 500-pound bomb and Navy Capt. Marc Mitscher (right), commanding officer of USS Hornet, en route to the launching point. They would be forced to fly almost twice the distance planned.

Sixteen B-25s lined the flight deck of USS Hornet as it crossed the Pacific toward Japan. Hornet was accompanied by alert escort ships to help protect the lethal cargo. US guns sank a Japanese patrol boat 800 miles off the coast of the island nation, but not soon enough. The Japanese were warned, and to maintain the critical element of surprise, Doolittle decided to launch the raid much farther away from the target than planned.

War II, he joined a group of other prominent airpower advocates to create a nonprofit organization dedicated to the promotion of national defense and a separate Air Force. Doolittle was elected the group's first National President. A statue of him is prominently placed at AFA's headquarters in Arlington, Va.

"He was essentially the first elected leader of the organization," says retired Col. Joseph E. Sutter, a former AFA Chairman of the Board.

In 2009, AFA honored the Doolittle Raiders with a Lifetime Achievement Award, presented at the annual Air & Space Conference and Technology Exposition. Cole was among the Raiders who attended the event.

At one point, Sutter fell into conversation with Doolittle's copilot and asked him several obvious questions: What was he thinking? What was going through his mind as he sat in his B-25 on the wind-whipped deck of USS *Hornet*, engines roaring, just before a mission that had every chance of ending in his own demise?

Sutter thought the answer would be something like, "Hope I live through this," or "Can we make it to our landing fields in China?"

But it wasn't. "All I know is, I'm sitting next to the greatest pilot in the world," was what Cole said his thoughts were at that moment.

In January 1942, the United States had been at war with Japan for more than a month. To that point, the conflict was going badly. Pearl Harbor had been bombed and much of the Pacific Fleet wrecked. Japanese airpower had sunk the British warships HMS *Prince of Wales* and HMS *Repulse* off the coast of Malaya. The Philippines were under

heavy attack as Japan's armed forces swept through the Far East.

Making It Happen

"There was dire need of a stimulus to morale," wrote Wesley Frank Craven and James Lea Cate in the first volume of *The Army Air Forces in World War II*, the official history of the war.

A chance observation sowed the seeds for the operation. An aide to Chief of Naval Operations Adm. Ernest J. King saw Army bombers at Norfolk Va., take off within the painted outline of an aircraft carrier. Was it possible these big airplanes could take off at sea while carrying munitions and a full load of fuel?

King and Army Air Forces leader Gen. Henry H. "Hap" Arnold embraced the idea and assigned famed aviator Doolittle to organize a suitable air group. Tests showed the North American Aviation B-25B Mitchell was capable of launching from a carrier with a useful bomb load and enough fuel to reach Japan from the western Pacific and continue on to airfields in China.

Doolittle recruited volunteer crews from the 17th Bomb Group (Medium) for an unspecified dangerous mission. They trained in short-distance takeoffs at Eglin Field, Fla., while a group of B-25s was stripped of excess equipment and modified with extra fuel tanks to give the bombers as much range as possible.

The new carrier USS *Hornet* was assigned to the mission. Its captain had no idea what that mission was until April 1, 1942, when 16 B-25s were lifted aboard his flight deck at Alameda Naval Air Station in San Francisco Bay. The next day, *Hornet* and supporting ships steamed under



supporters. "Gentlemen, I propose a toast to those we lost on the mission and those who have passed away since," he said. "Thank you very much, and may they rest in peace."

The veterans drank. The crowd applauded. A lone bugler played "Taps." It was over. The Raiders would never repeat this ritual, since Cole and his fellows had decided that the 2013 Veterans Day goblet ceremony would be their last.

In remarks at the event, Air Force Chief of Staff Gen. Mark A. Welsh III said one of the first books he read as a boy was *Thirty Seconds Over Tokyo*, a firsthand account of the Doolittle mission by then-Capt. Ted W. Lawson. Welsh's father, a World War II veteran, gave the book to him and told him to look at it closely because the story it told was what America is all about.

The Doolittle raid pioneered the concept of global strike, the idea that no target on Earth is safe from US airpower, said Welsh. "Jimmy Doolittle and his Raiders are truly American heroes. They are also Air Force heroes," he said.

Jimmy Doolittle was a founder of the Air Force Association. Following his retirement from Active Duty at the end of World

Below left, l-r: Edward Saylor, Richard Cole, and David Thatcher in front of the wooden case built to preserve and transport the Doolittle Raiders' personalized silver goblets. Robert Hite, the fourth Doolittle Raider still alive, was unable to attend this final commemoration, but raised his toast from home via a videotape made earlier in the week. Here: A B-25 lifts off from the flight deck of USS Hornet on its way to Japan. Below: The Doolittle Raiders' patch features the motto "Ever into Danger."



US Navy photo



In November, three of the four surviving Doolittle Raiders raised their goblets, one last time, to honor their fallen comrades.

On April 18, 1942, 80 brave men flew 16 B-25 bombers off the deck of the aircraft carrier USS *Hornet* deep in the western Pacific. Led by Lt. Col. James H. “Jimmy” Doolittle, their mission was to avenge Japan’s attack on Pearl Harbor less than five months before and raise American morale by bombing the Japanese homeland.

They accomplished that and more. Though they inflicted but modest damage, their raid deeply embarrassed Japanese military leaders.

The raid also contributed to Japan’s decision to attack the Midway islands atoll, where a stunning US victory changed the course of World War II.

Last Nov. 9, three of the four living Doolittle Raiders gave a last salute to their fallen comrades at the National Museum of the US Air Force at Wright-Patterson AFB, Ohio. This ceremony was the continuation—and the culmination—of a tradition Doolittle and his men began decades ago to commemorate their comradeship in action. The reunions took place each year with some exceptions.

The Raiders’ final toast was a poignant and moving occasion, said attendees. It honored men who helped win the war in the Pacific and in doing so changed the history of airpower.

First came the reading of the Raiders’ roll. The few voices answering “here” in the museum’s hall made clear the passage of the years. Retired Lt. Col. Richard E. Cole, Doolittle’s copilot on crew No. 1, announced his presence at the event in a strong voice.

When the roll ended, he rose to open a bottle of 1896-vintage Hennessy cognac. He had to work at it. Eventually, the cork came out with a soft “pop.”

Air Force Academy cadets poured a measure for Cole and the other two Raiders gathered for the toast: retired Lt. Col. Edward J. Saylor, engineer of crew No. 15, and former SSgt. David J. Thatcher, engineer-gunner of crew No. 7.

Retired Lt. Col. Robert L. Hite, copilot of crew No. 16, could not attend due to health issues.

Cole raised his goblet, one of the specially engraved silver drinking vessels the Raiders have long used for their toasts, in front of the invitation-only crowd of Raider family, friends, and

MISSION ACCOMPLISHED

By Peter Grier



USAF photo by Desiree N. Palacios

and nonuniformed people assigned to USSTRATCOM are questioning their future.”

And this is just the beginning.

Welsh told Senate legislators that the Air Force may have to cut up to 25,000 airmen and as many as 550 aircraft from its accounts over the next five years if the sequestration spending caps continue.

“While we hope to build a viable plan to slow the growth of personnel costs over time and to reduce infrastructure costs when able, the only way to pay the full sequestration bill is by reducing force structure, readiness, and modernization,” said Welsh during a Nov. 7 Senate Armed Services Committee hearing.

He once again cautioned that vertical cuts may be inevitable and said the Air Force would have to reduce flying hours from its operations and maintenance accounts by as much as 15 percent, if the spending caps were not lifted. While he said USAF had no plans to institute another round of furloughs, it may have to cancel, or significantly curtail, major exercises at the same time reducing its initial pilot production goals.

“The real and projected impacts of sequestration are sobering,” he emphasized.

“We were forced to stand down 31 squadrons, including 13 combat-coded squadrons. An additional seven squadrons were reduced to flying rates that only enable proficiency in basic tasks, such as takeoff and landing,” Welsh testified in November. “It will now cost a minimum of 10 percent more flying hours to retrain these squadrons than it would have to simply keep them trained all along.”

A Significant Milestone

This winter’s bipartisan budget deal—brokered by Rep. Paul Ryan (R-Wis.) and Sen. Patty Murray (D-Wash.), chairs of the House and Senate budget committees—provides \$63 billion in “sequester relief” over two years and reduces the deficit up to \$23 billion during the same time period. The Bipartisan Budget Control Act of 2013 sets overall discretionary spending at \$1.012 trillion in Fiscal 2014 and \$1.014 trillion in Fiscal 2015, according to a joint release from Murray and Ryan. Under the budget deal, defense discretionary spending is \$520.5 billion in Fiscal 2014.

Although the White House and representatives from across the aisle hailed the deal as a “good first step,” no one got exactly what they wanted out of the agreement.

For example, veterans organizations were furious over language included in the bill that authorizes a one percent cut in annual cost-of-living increases for nondisabled veterans under the age of 62. The cut to military pensions is expected to generate some \$7 billion; however, it also is said to cost a typical retired officer more than \$124,000 over 20 years, reported the Military Officers Association of America.

In a letter to Congress and the White House, members of the Military Coalition called the cut “an egregious breach of faith.”

The backlash did turn some heads on Capitol Hill. Senate Armed Services Committee Chairman Carl Levin (D-Mich.) promised the committee would review the cost-of-living cuts before they took effect this year.

President Obama signed the Fiscal 2014 defense authorization bill into law in December. It prevents the Air Force from taking some actions it would like to initiate as cost-saving moves. For example, it prohibits USAF from retiring the Global Hawk Block 30 remotely piloted surveillance aircraft and from terminating the C-130H Avionics Modernization Program. It does, however, direct DOD to come up with a plan to transfer the MC-12W fleet to the Army.

The budget agreements were a significant milestone considering today’s political climate, but the Defense Department still needs a fresh appropriations bill.

The Bipartisan Budget Act is now law. Congress largely reconciled its authorizations with its appropriations and avoided again getting slammed by sequestration’s deep cuts.

The BBA merely raises sequester budget caps for Fiscal 2014 and Fiscal 2015, with the Pentagon’s funding rising from \$475 billion to \$497 billion, said Todd Harrison, a leading defense budgetary expert with the Center for Strategic and Budgetary Assessments.

“This is about the same level of funding DOD is currently operating with” under the continuing resolution that governed military spending through the early part of the year, Harrison told *Air Force Magazine*. As such, Congress must either pass a new defense appropriations bill by Jan. 15, when the existing CR expires, or extend the existing continuing resolution a few more weeks.

“Either way, Congress will likely stay within the budget cap they just agreed to. I would be surprised if they did not because they would be deliberately triggering another sequester,” Harrison said.

The Air Force has already submitted its Fiscal 2015 budget proposal to the Office of the Secretary of Defense



“While we hope to build a viable plan to slow the growth of personnel costs over time and to reduce infrastructure costs when able, the only way to pay the full sequestration bill is by reducing force structure, readiness, and modernization,” said USAF Chief of Staff Gen. Mark Welsh III.



and plans the public rollout of its Fiscal 2015 spending request this month. The 2015 budget request will be based on the current numbers, officials said. Sequestration was not an anomaly. It appears to be here to stay. ■

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“Perhaps the most visible effect of the furloughs will be the maintenance work performed at our depots, where we expect to see an estimated 25 percent drop in productivity,” said an AFMC spokeswoman.
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Congress would never let such devastating legislation actually get on the books. By January, the mood started to shift and then Defense Secretary Leon E. Panetta ordered the services to start hoarding cash. In a Jan. 10 briefing with reporters, Panetta admitted, “We have no idea what the hell’s going to happen” with regard to future military budgets.

First Stand Down

The uncertainty definitely took its toll on planners, but on Jan. 7 then-Air Force Secretary Michael B. Donley and Welsh proposed 10 “near-term actions” USAF would take to prepare for sequester. They included a civilian hiring freeze and furloughs for civilian employees; canceling travel, air shows, and conferences; curtailing studies; and either shortening or delaying contracts.

In February, one month before the sequester was to officially kick in, Air Combat Command chief Gen. Gilmory Michael Hostage III dropped another bombshell when he announced the command would move toward a tiered readiness model. It was intended to ensure at least a portion of the force remained combat capable as funds dried up.

“What will happen now is that when one of my units comes back from the combat theater [it] will stand down because I don’t have the flight hours, ... the weapon system sustainment to support fixing the airplanes, [or] the training ranges to train” the unit’s members, Hostage told *Air Force Magazine* in an interview at the Air Force Association’s Air Warfare Symposium in Orlando, Fla.

He added, “The problem is, it’s not like my maintenance folks will be able to go out there and tweak airplanes and make them fully ‘up’ because we won’t have the parts, we won’t have the equipment, ... [and] the depots will be cut like everything else” under sequestration.

The Air Force had never before used a tiered readiness approach, because the nation expects USAF to be ready to go to war, anywhere in the world, at a moment’s notice.

Unprecedented, daunting forecasts didn’t stop the inevitable. The sequester, which was written into the 2011 Budget Control Act as a penalty if Congress failed to reach a budget compromise, officially began at midnight on March 1, 2013. That meant DOD now has to cough up more than a trillion dollars over a 10-year period by making 10 percent across-the-board cuts to all accounts, regardless of priorities. Some accounts were completely exempted, however—most notably personnel—forcing the

other areas of Air Force spending to bear even larger reductions to get down to the overall 10 percent reduction.

The cuts were designed to be so stupid, devastating, and demoralizing to the US military that Republicans and Democrats would have no choice but to break the partisan gridlock and reach a compromise. But that’s not what happened.

By April, Active Duty combat units in the United States, Europe, and the Pacific began standing down as the Air Force attempted to absorb the funding cuts imposed by the sequester. Eventually, some one-third of all Active Duty combat units were affected.

“The current situation means we’re accepting the risk that combat airpower may not be ready to respond immediately to new contingencies as they occur,” said Hostage.

Also in April, the Air Force truncated a class at the Air Warfare Center’s Weapons School at Nellis AFB, Nev., graduating students without a capstone exercise. It then shuttered the doors at the service’s premier combat skills leadership school until funding was restored.

In yet another blow to readiness, the Air Force also canceled Red Flag and other major exercises, citing “budgetary considerations” associated with sequestration.

Congress eventually granted the Air Force a \$1.8 billion reprogramming allocation, allowing it to move some \$208 million back into flying hour accounts. This was not new funding, however—it merely allowed USAF to shift funds from other accounts to pay for the very highest needs.

By July, combat air forces units across the Air Force started flying again, but Hostage warned that, since April, readiness had steadily declined and the units still had a “measured climb to recovery.”

He said the restoration did little to address long-term budget uncertainty surrounding sequestration because “we are using investment dollars to pay current operational bills, and that approach is not without risk to our long-term effectiveness. ... We can’t mortgage our future.”

Despite all this, sequestration still wasn’t done unleashing its wrath on the Air Force. Around the same time ACC was getting back in the air, some 650,000 DOD civilians were furloughed. Although DOD eventually reduced the number of unpaid furlough days from 11 to six, thanks to cost-saving measures and the ability to shift money from one account to another, the move still crushed morale and created a backlog in various areas across the department.

Within the Air Force, the furloughs hit Air Force Materiel Command hardest. Of the 80,000 personnel assigned to the command, more than 75 percent (60,200) are civilians.

“Perhaps the most visible effect of the furloughs will be the maintenance work performed at our depots, where we expect to see an estimated 25 percent drop in productivity,” an AFMC spokeswoman said at the time.

Civilians also make up some 60 percent of US Strategic Command’s workforce, commander Gen. C. Robert “Bob” Kehler told members of the House Armed Services Committee in May. STRATCOM employees were facing an “unprecedented combination of professional and personal concerns,” Kehler said. “Some of the best young uniformed

2013:

YEAR ONE OF 10?

Meet the new normal. It will probably include tiered readiness, abandoned missions, grounded squadrons, and canceled classes.

By Amy McCullough, News Editor

“We’re going to get smaller and we’re not going to get a whole lot more new stuff,” Chief of Staff Gen. Mark A. Welsh III bluntly told airmen when describing the damaging, long-term effects of sequestration during stops in Japan and South Korea last August.

Most people assumed that indiscriminate, 10 percent across-the-board cuts would never be allowed to actually take effect. Not only have they taken effect, but political gridlock on Capitol Hill means most observers have done “a 180” and now believe sequestration will last for the full 10 years it was written into law. Sequestration is here to stay. There is little doubt about that.

Exactly what the Air Force’s new leaner force will look like is still being worked out, but sequestration quickly damaged the Air Force’s ability to go to war, its modernization plans, and its surge capabilities. Less readiness meant less ability to protect the nation.

In 2013, the Air Force reaffirmed its commitment to the F-35 strike fighter, the KC-46 tanker, and the Long-Range Strike Bomber. However, ev-

everything else—including the possibility of vertical cuts of entire weapon systems, such as the A-10 close air support platform—remains vulnerable to cuts, USAF leaders emphasized repeatedly last year.

What follows is a look at sequestration’s impact on the Air Force during its first year of forced efficiency.

For more than a year, DOD leadership resisted the temptation to plan for sequestration, assuming that if they stated their case clearly enough,



USAF photo by Desiree N. Palacios

F-16s of the 388th Fighter Wing on the flight line at Hill AFB, Utah, in September 2013. One F-16 squadron there stood down due to the sequester, and another drastically reduced flying hours.



The Distinguished Flying Cross is awarded for "heroism or extraordinary achievement" during flight.

USAF photo by SGA Maunson L. Ellerman

Kingry approached the tanker, bouncing around a lot, and noticed the gas gauge hovering at the 300-pound level—again.

Little Cause to Celebrate

"We had to get gas or we weren't going to make it back," he said. As he approached the tanker, the air suddenly smoothed out. Before long, the drogue basket connected to their probe, and Pedro 83 took on enough fuel on its first try to get back to Khilagay.

Pedro 84, though, had trouble. The turbulence foiled numerous attempts to connect to the tanker.

Kingry and Pfarr, watching Pedro 84 run ever lower on fuel, began to think the unthinkable: about landing in hostile territory. They searched for an unpopulated area nearby that was flat enough and posed small risk of brownout—the raising of so much dust that it blinds the crew and makes landing perilous.

The PJs in the back of Pedro 83 came up with a worst-case scenario: They would load the other patient into their bird and put as many people as possible into the cabin. The remaining personnel would stay with the grounded aircraft for security and wait for them to return.

"It was not a course of action that any of us wanted to choose," Kingry said.

Pfarr described those minutes as the most harrowing of the sortie.

Then, Kingry and Pfarr looked out and saw the probe of Pedro 84 make contact with the tanker. The relief was palpable.

Johnson, on Pedro 84, remembered his flight engineer saying if he didn't connect on this last pass, they'd be screwed.

"We got lucky," Johnson said. The formation made it back to Khilagay, landed, and unloaded all its casualties, then received orders to remain at the base in case the New Zealand team back in the Bamyán mountains needed further assistance. Those calls thankfully never came, and Pedro 83 and 84 returned to Bagram.

On the somber flight home, the crews carried the remains of two of the New Zealand troops killed in action. Between the crews, there was little celebration.

"We debriefed and captured all our lessons learned so that we could pass them on to the oncoming shift," Kingry recalled. The crews had a sense that they'd just survived an uncommon mission. Their commander put in a recommendation for a single action air medal that, after review by the awards panel, was upgraded.

Kingry, Pfarr, and the others look at the experience as a testament to their community and the missions their peers have carried out over and over, for more than a decade.

"I don't think anyone in our formation thought that we had done anything that

all our other brothers in rescue would have done any differently. I think the award isn't really about our formation; it's more of a reflection of the sacrifices guys in our community have made in over a decade of service in Afghanistan," said Kingry.

The war in Afghanistan is slowly winding down for rescue crews. US military presence in the country steadily declines, and soon NATO will hand off responsibility for security to the Afghan military and government. The unrelenting deployments of the war will give way to something else, but the need for the Air Force's rescue cadre will remain.

"I think the entire concept of combat rescue is one of the things that makes the US military unique," Kingry said.

No matter what scenario the Air Force or the other services may see themselves playing out in the future, the Pedros and PJs know they will be called on to stand alert. "We pride ourselves on the fact that no matter what, we will do whatever it takes to try and get you home," Kingry said.

The Defense Department, he said, "owes it to every fighter pilot that goes into the merge, every soldier that jumps into a convoy, and every marine that hits the beach to do everything in their power to have a force dedicated to bringing them home." ■



USAF photo by TSgt. Matt Hecht



USAF photo by A1C Halsey R. Davis

casualties vulnerable to enemy fire. A rock outcropping surrounded their position.

It also meant Pedro 83 had to dump fuel again to make the helicopter lighter. That in turn gave the team even less time to carry out the rescue. As the Pave Hawks moved into position in the valley once more, the PJs on the ground skillfully vectored them in, while making sure they and the casualties could remain behind cover as much as possible.

As Kingry maneuvered his aircraft and prepared to deploy the hoist, Larson took Pedro 84 to another extraction site. He landed and picked up the remaining patient.

Meanwhile, at the first site, Pedro 83's copilot Pfarr called out on the radio: Muzzle flashes at the 10 o'clock position, about 300 meters away.

The enemy had them in their sights and let loose.

"I was holding the aircraft in a hover and looked out ... and basically I saw five or six ... bright flashes of light all aimed at our aircraft," Kingry said. He instantly pulled the aircraft around and ordered his gunner, Brown, to put a burst of .50-caliber fire in the direction of the shooting.

"I remember telling our gunner, ... 'Burst, 10 o'clock, 300 meters. Burst, 10 o'clock, 300 meters,'" Kingry said. "Then I finally just yelled 'Shoot 'em! Shoot 'em!'"

Kingry and Pfarr went into weapons pattern to destroy the threat in the mountainside, putting out the call to Larson—who was still on the ground at the second site—to come to their aid as soon as he could. Brown continued to pour rounds at targets. Carlisle, Pedro 83's combat rescue officer onboard, let out a long burst on the right gun. He had taken over the gun so Spangler could man the hoist.

Bingo Fuel

As Pedro 83 went into the weapons pattern, Kingry and Pfarr heard Larson over the radio. Pedro 84 was airborne, and both its gunners (Lagerveld and Wells) began firing torrents of .50-caliber fire at the enemy. Over the next five minutes, both Pave Hawks expended about 500 rounds of ammunition; Lagerveld and Wells delivered most of the fire.

At this point, the enemy was suppressed, but the formation had a new set of problems.

Because Pedro 83 had dumped gas to attempt the hoist, and then spent five minutes in a weapons pattern, the Pave Hawk was now below "bingo fuel," the bare minimum needed for a return to the outpost. But PJs were still on the ground, and the casualties needed to be hoisted aboard.

"We could either leave the area" and try to retrieve the PJ Guardian Angel team and casualty later, or "we could [extract] them immediately and hope to get fuel from the on-call tanker," Kingry said of the crew's dilemma. Leaving the team on the ground meant the PJs and the casualties would have to stay put for at least another 90 minutes, just yards away from the enemy.

It was not much of a choice. The formation decided to get their guys out. They had just one shot at doing it.

Johnson, Pedro 84 copilot, called in an HC-130 tanker as close as it could get to the Pave Hawks, while Kingry and Pfarr shot back to the mountainside to retrieve the team and casualties. In the next several minutes, Spangler—Pedro 83's flight engineer—performed what Kingry called "the best combat hoist that I've ever seen." The Pave Hawk had its team and the casualties off the mountain.

Flying out of the valley, Kingry and Pfarr knew they didn't have enough fuel to make Khilagay again and would have to get gas from the overhead tanker. If they didn't, the only option was a PL, a precautionary landing, somewhere in the middle of Afghanistan.

An HC-130 from Camp Bastion had gone up to refuel the HH-60s. It met up with the Pave Hawk formation at 1,500 feet above the valley floor—a dangerously low altitude for such a large, slow-moving target.

"The HC-130 guys really saved us," Kingry said. "They stayed on station throughout the entire flight and brought their entire crew down into [small-arms] and [man-portable air defense system] threat areas in order to get us fuel."

But getting the fuel into Pedro 83 and 84 would not be easy. High altitude and rough air made the probe-and-drogue refueling dicey.

Far left: SSgt. Robert Wells (r) describes his crew's 320-mile mission to rescue critically wounded coalition combatants in 2012 to Air Force Chief of Staff Gen. Mark Welsh III. At left: Welsh presented five airmen with Distinguished Flying Crosses during his visit to Kadena AB, Japan. They are (l-r) Capt. Michael Kingry, Capt. Gavin Johnson, Capt. Matthew Pfarr, and TSgt. Scott Lagerveld. The other four airmen received their DFCs at other presentations.

superseded by a different measure, such as any recommendations that Congress adopts from the MCRMC, this change is scheduled to take effect in December 2015.

Not Sustainable

But already, sticking a toe into the sea of pay and benefits change has proved controversial, as even lawmakers who voted in favor of the BBA came out against the retiree provision and pledged to repeal it.

"This mistake must be corrected," said Sen. Johnny Isakson (R-Ga.).

Sen. Mark Pryor (D-Ark.) commented: "These heroes lay their lives on the line for us, and they deserve us to work to fix this provision so that they can receive the full benefits that they've earned."

As that plays out, Pentagon leaders remain clear on one point: The current path is not sustainable. "We need to get entitlements and benefit reform," Air Force Chief of Staff Gen. Mark A. Welsh III told the Senate Armed Services Committee in November 2013 before passage of the act. "There's no question about that."

The other service Chiefs echoed Welsh's comments at that same hearing, with Marine Corps Commandant Gen. James F. Amos painting a deeply troubling picture of its similar effects on the other services.

"I pay 62 cents on the dollar right now for manpower," said Amos. "That's not because marines are more expensive. It's just my portion of the budget is smaller. That's going to go well over 70 percent by the end of the [next five years] if something is not done. So you're gonna see the Joint Chiefs come to Congress through the President, talking about a package of cuts and reductions, how we can cut that down."

The Pentagon's Strategic Choices and Management Review, completed in 2013, called for changes to compensation and benefits to help the US military balance the funding reductions it faces. In his November testimony, Welsh told lawmakers that force reductions would be necessary, "but if accompanied by efficiency and compensation reforms, they can be made in a way that minimizes the additional risk to our national defense."

Reductions to Air Force manpower, he said, have not stemmed the service's growing personnel costs, which in a constrained environment are choking off modernization and readiness accounts. "Although we employ fewer people, compensation costs continue to climb

at unsustainable rates," Welsh said. "Together, we must address the issue of compensation or it will consume our warfighting spending over the next few decades."

He highlighted three specific areas for reform: "slowing pay raises, reforming how housing allowances are determined, and restructuring health care to ensure world-class care at a sustainable cost."

"We will need Congress' support for the tough decisions that will be necessary to align our future force to the needs of the strategy," Welsh said.

Airmen likely would more readily accept these changes if the Air Force were able to plow the savings back into readiness and modernization, he said.

Chaired by Alphonso Maldon Jr., a former assistant defense secretary for force management and policy, the nine-member MCRMC's goal is to provide recommendations that will protect the long-term health of the all-volunteer force. It also aims to find ways to provide a high quality-of-life for US military personnel and their families with financially sustainable compensation and retirement programs.

President Obama instructed the commission not to change the current retirement system for those already serving, retired, or in the process of retiring. Further, the President asked that the commission look at the interrelationship between the military's compensation, retirement, and promotion systems as well as associated force-shaping tools.

MCRMC member Stephen E. Buyer, a former nine-term Republican representative from Indiana, said the panel needs to look at the fully burdened costs of military personnel. "We are looking at tooth-to-tail," he said in a November interview. "We know that force structure, if you want immediate savings, you can draw down. But we understand what life cycle costs are and we are looking at that. We also have this: We are trying to take the long view here."

As the military shifted from a draftee force to an all-volunteer force, lawmakers "cobbled" together pay, benefits, and allowances "based on the trends and the ebb and flow, not only economically, but also the shaping requirements of the force," said Buyer. "Typical of Congress, you create programs and never take them down," he said.

Budget Dust

Retired Marine Corps Maj. Gen. Arnold L. Punaro, who has been working

on personnel issues since the mid-1970s, recalled traveling as a Senate Armed Services Committee staff member to parts of the nation where airmen, marines, sailors, and soldiers were forced to take on two or three jobs because they were based in high-cost areas. That prompted then-Sen. Sam Nunn (D-Ga.) to develop a variable housing allowance for service members living in high-cost areas, which became law.

"Eventually, DOD decided they were going to give it to everybody," Punaro said in a November interview. This was a mistake—among many—made because the Pentagon didn't know "and doesn't want to know," the fully burdened cost of a uniformed person, which goes beyond base pay and includes military members' "tax advantage," he said.

"Government loses \$15 billion a year from the non-tax portions of military compensation. [Military members'] purchasing power is substantially higher than their civilian counterparts because portions of their pay are not taxed. You can't deal with these things in isolation," Punaro said.

Limiting base pay increases to one percent, rather than 1.5 percent, or increasing some fees on retiree health care, would only affect a small portion of the defense budget, perhaps a few billion dollars annually. Punaro called this level "budget dust."

"We're talking about trillions of dollars," he said. "To be pro military, you need to have a military. If we don't rein in the costs of personnel—pay, benefits, deferred compensation, health care, and subsidies to the commissary, the cost of the DOD dependent schools, the cost of child care, the cost of family housing—we won't have a military. So, you can be pro military for something that doesn't exist, or you can be pro military for an affordable military."

For years, the Pentagon wasn't comfortable knowing the fully burdened costs of the all-volunteer force because of the sticker shock it might cause, said Punaro. It can no longer avoid that, he argued. "Within two years, the cost of retired pay and health care for retirees," if we stay on the path we are now on, "will be larger ... than the entire appropriation for Active Duty, [National] Guard, and Reserve in the military personnel account"—which runs about \$140 billion a year, he said.

"We've learned in other parts of our economy, in the business world, it is deferred compensation that is eating these companies alive," Punaro said.

"They like to say an Army soldier costs 'x' and then they look at basic pay and some of the allowances. But that is not the fully burdened cost that a contractor carries or defense civilian carries. They look at the life cycle costs."

The military pays some retirees for 60 years for 20 years of actual military service, said Punaro. "DOD has to educate and inform and come clean on the real cost," he said. "You can't solve a problem for people before they know they have one. Same thing is happening on the military entitlements as is happening on civilian entitlements. Nobody wants to admit it."

Conceivably, the MCRMC will address many of these questions. The House Armed Services Committee typically marks up its version of the next fiscal year's defense authorization bill in May of each year. The Senate panel usually takes it up in June. It is likely these panels will incorporate some of the findings from the commission during their deliberations on the Fiscal 2015 bill. It is unclear, however, how willing lawmakers will be to incorporate what may be perceived as politically tough changes, even though military leaders are expected to continue pressing for them.

The Pentagon simply must put its readiness first as it contemplates significant budget-driven changes, said Defense Secretary Chuck Hagel in November at a defense forum in Simi Valley, Calif.

"In prioritizing readiness, we will have to pursue savings in every area across the department, not only by paring back overhead and infrastructure, but by reforming personnel and compensation policy, a very difficult issue," Hagel said. "This may be our most difficult challenge, but without serious attempts to achieve significant savings in this area, which consumes roughly half of the DOD budget and is increasing every year, we risk becoming an unbalanced force, one that is well-compensated, but poorly trained and equipped, with limited readiness and capability."

While some budget pressures may not be evident right now, they will grow more apparent over time, he said. "They are very, very real, and they will become more visible as they further jeopardize the security of our country, as our readiness capability and capacity continue to deteriorate." No matter how well-paid service members are, and how good their benefits are, they will begin to leave the military in large

numbers if the quality of their training and equipment continues to decline.

Historically Consistent Share

Speaking at Grand Forks AFB, N.D., in late November, Welsh echoed Hagel's concerns, saying pay, benefits, and medical costs constitute about half the Air Force's budget and will continue to increase as a share of its budget. He argued for slowing the growth, not necessarily cutting existing pay and benefits. "Our people will understand that," he said.

However, there are powerful forces pushing back against the idea that military pay and compensation are unsustainable. The Military Officers Association of America, for example, maintains that pay and compensation represents a historically consistent share of the military budget. MOAA has pushed hard against the idea of capping military pay.

"Congress has closed the gap between private sector and military pay over the last 13 years," the association stated in a Sept. 6, 2013, release. "It put military pay raises into law in 2003 and tied those raises to private sector pay growth, while keeping military personnel costs to one-third of the DOD budget, the same as it's been for the past 30 years."

When other personnel-related expenses such as DOD schools, family housing, and 800,000 civilian employees are factored in, costs rise to roughly half the defense budget. While both these figures have held steady as a portion of DOD's budget, the size of the force has declined 40 percent over the past 25 years.

As one of the top advocacy organizations on Capitol Hill, MOAA has the ear of influential lawmakers such as Rep. Joe Wilson (R-S.C.), chairman of the House Armed Services Committee's military personnel panel. In August, when Obama urged Congress to limit the military pay raise in Fiscal 2014 to one percent, Wilson opposed the idea, calling for an increase of 1.8 percent—above the cost of living increase of about 1.5 percent.

Wilson said in November he would again push for at least a cost of living adjustment for military personnel.

"To me, the law provides for a formula of compensation and we need to follow that," said Wilson in an interview in November. "I really think people need

to look at the numbers. Compensation has not really eaten the budget alive. Percentage-wise, it is really in line. It is very important to me that people who risk their lives for our country domestically or overseas be properly compensated."

The Pentagon is merely doing the bidding of the Obama Administration, which is seeking to slow the growth in pay and benefits, he asserted. "The responsibility and accountability should be that of the Administration," he said.

While Wilson blames the President and Democrats for the pressures on pay and compensation, commissioner Buyer, also a Republican, blames the inflation in pay and benefits since 2005 on congressional Democrats trying to strike a balance between being for the troops but against the wars.

"What was unfortunate [was that pay and benefits] became an instrument of politics, and during the extended war, the percolation of this began to boil in '05, '06, '07, when Democrats took control of Congress, [and] they needed to temper themselves," Buyer said. "They were so anti-war, they were having difficulty saying, 'I'm for the troops, but I'm against the war,' and they sought to prove it by passing so many benefits, lumping one after the other saying, 'See, I love them, I love them, I love them.' It's gotten to the point where we have to sort it out."

Looking at the issue without a partisan focus shows that both Republicans and Democrats were complicit in the growth; pay and benefit increases were passed by bipartisan margins, and members of both parties have similar views about the growth in compensation and benefits.

Bucking the trend of many GOP colleagues, Sen. John McCain (R-Ariz.) in November called for consideration of gradually increasing the number of years before retirement, increasing Tricare fees, and adjusting housing allowances.

McCain said he agreed with former Defense Secretary Robert M. Gates that "these entitlements" are "eating us alive." He later reiterated this in his defense of the retiree cut in the Bipartisan Budget Act, saying, "The dramatic increase in personnel and benefit costs [is] such that we really aren't going to have money left over for the mission, the equipment, and the capabilities" unless something is done. ■

Frank Oliveri, a reporter based in Washington, D.C., covers national defense and foreign policy for Congressional Quarterly. His last article for Air Force Magazine was "New Ground in Avionics" in the November 1994 issue.

By Robert S. Dudley

Slip-Sliding Away

"I'm very concerned about eroding technological superiority and where we're headed. We're cutting our budget substantially while some of the people we worry about are going in the opposite direction. We've had 20 years since the end of the Cold War [and sort] of a presumption in the United States that we are technologically superior militarily. I don't think that that's a safe assumption. In fact, we've gotten complacent about that, and we've been distracted for the last 10 years fighting counterinsurgencies."—*Frank Kendall, undersecretary of defense for acquisition, technology, and logistics, Defense News, Jan. 3.*

Chronicles of Wasted Time

"Soldier builds bin Laden compound replica out of ginger-bread."—*Actual headline, Army Times, Dec. 31.*

Did Someone Say "Vietnam"?

"The Taliban threw a lot at them [the Afghan national security forces]. Some would even say they threw their best at them. And the security forces are still there. The Taliban can't beat them on the battlefield."—*Col. B. J. Fitzpatrick, chief of staff, USMC forces in Helmand Province, on the recent combat performance of Afghan forces, Wall Street Journal, Jan. 2.*

Manned and Unmanned

"EW [electronic warfare] is one of those areas where we are going to see opportunities for unmanned systems, likely in tandem with manned systems. ... For scenarios that pit us against near-peer kinds of adversaries, range and endurance tend to be a premium—especially in the Pacific theater of operations. The distances are very long, and basing is more limited than [in] other places around the world. Systems that provide flexibility in range, flexibility in endurance, generally score pretty high to fulfill capability needs that the combatant commanders have."—*Dyke D. Weatherington, DOD's director of unmanned warfare and ISR, interview with Military.com, Jan. 2.*

We Bet It's "Worst Case"

"You can't predict when those kind of events [e.g., satellite breakups] are

going to happen. It may be that we don't have any major collisions over the next five years, and therefore, it's not a big deal. It may be that we have a bunch of them, and it's going to be a really big deal. ... The worst-case scenario is that it gets a lot more risky and a lot more expensive to operate in some of the most important regions in space."—*Brian Weeden, technical adviser for the Secure World Foundation, referring to the shutdown of part of the US space surveillance network, aljazeera.com, Jan. 2.*

PC Runs Amok

"There is too much focus on social issues in the armed forces, driven by external proponents with special interests, focused agendas, and in many cases, lack of knowledge about the armed forces. ... My greatest concern is the impact on the morale and steadfastness to service among some of the finest and most selfless leaders this nation produces, together with the equally fine young men and women they lead who are barraged with being branded as or tolerating sexual predators or [being] anti-equal opportunity. I cannot help but believe that there is long-term impact on the effectiveness of our armed forces from this in terms of morale, recruiting, retention, and public confidence and support."—*Retired Gen. Carl E. Mundy Jr., former Commandant of the US Marine Corps, Washington Times, Jan. 1.*

Promises Broken

"I'm not an angry man, but I was very, very angry. This is a pact between the greater population of the United States and the fraction of people who served and sacrificed. If you didn't want to pay us what you promised us, then you probably shouldn't have promised it."—*Retired US Army Lt. Col. Stephen Preston, attacking plan to cut retired pay increases for working-age military retirees, Washington Post, Dec. 30.*

Walter Duranty Award ...

"Months of investigation by the *New York Times*, centered on extensive interviews with Libyans in Benghazi who had direct knowledge of the attack there and its context, turned up no evidence that Al Qaeda or other

international terrorist groups had any role in the assault. ... It was fueled in large part by anger at an American-made video denigrating Islam."—*Reporter David D. Kirkpatrick, New York Times, Dec. 28*

... And Another View

"They [Kirkpatrick, et al] didn't talk to people on the ground who were doing the fighting and shooting and the intelligence gathering. ... [T]hat story's just not accurate."—*Rep. Mike Rogers (R-Mich.), House Intelligence Committee, on above-mentioned New York Times report, The Hill, Dec. 29.*

Great Expectations

"Common sense would dictate that, if airmen run across something in their duties that doesn't make sense, then they should suggest better ways to do them. If it's a policy, or a guideline, or an [Air Force Instruction], or a reporting requirement, and you can't figure out why it makes sense to be doing it, then maybe we shouldn't be doing it. ... When your young airmen or NCOs or young officers come to you and say, 'I don't understand why we are doing things this way,' pay attention."—*Gen. Mark A. Welsh III, USAF Chief of Staff, remarks to airmen at Ellsworth AFB, S.D., Nov. 27.*

Being Broke Can Be a Good Thing

"It actually is the first and best sign that the Air Force in particular ... is taking steps toward real reform in [commercial satellite communications] acquisition. ... People are thinking more creatively, and that has a lot to do with the fact that they don't have the money that they did in the past."—*Andrew Ruszkowski of Xtar, a commercial satellite operator, on USAF willingness to put military payloads on "host" commercial spacecraft, Washington Post, Dec. 1.*

Eyes Wide Shut

"Somehow, Obama's nuclear team thinks it can let Iran make nuclear fuel but get others like Saudi Arabia and South Korea to forswear doing so. If so, we're all in for a rude awakening."—*Henry D. Sokolski, executive director of Nonproliferation Policy Education Center, Wall Street Journal, Nov. 29.*

When the Air Force sent two B-2 Spirit bombers on a 37-hour mission from Missouri's Whiteman Air Force Base to the Korean Peninsula last March, anyone with access to Facebook, Twitter, or YouTube had a front-row seat for the impressive display of US airpower.

The sortie arrived in the middle of the United States-South Korea Foal Eagle training exercise—and just as North Korea was touting its own military might.

For their part, military officials have stressed that the unexpected B-2 flight was aimed at assuring allies and partners that the US military can respond rapidly anywhere around the world. But broadcasting the B-2's mission to both friends and foes was clearly a strategic goal of the long-duration bomber flight.

"They dropped ordnance in the Pilsung Range, had ... F-16s join up on them, and [did] a low approach at Osan

[Air Base]," recalled Gen. Herbert J. "Hawk" Carlisle, commander of Pacific Air Forces, during a Sept. 18 Air Force Association forum. "The low approach was on YouTube and on social media within an hour of the event. So we got exactly what we wanted."

From Air Force leadership to the Pentagon's then-Press Secretary George Little to US Pacific Command to the US Embassy in Seoul, mentions of the flight abounded on social media. Most official sources reminded their followers that the B-2 flight demonstrated the United States' commitment to defend South Korea and provide extended deterrence to allies.

Pictures of the stealth bombers, including one of a B-2 being refueled midflight, flooded Twitter feeds while people around the world tweeted and retweeted the B-2s' participation in the annual exercise.

Whiteman's own Facebook entry on the mission, featuring a picture of a

soaring B-2, quickly became one of the base's most popular posts, prompting 233 users to share the image. This in turn drew a legion of new followers to the base's page. On YouTube, a single air traffic control tower video of one of the B-2s flying with fighter escorts over Osan clocked more than 170,000 views. Media outlets in the United States and abroad picked up other footage from the mission, much of it now posted on YouTube.

The rapid and widespread dissemination of images from and information about the mission was not lost on Air Force officials who were eager to spread the word about USAF's ability to rapidly respond anywhere in the world.

The exercise included B-52 bomber sorties out of Guam and F-22 fighters and sent a "strong signal" to allies and North Korea alike about the reach of US airpower, Lt. Gen. James M. Kowalski, then commander of Air Force Global Strike Command, said at the Sept. 18

Stealth Bomber, Public Messages

By Megan Scully

A B-2 bomber mission to the Korean Peninsula was highlighted by USAF's burgeoning social media effort.

forum. “We do it regularly and we do it quite well,” said Kowalski, then serving as commander of Air Force Global Strike Command.

At Whiteman, Capt. John Severns, a spokesman for the 509th Bomb Wing, said the targeted audiences received the message of the flight. “It’s a very fraught part of the world right now, and we just wanted to reassure our allies and demonstrate capabilities,” Severns said. “Facebook was simply a part of that.”

A Strategic Approach

Leveraging social media to publicize military successes is not a new tactic for the Air Force or the other services. In fact, the first widespread efforts to use platforms like Facebook date back to 2007.

But the rapid and targeted succession of images and information dispersed over social media during and after the B-2 mission is indicative of an approach to social media—both within the Air Force

and across the military—that has become far more strategic and sophisticated in recent years.

“The Air Force tries to take a very holistic approach to media,” Severns said. “We recognize the face of media is changing. No longer is it enough to use press releases or base newspapers to reach out to people.”

For the Air Force, efforts to draw an audience on social media extend well beyond the service itself. Indeed, USAF believes most of its followers online are external to the service—families of airmen, retired personnel, hobbyists, enthusiasts, prospective recruits, and other interested members of the general public. The Air Force, in turn, now has a tremendously effective microphone to use for communicating information quickly and directly with this wide-ranging audience.

To date, the service has 464 registered Facebook accounts, 177 registered Twitter accounts, 103 registered YouTube

accounts, and 50 registered Flickr accounts. That doesn’t count thousands of unregistered personal accounts held by airmen, who are encouraged to use social media to tell the Air Force story.

“The main reason we use social media is to educate the public on what the Air Force does, what its missions are, and what the airmen do on a daily basis,” said Tanya Schusler, chief of social media at the Air Force Public Affairs Agency at JBSA-Lackland, Tex. The hope, she said, is to generate more support for the Air Force by better explaining what it does, in all its mission areas.

Schusler’s office manages USAF’s seven official social media sites, including newer platforms such as Vine and Instagram, as well as Facebook, Twitter, Flickr, YouTube, and a blog. With the click of a button, the Air Force can communicate with more than one million people worldwide. The service’s official Facebook page has 1.3 million likes, and its Twitter feed



A B-2 Spirit takes off from Whiteman AFB, Mo. Publicly sending the B-2 to participate in joint training on the Korean Peninsula was a bold and clear message meant for both US allies and potential adversaries such as North Korea.

USAF photo by SSgt. Nick Wilson

has nearly 200,000 followers. Other social media outlets have smaller—but growing—audiences. Those people, in turn, can communicate back directly with the Air Force, a conversation with an interested audience that would have been unfathomable just a decade ago.

At first, the Air Force posted to its various accounts whenever and however officials saw fit. But since Schusler took the job in April 2010, she said she has been working on making the service's approach to social media less ad hoc and far more strategic.

One of her first orders of business was to establish weekly metrics that she and her team could use to judge whether or not they were communicating the Air Force's message effectively. "If something doesn't work this one week, then we're not going to try it again next week," she said. Success isn't necessarily about the number of followers. Rather, higher engagement numbers—i.e., comments, retweets, and views on linked stories—mark a successful post.

Simply "liking" a message is not enough, by Schusler's engagement standards. She wants to ensure the communication is two-sided.

Schusler, whose team goes through all comments on the seven accounts USAF manages, said they "really want to connect with people and answer questions." Aside

AP photo by Shin Young-Keun



North Korean News Agency

from establishing metrics, Schusler began tracking messages to ensure they aligned with the Air Force's own priorities. Another goal, she said, was broadcasting senior leaders' messages.

The Air Force has, over the last several years, become more adept at understanding which content does better on certain platforms. Something that works on Twitter, for instance, may not play well on Facebook.

News stories, for instance, are typically posted on Twitter. Schusler aims to post between five and seven tweets a day. The Air Force, meanwhile, typically posts to the official Facebook page two to three times a day, but those posts usually have a direct engagement angle to them, such as a picture or a question for followers.

Above: A B-2 (r), accompanied by F-16s, flies near Osan AB, South Korea. Left: In an undated file photo, North Korea dictator Kim Jong Un and military leaders watch an air drill. Kim grew increasingly bellicose in early 2013. The US sought to remind North Korea of America's military reach and settled on sending the nuclear capable bombers.

Power Projection on the Korean Peninsula

The B-2 flight that became an Internet sensation was conceived in scenario drills between US Pacific Command and Washington, D.C., this past March, as a way to reassure America's East Asian allies and deter a young dictator.

Last spring, North Korea's leader, Kim Jong Un, began to escalate threats against South Korea and its US allies after conducting a third nuclear test in February and launching a rocket into orbit in December 2012.

By early March, US and Republic of Korea officials were increasingly concerned as Kim announced the unilateral abrogation of the 1953 armistice, and on March 26, North Korea announced its strategic rocket forces were prepared to strike US installations in South Korea, Hawaii, Guam, and the American mainland.

With the 2013 iteration of Exercise Foal Eagle underway, the US sought a way to arrest escalating tensions and demonstrate American reach and military power. Officials began to vet methods to demonstrate a nonconflict show of force—known in military circles as Phase Zero operations.

US Pacific Command “called all the components and said, let's come up with some response options, a variety of response options,” Pacific Air Forces Commander Gen. Herbert J. “Hawk” Carlisle told *Air Force Magazine*. Officials proposed various responses, running from single-service naval and air packages to joint efforts as part of US military maneuvers with ROK forces on the peninsula.

“We went from least overt, least demonstrative, to more demonstrative, and one of the ones we offered and talked about was the demonstration of the global power mission,” Carlisle said. Other forces were available for the task, such as F-22 Raptors flying from Kadena Air Base on Okinawa, and F-16s and other assets were already in South Korea, some participating in Exercise Foal Eagle.

Naval and air forces became the focus of the conversation between Washington, D.C., and PACOM headquarters, as time was an issue and new ground forces would not be in position quickly enough to send the proper power projection message.


“PACOM took options, racked and stacked, and went through the national command authorities,” said Carlisle, with the White House national security staff closely involved in the discussions. “We offered up options, and the one deemed most effective was to have the B-2 show up at Osan [Air Base, South Korea] and not have [the North Koreans] know until the F-16s showed up with them.”

The White House gave the order and on March 28, a pair of B-2s took off from Whiteman AFB, Mo., flying nonstop with aerial tanker support to South Korea.

After the flight, tensions and the North's rhetoric steadily cooled. PACAF officials said the demonstration reinforced the importance of bomber and combat aircraft rotations in theater. PACOM is seeking to expand theater security programs to rotate fighters and bombers in and out of various countries for training events.

The B-2 power projection demonstration effectively sent the message that the US stood with South Korea and had the means to defend it.

—Marc V. Schanz



Schusler links to Air Force blog posts on the Twitter feed, but does not on Facebook because the blog has not resonated with those followers in the same way. “We have to be very aware of what our audience needs,” Schusler said. She knows the audience so well she can now anticipate reactions, both positive and negative, to most posts. Other factors Schusler weighs are the timing of posts—a challenge with followers stretched across every time zone.

“The timing, the amount that we post, that's all strategic,” she stressed.

Across the Force

In addition to managing the Air Force's official pages, Schusler's team provides somewhat ad hoc policy and guidance to public affairs shops at Air Force bases. They monitor other Air Force sites daily, reviewing content and comments to determine what strategies and approaches work best.

If the bases have big news to share, they'll contact Schusler's office. She said she welcomes opportunities to talk to public affairs officials about using

social media and frequently monitors unofficial public affairs Facebook pages and will answer questions posted there.

But each Air Force installation is, essentially, on its own as it navigates social media and figures out how best to communicate with its audience.

Whiteman Air Force Base, for instance, prefers Facebook to Twitter, Severns said. The base now has more than 5,000 followers, many of those coming in the days after the B-2 flight over South Korea.

Other bases, such as Eglin AFB, Fla., Ellsworth AFB, S.D., and Barksdale AFB, La., are beginning to build a following on Twitter. Regardless of their approach, Schusler said installations are getting more creative and sophisticated in how they use social media.

If there is a downside, it may be that its use is so widespread that USAF loses control over the message when airmen post about the service to their personal accounts.

There is, in short, ample opportunity for misinformation to be shared. To combat the problem, the Air Force wrote its first social media handbook. It was first drafted to familiarize airmen with social media. But it has now evolved into tips for best practices—essentially a reference for airmen to appropriately tell their story and maintain professionalism without compromising mission security or breaking the law or Air Force policy.

After all, Schusler said, using social media personally and professionally are two very different things. Having a personal Facebook account does not necessarily make an airman an expert in communicating in a strategic manner on the platform.

The 2013 handbook, available online and now in its fourth edition, still has some basic information, such as how to use hashtags and details on common social media platforms. But it also contains a list of 16 tips, ranging from the obvious, such as not sharing classified information and avoiding offensive posting, to the less obvious, such as “stay in your lane.”

“Discussing issues related to your career field or personal experiences [is] acceptable and encouraged, but you shouldn’t discuss areas of expertise where you have no firsthand, direct experience or knowledge,” the handbook states.

It reiterates to airmen that they are representing the Air Force any time they are using social media and orders them not to use the service’s name to endorse or promote products, political positions, or religious ideologies.

In addition, the guidebook emphasizes the permanency and potential hazards of

USAF photo by SSgt. Nathan Allen



PACAF chief Gen. Hawk Carlisle briefs international representatives at the Asia-Pacific Center for Security Studies in Hawaii. After the March 28, 2013, B-2 flight into South Korea, tensions eased and North Korea’s rhetoric cooled.

posting information online. “What you write may have serious consequences,” according to the handbook. “Once you post something on social media, you can’t ‘get it back.’ Even deleting the post doesn’t mean it’s truly gone. Ultimately, you bear sole responsibility for what you post.”

While the Air Force has evolved the handbook over the years, Schusler said the service nonetheless has to work harder to educate airmen on how to use social media safely. Currently, trainees get a briefing on social media during basic training afterward. One potential approach is computer-based training, but Schusler acknowledged developing this could take some time. The goal would ultimately be to encourage more airmen—not fewer—to use social media.

“We haven’t had many issues, but there’s so much potential for us to get the story out to more people if we could get airmen to be onboard with us,” she said. “Because the everyday things they do at work could help tell the Air Force story and they may or may not see that.”

Not a “Cure-All”

The Air Force has learned several social media lessons over the years, the

primary one being that it is not a complete communications solution for the force.

It’s easy to think posting on social media gets a desired message across. But Schusler stressed that social media requires far more deliberate activity—a fact that has taken some time for the Air Force to learn. It all comes back to considering the needs of the targeted audience, including the time zones they’re in.

“Social media is not a cure-all or a magic wand that can fix everything and get the message out and get you the results you want,” Schusler said. Rather, it is part of a greater, servicewide communications strategy. “It’s not going to solve everything for you,” Schusler said.

Not all information is appropriate for posting on a social media site, such as material intended for an internal audience. Or perhaps the information is something that should just be left on a website without advertising it across other platforms. In some cases, information may not necessarily need to be on the Internet at all. Even in an era where most people are online all day wherever they are, in-person communication is still often the best approach.

“How about just old-fashioned commander-to-airman face-to-face talk?” Schusler quipped. ■

Megan Scully is the defense reporter for Congressional Quarterly’s Roll Call in Washington, D.C., and a contributor to National Journal and Government Executive. Her most recent article for Air Force Magazine, “Lightning Rod on the Hill,” appeared in the October 2013 issue.



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In the Trenches of

CYBER WARFARE

By June L. Kim, Associate Editor

THE most dangerous threat to the United States may no longer come from a physical attack, but a cyber one. Terrorist organizations, criminal masterminds, enemy nation-states, and lone anarchists alike could cripple the United States if they gain access to networks that control power grids, gas and oil pipelines, transportation, banking, and financial systems. They could cause blackouts, flood towns, collapse the US economy, reroute gas and oil away from towns, and plenty more. So said James V. Christy II, until recently the director of futures exploration at the Defense Cyber Crime Center.

America's critical infrastructure is automated and controlled by supervisory controller and data acquisition, or SCADA, systems. Each SCADA system is a centralized computer that monitors, gathers, and processes data and determines

what to do next. "It's not done by a little guy sitting in a room," said Christy during a November interview.

Imagine the Internet as the highway system, he said. The highway can lead anywhere and there are on-ramps and off-ramps that lead to smaller roads, or networks, that lead to homes, or different infrastructures. The SCADA system would be like the security system for one's home, he said.

"If you can get past the lock on the door, you can break into anybody's house," said Christy, and with the Internet "the highway system got you there. ... You could break into the system from anywhere in the world."

The Defense Cyber Crime Center, or DC3, operates under the executive agency of the Secretary of the Air Force with program oversight by the Air Force Office of Special Investigations. Among other functions, DC3 supports the defense industrial base through the defense collab-

orative information sharing environment, or DCISE, and supports law enforcement and counterintelligence organizations through the DC3 Analytic Group.

Private companies and defense contractors can send potential threats they find on their networks to DC3. The center then analyzes the threat, "sanitizes it to just the technology portion," and then shares it with the rest of the members of DCISE, said Christy. "People don't need to know who did it or why did they do it. They just need to know the technology" so they'll know what happened and how to prevent it, he said.

Evolving Threats

Roughly one-third of the center deals with intrusions and national security matters, said the DC3 director, Steven D. Shirley, while two-thirds supports law enforcement and criminal investigations.

"When we receive evidentiary media from [an agency], we track it ... by

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Many fail to appreciate the threats lurking in the cyber realm.



USAF graphic by TSgt. Mark R. Orders-Woempner

assigning it an exam number,” Shirley explained. DC3 then identifies and retrieves relevant information through “a reliable, valid, and repeatable empirical process.” Basically, “others conduct investigations [and] we conduct digital forensic examinations in support of their investigations,” he said.

In Fiscal 2012, the center supported 1,406 exams with 835 terabytes. In Fiscal 2013, DC3 ran 1,399 discrete and separate exams supporting investigations, running up 991 terabytes of data, an increase of 18 percent in data, though reviewing slightly fewer cases.

DC3’s cyber analysts “develop a learning curve on different kinds of threats ... so we have a substantial body of knowledge that we’ve [established],” Shirley said. “But at the same time, we see threats evolve in an increasingly complex and sophisticated, dynamic way.”

During a Senate homeland security and governmental affairs panel hearing on

Nov. 14, FBI Director James B. Comey Jr. admitted that he worries most about terrorism in the form of cyber attacks because it has become a metastasizing threat.

“With respect to cyber, whether by foreign governments or criminals or ‘hacktivists’ or terrorists, attacks on our computers and the systems that connect them have become one of the most serious threats to our nation,” he said. He acknowledged that his predecessor, Robert S. Mueller III, warned him that threats from cyber attacks “would come to eclipse even the threat from foreign terrorism to our homeland” within Comey’s tenure at the FBI.

“I believe that he is accurate in that prediction,” said Comey. “We have connected, all of us, all our lives ... to the Internet, and that’s where the bad guys will go because that’s where our lives are—our money, our secrets, and our intellectual property.”

Christy agreed with Comey’s testimony but articulated that this concern has been around for two decades and nobody’s really listened.

“It may be too late to defend [ourselves],” said Christy. “Before, when the Internet and the World Wide Web [were] just getting started, we could’ve built security into the systems but we didn’t.”

Christy said that it was probably because “nobody takes into consideration the bad people and how they’re going to ... take advantage of that particular tool.”

“We [just build to be] effective and efficient,” he said.

Christy, who retired from DC3 last July, has since started his own consulting firm, the Christy Group, and will be hosting the US Cyber Crime Conference in April.

He ran the DOD Cyber Crime Conference for 12 years, but DOD scrapped the annual event in the wake of scandals involving excessive spending on lavish

conferences at multiple government agencies. So after Christy retired, he moved "to reincarnate that conference as the new US Cyber Crime Conference," he said.

One of the speakers at his upcoming conference will be Travis Reese, the president and chief operating officer of Mandiant, an information security company providing solutions to companies that have been hacked.

In a February 2013 report, Mandiant concluded from its investigations of computer security breaches around the world that the Chinese government likely sponsors advanced persistent threats that originate from within its borders. This was a revised position from what it had written in an earlier report stating that there was no way of determining whether the Chinese government was involved.

In "Exposing One of China's Cyber Espionage Units," Mandiant charged that the People's Liberation Army General Staff Department was aware of the attacks.

Mandiant focused on one particular advanced persistent threat group, saying "it is one of more than 20 APT groups with origins in China."

APT1 is a single organization of operators that has conducted a cyber espionage campaign against a broad range of victims since at least 2006, states the report. It went on to divulge three "personas" associated with the cyber activity: UglyGorilla, DOTA, and SuperHard.

The report grabbed the public's attention but "the government has known [about these attacks] for five to 10 years," said

Christy. Still, he praised Mandiant for publicizing the information and creating awareness around the issue. He added that the government should take a larger role in disseminating this kind of information.

The government needs to change its tactics from merely informing the public after the fact to defending and protecting the public, and the best way to do that is with "some kind of offensive capability," he said. "Obviously they don't believe [cyber] is a big enough threat."

If America were under physical attack, it would defend its citizens, Christy said. But if an enemy comes at the United States virtually, the US doesn't do anything to protect the public, he argued.

The government, however, is showing some new signs of willingness to respond, and in one particular case last summer the government fought back.

Cybercrime Writ Large

Last July, the Department of Justice made public a federal indictment that was called the biggest cybercrime case ever to have been prosecuted in the United States, according to senior threat intelligence analyst Laura Galante. The US Secret Service headed the investigation on four Russians and one Ukrainian who were charged in New Jersey with conspiring in a worldwide hacking and data breach scheme.

"This is a really sophisticated group," said Galante, who works for Mandiant. The hackers stole more than 160 million credit card numbers targeting "corporate

USAF photo by A1C Kale Thornton



A1C Brock Metscher, a cyber systems operations operator, investigates a server configuration at Ellsworth AFB, S.D. Below left: Military members analyze an exercise scenario during Cyber Flag 14-01 in November at Nellis AFB, Nev. Gen. William Shelton, commander of Air Force Space Command, said he plans to commit more than 2,200 airmen to the cyber mission at 24th Air Force.



USAF photo by A1C Christopher Tam

victims engaged in financial transactions, retailers that received and transmitted financial data, and other institutions with information they could exploit for profits," stated a July 25 DOJ release. The security breach was four times larger than the November/December 2013 credit card data theft from Target: stores nationwide.

In the 2009 to 2013 data breach, the hackers attacked NASDAQ, 7-Eleven, Hannaford, JetBlue, Dow Jones, WetSeal, Visa Jordan, Global Payment, and a number of other vastly different companies.

Each member of the group had a specific role in the operation. Two specialized in penetrating network security while another specialized in mining the network. One used anonymous web-hosting services to hide the group's activities, and the fifth sold the stolen information.

Galante told *Air Force Magazine* that this operation "paints a picture of a more enterprise-like operation versus someone just sitting in a basement" and hacking from there.



An Air Force-led Cyber Center

Today's Defense Cyber Crime Center, based in Linthicum, Md., was created in August 1998 as an entity of the US Air Force. The center exists to support the Defense Department's law enforcement agencies and counterintelligence and cyber communities with digital forensics, training, and response to threats.

John J. Hamre, president of the Center for Strategic and International Studies, was deputy secretary of defense in the late 1990s when he authorized Air Force Office of Special Investigations along with the Defense Criminal Investigative Organizations' Enterprise-wide Working Group to create a set of programs. These programs became the Operating Location-Defense Computer Forensics Laboratory. The name changed to the Defense Cyber Crime Center in October 2001.

DC3 boasts of its own Defense Cyber Investigative Training Academy where it trains DOD criminal and counterintelligence investigators to run digital forensics and cyber investigations. It also houses the Defense Computer Forensics Laboratory, the world's largest accredited digital forensics lab, according to James V. Christy II, former director of futures exploration at DC3. More than a hundred examiners at the lab support criminal and counterintelligence investigations for the military's armed services and federal agencies. Criminal investigations can range from homicide, espionage, terrorism, to child pornography, Christy said. "It really runs the gamut."

Another worrisome detail in this case was the length of time the hackers had access to the network. The cyber criminals "had malware implanted on multiple companies' servers for more than a year, and they were waiting for months," Galante said. This "shows that they have the resources, the time, [and] the patience to sit and wait in these environments to get as much as they can out of that targeted incident. They're not just ... grabbing a ton of numbers and leaving; they're doing this to maximize their financial gain."

Despite these mounting attacks in the cyber realm, Christy fears the Air Force is retreating from the cyber mission. Though there have been recent establishments of cyber-related entities, such as US Cyber Command and 24th Air Force-Air Forces Cyber in 2009, the Air Force has to start "cutting things and it appears that cyber is one of those that's going to be under scrutiny." That is especially so when coupled with budget cuts, sequestration, the rising cost of sustaining old aircraft, and the fact that "a lot of folks don't understand" the cyber threats, he said.

Air Force officials assert the service "has been a fully vested partner along with the other services to provide cyber capabilities to the warfighter," said Air Force spokesman Capt. Adam Gregory.

The Air Force works with the Army and Navy to organize, train, and equip personnel for cyberspace operations, and it "will continue to provide cyber capabilities and well-trained airmen to support the joint efforts in cyberspace," Gregory said.

At an Armed Forces Communications and Electronics Association event in December, Gen. William L. Shelton, commander of Air Force Space Command, told audience members he plans to commit more than 2,200 airmen to the cyber mission at 24th Air Force. Shelton also announced that as DOD moves toward a joint information environment, the Air Force has formed a partnership with the Army and Defense Information Systems Agency to consolidate its network security stacks into "joint regional security stacks" by early this year.

These security stacks "are designed to improve command and control and situational awareness, and are essential to enabling a single security architecture in the joint information environment," said Michael E. Krieger, the Army's acting chief information officer, last August.

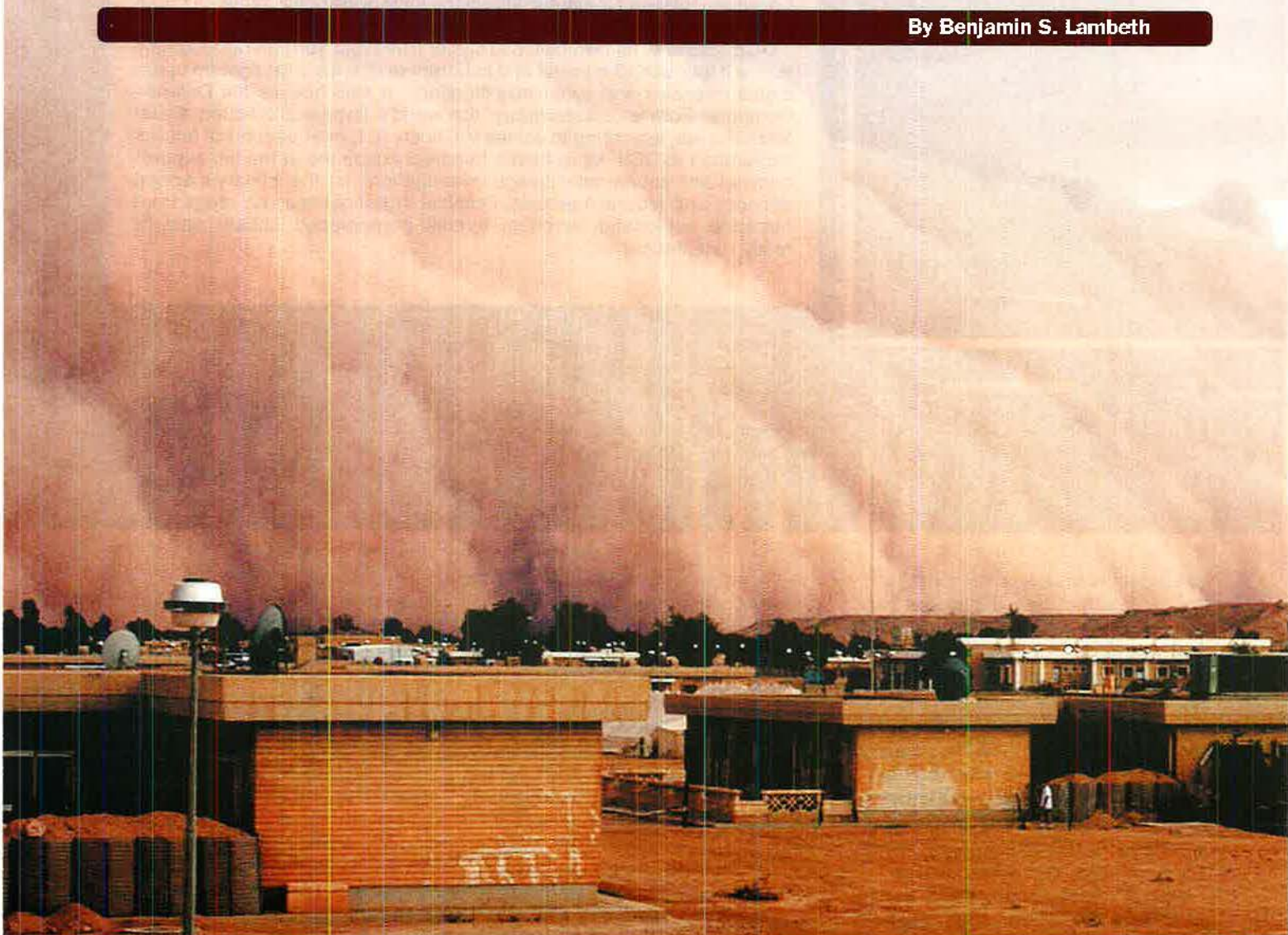
As cyber threats—such as "denial-of-service attacks, malicious code, direct [attacks] on critical infrastructure, and theft of intellectual capital"—grow both in quantity and sophistication, Shelton said the US must "think very deliberately on how to counter these threats and how to ensure cyber mission accomplishment even in the face of attacks."

To effectively counter the myriad threats, the Intelligence Community, State Department, and DOD must use a range of responses and all of the different tools at their disposal, such as diplomatic or economic sanctions or overt and covert military operations.

Just as the government aggressively prevents a nuclear attack from happening, it should put as much effort into cyber, Christy said. ■

AirLand Reversal

By Benjamin S. Lambeth



Airpower has eclipsed land power as the primary means of destroying enemy forces.

LSCM photo by Gunnery Sgt. Shannon Arledge

Here: A dust storm bears down on a military compound in Iraq in 2005. Right: Lt. Gen. Charles Horner (c), then CENTCOM's air component commander, takes notes during Operation Desert Storm.

Since the Cold War's end, the classic roles of airpower and land power have changed places in major combat against modern mechanized opponents. In this role reversal, ground forces have come to do most of the shaping and fixing of enemy forces, while airpower now does most of the actual killing.

Operation Desert Storm in 1991 showcased, for the first time, this departure from past practice between air- and ground-delivered firepower. During the Battle of Khafji in January of that year, coalition air assets singlehandedly shredded two advancing Iraqi armored columns through precision night standoff attacks.

This role shift repeated itself with even greater effectiveness in 2003 during the three-week major combat phase of Operation Iraqi Freedom that ended Iraqi dictator Saddam Hussein's rule.

Modern airpower's achievements in these two high-intensity wars demonstrated that precision air attacks now offer the promise of being the swing factor for victory in an ever-widening variety of theater war scenarios. The primary role of US land power may now be increasingly to secure a win against organized enemy forces rather than to achieve it.

In organizing their response to Hussein's forceful seizure of Kuwait in 1990, the leaders of US Central Command aimed to destroy as many of Iraq's armored forces from the air as possible before launching any land invasion to drive out the occupying enemy troops. It remained unclear, however, how effective allied airpower would be under this approach until they actually executed the air campaign.

Three factors came together to enable allied airpower to draw down Iraqi forces to a point where allied ground troops could advance in confidence that they would be engaging a badly degraded opponent once the ground offensive began. First, allied aircraft were able to operate at will in the medium-altitude environment,

unmolested by Iraqi radar guided surface-to-air missiles or fighters, thanks to an earlier US air defense suppression campaign.

Second, the introduction of the E-8C JSTARS aircraft permitted allied air planners to see and identify fixed and moving objects on the battlefield clearly enough to make informed force commitment decisions and to execute lethal attacks day or night. Third, allied planners discovered during the campaign's initial preparation phase that aircraft equipped with infrared sensors and armed with laser guided bombs could find and destroy dug-in enemy tanks one by one in large numbers at night.

Airpower Over Khafji

As the air war's successes continued to mount over time, Hussein made a desperate attempt at an asymmetric response on the ground, evidently hoping to draw allied forces into a slugfest that would result in high numbers of US casualties and sway American opinion against the war.

Twelve days into the fighting, on Jan. 29, 1991, he launched an attack from southeastern Kuwait toward Saudi Arabia aimed at the abandoned coastal town of Khafji. Soon thereafter, allied sensors detected a second wave of Iraqi columns forming up in Kuwait to reinforce those that had initially attacked.

Upon learning of the Iraqi troop activity, CENTCOM's air component commander, Lt. Gen. Charles A. Horner, saw an opportunity to engage the Iraqi column before it made contact with allied ground forces. By diverting coalition aircraft from their original taskings, he committed more than 140 airplanes against the advancing column, which consisted of battalion-sized units from two armored divisions.

The ensuing air attacks continued throughout the night and well into the next day before the battle was over. The Iraqi forces never had a chance to mass and attack: After the dust settled, coalition



airpower had completely debilitated the advancing Iraqi column, forcing the survivors into retreat.

In all, 357 tanks, 147 armored personnel carriers, and 89 mobile artillery pieces were destroyed in the air attacks, along with additional items of equipment in Republican Guard units farther north.

An Iraqi who had fought in the earlier Iran-Iraq War later remarked that his brigade had sustained more punishment from allied airpower in 30 minutes at Khafji than in eight years of fighting against Iran.

Not long after the showdown at Khafji, F-111Fs equipped with Pavé Tack infrared targeting pods attacked enemy armor in the Kuwaiti theater, using 500-pound GBU-12 laser guided bombs. Because this tactic was reminiscent of taking potshots at tin cans with air rifles, F-111 aircrews dubbed it "tank plinking."

The impact of this new tactic on classic ground force survival assumptions was profound. Many Iraqi crews simply abandoned their tanks once it became clear the tanks could turn into LGB magnets at any moment—without warning. By some accounts, it allowed for a peak kill rate well into the hundreds per night, and allied air success remained in that range for several nights in a row.

In previous wars, such targets would have been relatively unthreatened by air attack.

Given the unprecedented effectiveness of allied airpower in counterland operations, there was almost never any need for true close air support in Desert Storm. Even Marine Corps aviation, whose principal purpose is to support embattled marines on the ground, had little occasion or opportunity to fulfill that once-classic function.

Although some 70 percent of all marine combat sorties flown in Desert Storm were logged as CAS missions, subsequent analysis indicated that only 14 percent of those were flown inside the fire support coordination line, the boundary established by the ground commander to coordinate friendly fire. An even smaller number went against enemy targets in anything like close proximity to friendly forces.

For more than a month, allied airpower relentlessly decimated Iraq's fielded ground troops. Airpower allowed advancing allied ground units to complete a virtually bloodless liberation of Kuwait in a mere 100-hour rout of Iraq's occupying forces. The aerial assault continued in conjunction with allied ground units during the campaign's final four days. All told, there were only 148 fatalities among US service personnel as a direct result of enemy action during the entire five-week conflict.

Desert Storm represented an unprecedented airpower achievement. The Iraqis knew a fight was coming, but allied airpower pummeled them to the point that they were surrendering en masse, even by waving white flags to remotely piloted aircraft.

How It Might Have Been

On balance, the precision air attacks that JSTARS and other systems made possible during Desert Storm put hostile armies on notice that they could no longer expect a night sanctuary or any place to hide. They also served notice that any attempt to move, day or night, would equally ensure a swift and lethal aerial attack. In doing so, the events at Khafji and afterward presaged a new role for airpower in saving friendly lives by substituting precision air attacks for ground forces within reach of enemy fire.

In the subsequent case of NATO's air war for Kosovo in 1999, the absence of allied ground combat units showed once again, this time by default, how land forces can help airpower to deliver to its fullest potential.

Viewed in hindsight, NATO's decision to undertake Operation Allied Force without an accompanying ground threat let the troops of Serbia's 3rd Army elude allied airpower, by and large, by dispersing and hiding rather than bunching up in defensive anticipation of a land invasion.

Had Serbia believed that it faced an imminent NATO ground invasion of Kosovo, or had there been even a credible threat of invasion, Serbia would have been forced to concentrate and maneuver its troops in ways that would have made it easier for NATO to find, attack, and destroy them from the air.

As for the oft-noted concern over the prospect of sustaining an unbearable level of friendly casualties had NATO opted to back up its air war with a ground element, there most likely would have been no need actually to commit NATO troops to battle in the end. The mere deployment of NATO ground troops along the Albanian and Macedonian borders would have made their Serbian counterparts more easily targetable by allied airpower. It also might have helped to deter, or at least lessen, the ethnic cleansing of Kosovar Albanians by giving Serbian troops something more serious to worry about. In both cases, there may have been a quicker end to the war.

Back in Iraq

As in Desert Storm more than a decade before, a similar reversal in roles between allied air and land forces occurred during the major combat phase of Iraqi Freedom that began on March 20, 2003, and lasted into mid-April.

DOO photo



CENTCOM's strategy from the start was to disable as many enemy ground forces as possible from the air before sending allied troops into direct contact with them in a pitched battle for Baghdad.

Airpower performed especially effectively in fighting south of Baghdad near Najaf that was reminiscent of 1991's Battle of Khafji. Remotely piloted aircraft and JSTARS platforms detected a formation of Iraqi tanks and other vehicles moving into position to attack US ground forces. A well-aimed barrage of satellite-aided 1,000-pound GBU-31 Joint Direct Attack Munitions delivered by allied aircraft destroyed some 30 of

US Army photo





Amn. Jerry Herron (l) and SrA. Jason Chaffin prepare to load the cannon of an A-10 with 30 mm armor piercing ammunition at Aviano AB, Italy, in 1999 prior to an Operation Allied Force mission.

the armored vehicles and broke up the remainder of the formation before it could get underway.

By the end of the campaign's fifth day, a heavy sandstorm slowed the northward pace of allied ground units substantially once they had advanced beyond Najaf and begun to encounter increased resistance. The sandstorm effectively grounded Army and Marine Corps attack helicopters, rendering coalition fixed wing aircraft the only platforms that could deliver air support to allied ground troops who were sometimes surrounded by the enemy in close proximity.

In Desert Storm, allied air attacks focused increasingly on tank plinking. This time the

mission presented a greater targeting challenge. The Iraqis, having learned from the Serb experience in Kosovo, did not array their tanks in battle formation, but instead dispersed them under trees and in the farming villages of the Euphrates River valley. Once directly threatened by advancing allied ground troops, however, those tanks were forced to move into more concentrated defensive positions, thereby rendering them more vulnerable to air attack.

As Iraqi tank columns sought to move under what their commanders wrongly presumed would be the protective cover of the sandstorm, allied air strikes disabled a convoy of several hundred armored

vehicles believed to be ferrying troops of the Medina Division toward forward elements of the Army's 3rd Infantry Division encamped near Karbala, about 50 miles south of Baghdad. As the Air Force Chief of Staff at the time, Gen. John P. Jumper, later put it, "We killed a lot of those guys, that equipment, during the sandstorm when those people assumed that because they couldn't see 10 feet in front of their face, neither could we."

In the end, coalition ground troops made it to Baghdad and toppled Hussein's regime from a standing start in Kuwait in just 21 days. The effect of allied air operations was to facilitate the quickest possible capture of Baghdad without any major head-to-head battles between allied and Iraqi ground forces.

In fulfilling its assigned roster of combat tasks, allied airpower did not just "support" CENTCOM's land component by "softening up" enemy troop concentrations. More often than not, it conducted wholesale destruction of Iraqi ground forces prior to and independently of allied ground action.

Thanks largely to the sustained contribution by fixed wing air assets, only about a dozen Iraqi tanks opposed the 3rd ID during the final battle for Baghdad. Abrams tanks quickly put them out of action in the only traditional tank-on-tank encounter of the entire war.

In clear testimony to this indispensable enabling performance by CENTCOM's air component in the counterland war, a post-campaign assessment noted how "captured senior Iraqi general staff officers reported that the fighting effectiveness of the Republican Guard divisions had been largely destroyed by air strikes." Essentially bearing out this observation, Col. William Grimsley, commander of the 1st Brigade of the 3rd ID, recalled: "We never really found any cohesive unit of any brigade, of any Republican Guard division."

AirLand Warfare's New Face

Iraqi soldiers interrogated by their US captors during and after the campaign admitted their morale quickly collapsed once their armored vehicles began exploding all around them in the midst of the blinding three-day sandstorm. In most cases,

An Iraqi T-72 Main Battle Tank, destroyed by Allied airpower, slumps aside a road leading to Al Iskandariyah, Iraq, during Operation Iraqi Freedom.





USAF photo by SSGT. Robert Barney

A1C Brian Adkins secures a GBU-38 Joint Direct Attack Munition to an MJ-40 bomb lift truck operated by SrA. Adam Weaver in Southwest Asia in 2009. The JDAM is then loaded onto a B-1B for a sortie.

JSTARS crews detected and fixed the locations of those vehicles through the weather and were able to cue pilots in strike aircraft to confirm the locations and types of enemy vehicles and then to attack and destroy them on a major scale.

As with Desert Storm, Iraqi Freedom showed how aerial counterland attacks have increasingly begun to move doctrinally beyond solely the classic supporting roles of close air support and air interdiction. These attack missions have evolved into destroying the enemy's army independently of the ground commander's scheme of maneuver.

The reversal of roles between US and allied air and land forces in major combat reflects a newly emergent fact that fixed wing airpower, at long last, has become more effective than its ground counterparts in creating the conditions needed for rapid success on the ground.

This pattern of force employment has entailed a fundamental departure from the more familiar apportionment of roles in earlier cases of air-land warfare, in which air forces did the fixing of enemy troop concentrations with indirect fire and ground forces did most of the subsequent killing by means of organic direct fire.

In the most telling testimony to this change, throughout the three weeks of major combat in Iraqi Freedom, the Army's V Corps launched only two deep-attack attempts with AH-64 Apache attack helicopters. The first attack came close to ending in disaster, and the second achieved only modest success. Similarly, Army artillery units expended only 414 of their longest-range battlefield tactical missiles, primarily because of the wide-area destructive effects of those weapons and their prospects of causing unacceptable collateral damage.

In sharp contrast, coalition forces in the same three weeks generated more than 20,000 strike sorties enabled by a force of 735 fighters and 51 heavy bombers. In all, those aircraft accurately struck more than 15,000 target aimpoints in direct and effective support of the allied land offensive.

This evolution of joint warfare has not been simply a matter of the notional "hammer" of friendly airpower smashing enemy forces against the "anvil" of friendly ground power. Rather, as RAND's David E. Johnson explained in his study published in 2006, "Learning Large Lessons," it has entailed "a case of ground power flushing the enemy, allowing airpower to maul his forces, with ground power finishing the fight against the remnants and controlling the ground dimension in the aftermath of combat."

In light of this recent experience, it's fair to say that evolved

airpower has fundamentally changed the way the United States and its closest partners might best fight future large-scale engagements. That's because airpower now has the ability to carry out functions that ground force elements traditionally performed at greater cost and risk—and with less efficiency.

Most notable in this regard is modern airpower's now well-demonstrated ability to neutralize an enemy's army while incurring a minimum of friendly casualties and to establish the conditions for achieving strategic goals almost from the outset of fighting. Reduced to basics, modern airpower now allows friendly ground commanders both freedom from attack and freedom to attack, something fundamentally new in the last two decades.

This reality has been repeatedly affirmed by America's combat experiences in both Iraq and Afghanistan since 2003. It in no way vitiates the enduring truth that only well-armed ground forces can consolidate a joint force victory should an enemy refuse to yield in the face of withering air attacks.

Yet a quantum breakthrough has occurred in modern airpower's effectiveness when compared to the leverage of more traditional ground forces. That breakthrough has been a direct consequence of US asymmetric advantages in battlespace awareness and standoff precision strike capability. They now allow America's leaders, when necessary, to project US power without simultaneously projecting US vulnerabilities.

These unique advantages warrant preserving despite the past decade's predominance of low-intensity conflict, since they continue to disincline any nation from challenging the US and its allies with major conventional ground action, anywhere in the world. ■

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Air Interdiction

By Phillip S. Mellinger

The mission began in World War I and has been employed with varying success but increasing importance.



The F-111 was an effective tool for interdiction in the 1991 Gulf War.

USAF photo by SSgt. Dawn Namer

The interruption, delay, or destruction by air of enemy forces and supplies approaching the battle area is termed air interdiction (AI), a core mission of air forces since World War I. Ground commanders usually assume that a land battle is imminent, and air interdiction is designed to either prevent that battle altogether or lower its threat to friendly forces by shaping or isolating the battlefield.

During World War I, all belligerents saw the advisability of interdiction, and special types of aircraft and tactics were devised to accomplish this important but dangerous mission. At St. Mihiel, France, Brig. Gen. William "Billy" Mitchell commanded more than 1,400 aircraft whose mission was to gain air superiority and then interdict German reinforcements. If this were done, the chances of an Allied breakthrough on the ground would be greatly enhanced. This was achieved.

In 1918 the British established an "Independent Force" under the command of Maj. Gen. Hugh M. Trenchard, who used his air assets primarily for interdiction. His aircraft bombed German airfields to gain air superiority by either destroying the enemy air fleet on the ground or preventing it from taking off. Other targets struck included rail lines and marshaling yards.

Between the wars, Trenchard and Mitchell gravitated toward a theory of strategic bombing, but the vital air interdiction mission was never abandoned.

One RAF officer, Wing Cmdr. John C. Slessor, studied the problem closely. In 1936, he posited a major land campaign on the European continent, as in the first World War. In such an event, he wrote, "valuable results may be achieved by carefully organized attack on the enemy system of supply, maintenance, and transportation. The more highly organized the enemy is, the more vulnerable will he be to actual interference with his supply."

Slessor assumed the German army would be highly mechanized and therefore demand continuous resupply to feed its appetite. The more goods flowing to the battlefield, the more targets to attack and the more effective interdiction would be.

There were numerous AI campaigns in World War II. One of these occurred in Italy during spring 1944. The Allies had launched a major offensive against German lines, and airmen proposed a campaign, Operation Strangle, to isolate



The hulks of Iraqi tanks, trucks, and personnel carriers litter a road in Iraq during Operation Desert Storm. Of the 40,000 sorties flown by coalition airpower during Desert Storm, 38,000 were deemed air interdiction.

the battlefield by cutting enemy supply lines to northern Italy and Germany.

Italy

The question of what to target to achieve this goal was problematic. Should airpower focus on the forces moving toward the front—men and equipment—or concentrate on supplies? A third alternative was to destroy the mobility infrastructure, thus inhibiting movement of both forces and supplies.

In Strangle, air leaders elected to focus on supplies, leading to the next question of how best to disrupt its flow. Railroads were an obvious choice, but even here debate arose over whether the most lucrative rail targets were the trains themselves, marshaling yards, or key choke points such as rail bridges. The other main supply line target was the roads that carried hundreds of trucks and other vehicles. Air planners decided on hitting the roads and marshaling yards.

Studies after the operation revealed surprises. The airmen had hoped to cut off supplies to the German army, causing them to retreat or cease offensive operations. This did not occur, but other unexpected effects proved valuable. The German army was noted for its ability to strike quickly, withdraw, and then attack again elsewhere, and Strangle prevented this level of mobility.

Air interdiction played havoc with German plans and timetables, forcing the employment of large numbers of personnel to repair the extensive damage caused by aircraft to roads, bridges, and rail yards. Another lesson of Strangle was

the importance of intelligence—both in determining what routes were used most extensively and to ascertain the effects of the air strikes themselves. This last function, today termed bomb damage assessment, would prove a difficult nut to crack.

These lessons were useful in the planning and conduct of another major AI campaign: the preparation for the D-Day invasion of Normandy.

Normandy

Debate took place again among air

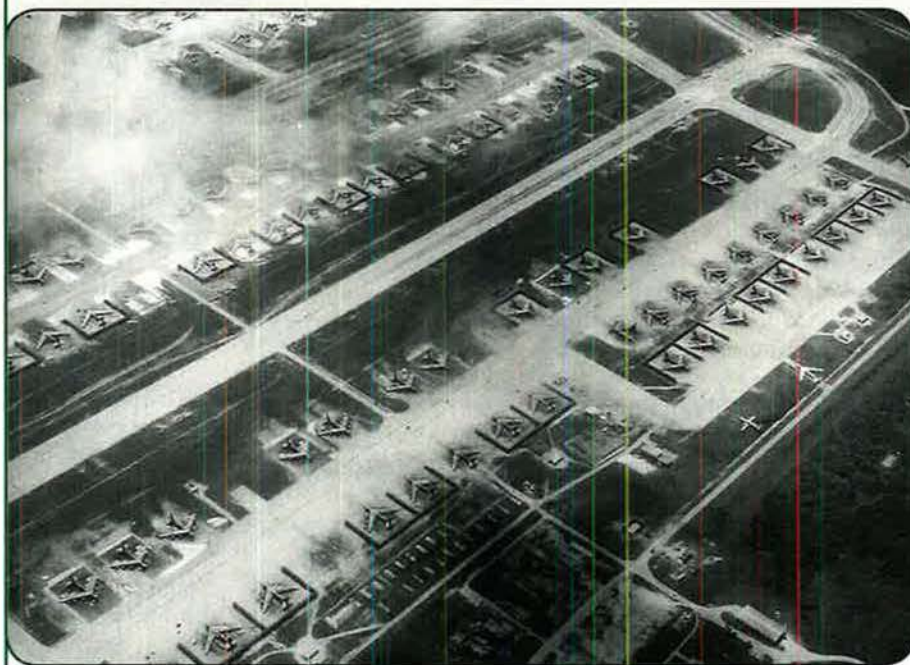
planners, over the best targets to strike to ensure the success of the invasion. Some, notably Gen. Carl A. “Tooney” Spaatz, pushed for a focus on oil, arguing that all vehicles ran on gasoline, so the elimination of this vital resource would prevent German reinforcement of the beachhead.

The Supreme Allied Commander, Gen. Dwight D. Eisenhower, rejected this idea, arguing that the oil campaign’s effects would be important but too long-range. He wanted something more immediate. The alternative was the transportation plan.

As in Italy, questions arose on how best to disrupt German resupply to Normandy. Planners decided on the destruction of bridges to prevent the movement of trains and trucks.

This transportation plan seriously interfered with German reinforcements to Normandy. All bridges on the Seine river south of Paris were destroyed before D-Day, and rail traffic in France declined by 70 percent. Attacking train repair facilities then made it impossible to fix damaged locomotives. As a result, three German divisions within a day’s march of the beachhead were delayed up to four days with a heavy loss of equipment—especially fuel trucks crucial to German mobility.

The commander of the Panzer Lehr division later stated that by the end of the first day of travel, air attacks had knocked out 40 of his fuel trucks and 90 others, five tanks, and 84 half-tracks and artillery pieces. Two weeks following the landings, the Germans had only moved five armored



USAF photo

B-52s at Andersen AFB, Guam, during preparations for Operation Linebacker II. Although air interdiction missions were successful in destroying much of North Vietnam’s mobility infrastructure—such as rail yards—they were not as successful in halting the movement of supplies by the Viet Cong.

divisions into the area. Air interdiction decisively solidified the beachhead.

Korea

When the Korean War broke out in 1950, interdiction's importance came to the forefront once again. During the North Korean drive south, pushing UN forces into the Pusan Perimeter, airpower was used both to pound enemy positions at the front but also to attack their supply lines stretching back into North Korea. After the Chinese intervention in November, this dual tasking resumed. Once the situation stabilized, AI came to the fore. Could airpower so disrupt the flow of reinforcements and supply to the front that Chinese offensive operations would become impossible? As in Italy, the name given to the air interdiction campaign of 1951 was Strangle.

The commander of Far East Air Forces, Lt. Gen. Otto Paul Weyland, was a tactical airman with an outstanding reputation. He argued strongly for interdiction over close air support, stating the most effective way to prevent enemy supplies from reaching the front was to hit them as far back as possible.

Weyland likened CAS to attempting to dam a river at the bottom of a waterfall. Wiping out the trains and trucks carrying supplies to the Chinese would be far more economical of American lives than would allowing a reinforced and resupplied enemy to engage with our troops and then only using airpower in close support.

As in World War II, AI was never able to completely dry up enemy supplies and reinforcements, but it was able to severely curtail their delivery. Strangle in Korea reprised an issue noticed in the previous war: Too often American planners assumed the enemy would need as much supply tonnage as would a typical US division. In fact, the Germans had gotten by with half the supplies needed by the US Army. The Chinese were even more frugal.

US planners did not learn. Vietnam would prove that AI operations grossly overestimated the needs of the Viet Cong and North Vietnamese while simultaneously exaggerating the effect air attack had on the flow of supplies and reinforcements.

Vietnam

The Rolling Thunder air campaign against North Vietnam lasted from 1965 to 1968. It was an interdiction campaign: Approximately 90 percent of all targets struck were transportation targets, and most of those were located south of the 20th parallel—well below the industrial and transportation centers of Hanoi and



AAF photo

B-17s during a raid over Stuttgart, Germany, in 1943. The effects of air interdiction forced Germany to divert large groups of personnel to repairing the damage to rail yards, roads, and bridges.

Haiphong. The latter, North Vietnam's major seaport through which it received 85 percent of all supplies, was not closed by mining until 1972. Supplies could not, therefore, be halted near their source. Both cities were usually off-limits to US aircraft and restricted zones were placed around them—up to 30 miles for Hanoi and 10 miles for Haiphong.

In mid- to late 1964 the Joint Chiefs of Staff proposed a series of air strikes against 94 key targets in North Vietnam to be conducted over 16 days. These plans were rejected. Most of the 94 targets were eventually hit, but they were struck over a period of three years, not the 16 days called for by the JCS. Instead, each day US aircraft would head north to strike bridges, road intersections, and especially the Ho Chi Minh Trail, snaking through Laos and delivering supplies to the Viet Cong in South Vietnam. These air missions did little to slow down enemy operations.

A major problem was the practice of counting things and mistaking that for effectiveness. After the Linebacker II strikes of December 1972, the Air Force stated that North Vietnamese rail yards had suffered the greatest amount of damage of all the targets struck: "A damage level of 60 percent or better was achieved against two-thirds of [the railroad yard] targets which were the most important rail facilities, other than bridges, in North Vietnam." USAF also noted, however, that earlier air strikes had driven rail traffic to the roads. What was the effect desired: to limit movement of military supplies or

simply to destroy marshaling yards and rolling stock? If the former, then the air strikes were ineffective, regardless of the amount of damage allegedly produced.

The core issue, as it had been in World War II, revolved around measures of effectiveness: What defined success? The US goal was to defeat the Viet Cong and dry up their supply of troops, ammunition, and equipment from the north. This was never done.

Desert Storm and After

By the 1991 Gulf War, airmen had thought through the problems experienced in earlier interdiction campaigns. Analysis of prospective target sets—and measuring the effect of their neutralization—was an increasingly scientific and accurate endeavor.

More than 40,000 strike sorties were flown by coalition airpower in Desert Storm—more than 38,000 were labeled AI, and nearly 80 percent of those were flown against bridges, rail lines, road junctions, and supply convoys. These strikes proved extremely successful. It was the intent of Gen. H. Norman Schwarzkopf for airpower to reduce all frontline Iraqi divisions below 50 percent before a major ground offensive would begin.

Not only was that requirement met, but some 80,000 Iraqi soldiers fled the battlefield and more than 86,000 additional surrendered virtually without a fight. The Iraqi army had been cut off from supplies, reinforcements, and effective communications with military leaders and Saddam

Hussein in Baghdad. Interdiction was incredibly effective. On the so-called "Highway of Death" leading north out of Kuwait City, for example, 1,400 vehicles were disabled by air.

In most of the operations involving the US since 1991, significant numbers of American ground troops have seldom been employed. This situation raises questions as to whether air strikes can truly be classified as AI—even though they were listed as such on the daily air tasking order. Nonetheless, air operations that struck enemy forces, supply convoys, and transportation infrastructure were enormously successful in Bosnia, Kosovo/Serbia, Afghanistan, and in Iraq in 2003 and the years following. Several factors were key to making these operations effective.

Factors in AI Success

When reviewing interdiction campaigns, several lessons and trends become obvious. First, air superiority is essential. The US has come to expect this condition, but without it air operations such as AI, CAS, ISR, airlift, and air refueling become difficult if not impossible. If these other essential air missions cannot be conducted, the joint force loses.

The air planner must decide the goals of the AI campaign—and more specifically, whether the main targets should be supply lines, military forces themselves or the mobility infrastructure. Each enemy and each situation is different.

- In Italy the supply lines, especially bottlenecks in mountain passes, were the most lucrative targets.

- Endless attacks against supply routes along the Ho Chi Minh Trail over several years had little effect on Viet Cong operations.

- Force interdiction—destroying enemy columns, gun emplacements, or the troops themselves—was very effective in Korea and Iraq.

To make this targeting decision sensibly, air planners must have timely and accurate intelligence regarding the enemy's supply situation, dispositions, and plans. Sound intelligence enables effective targeting. In addition, effective BDA must be conducted after each attack to determine if the target was indeed neutralized. More importantly, analysis must uncover if neutralization produced the effect desired.

Destruction does not equal success. Too often analysts have taken to counting things—bomb tonnage, sorties, vehicles demolished—and mistaken this for effectiveness. The two are fundamentally different. At times, enormous destruction can have little or no effect on the enemy

if those things destroyed are not essential. Conversely, a few well-placed bombs can have disproportionate effects. Slessor used the analogy of a person's windpipe: It isn't necessary to sever it, simply interrupt the flow temporarily to achieve incapacitation.

Associated with this assessment function, intelligence must study closely and objectively the enemy's system. Too often, an air planner with insufficient knowledge of the enemy will assume systems and networks operate similar to his own. Such mirror-imaging is almost always erroneous.

Air planners in both Strangle campaigns grossly overestimated the amount of supplies needed to keep a German or Chinese division supplied each day. These arbitrary figures were based on what an American division required. However, adversaries of the US are seldom as profligate as US troops are and usually require far less to sustain them. This problem became even more glaring in Vietnam when intelligence estimates regarding what the NVA or Viet Cong required were off by an even greater degree.

Centralized control of the AI campaign is essential to ensure targets are struck effectively and efficiently. During both the Korean and Vietnam wars, there was no single air commander in charge. This resulted in the Air Force and Navy-Marines conducting separate campaigns without centralized guidance. In Vietnam's aftermath, joint doctrine belatedly introduced the position of the joint force air component commander whose mission was to rationalize and orchestrate all air operations to better achieve the goals of the joint force commander.

Air operations must be coordinated with ground operations. An army expends far more supplies—especially fuel and ammunition—when it is fighting. The ground commander must push the enemy to make him move and fight. This will not only expend his stocks—worsening sustainment problems—but will also expose enemy forces to air attack. If this double blast can be achieved, the enemy will lose strength quickly while also having fewer resources available. This symbiotic relationship was identified by Slessor in the 1930s, which is why he called for coequal air and ground commanders, collocated, who could plan their joint operations to achieve synergistic effects.

The advent of precision guided munitions, or PGMs, has enormously enhanced interdiction's effectiveness. Weather and nighttime, usually lessening accuracy while also granting the enemy a sanctuary, have been all but removed as problems

by radar, lasers, and GPS. Precision weapons give AI a gratifying "twofer": Less ordnance and therefore fewer sorties are required to knock out a target—and accuracy ensures low collateral damage. Combine accuracy with instantaneous communications relay and near-real time intelligence, and interdiction targets are now struck with an accuracy and rapidity previously impossible.

Even so, "pop-up" targets remain a concern. Fleeting targets, such as a terrorist leader traveling by car or a truck carrying enemy weapons, may allow only a short window for an air controller to react. He must identify the target; determine its exact location and, if possible, its destination; check the area for civilian personnel and structures that could become collateral damage in the event of a strike; and then identify an available shooter and put him over the target, ensuring the target will be destroyed before it has a chance to reach a safe location. It is a tall order.

Sufficient assets in aircraft, weapons, and personnel must be allocated to the AI campaign. In World War I, there were never enough air assets to ensure success. Part of the reason for this was the great inaccuracy of early weapons.

This was demonstrated during the Vietnam War when aircraft armed with unguided iron bombs attempted to knock out the Thanh Hoa bridge. In April 1965, 94 F-105s attacked the bridge unsuccessfully, with the loss of five aircraft. In May 1972, the bridge was struck heavily by 14 F-4s carrying laser guided bombs. No aircraft were lost. Follow-on attacks would destroy it. Most targets will need to be reattacked if they have been repaired after an air strike. Persistence is essential.

The air interdiction mission was identified as early as World War I, and it has steadily increased in importance. The goal of AI is to prevent the enemy from coming into contact with friendly forces, but if this is impossible, then the enemy should arrive at the battle late, fatigued, hungry, and low on ammunition. This enables military operations with as low a cost in blood and treasure—to both sides—as possible. Air interdiction, combined with PGMs, accurate and timely intelligence, and instantaneous command and control, reduces the cost of military success for all parties. ■

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Lady Be Good

By John Lowery

The B-24 crew broke all records for human endurance without water, food, or shelter—but died before escaping the Sahara.

A World War II mystery began to unravel in May 1958. British geologist Ronald G. MacLean of D'Arcy Exploration Co., flying in a DC-3 and carrying out an aerial survey in the hardpan of the Libyan Sahara, spotted the wreckage of a B-24. It had bellied-in to the sand about 440 miles southeast of Benghazi and 59 miles from the Egyptian border.

It was *Lady Be Good*, which had been based at a hastily built desert airstrip in Soluch, Libya, about 34 miles southeast of Benghazi. The bomber had disappeared April 4, 1943, while making what was for the aircraft and crew of nine its first—and last—combat mission of the war.

Due to the undercast on that stormy night, the green crew made a gross navigational error; it missed home base and flew two hours deep into the Sahara desert.

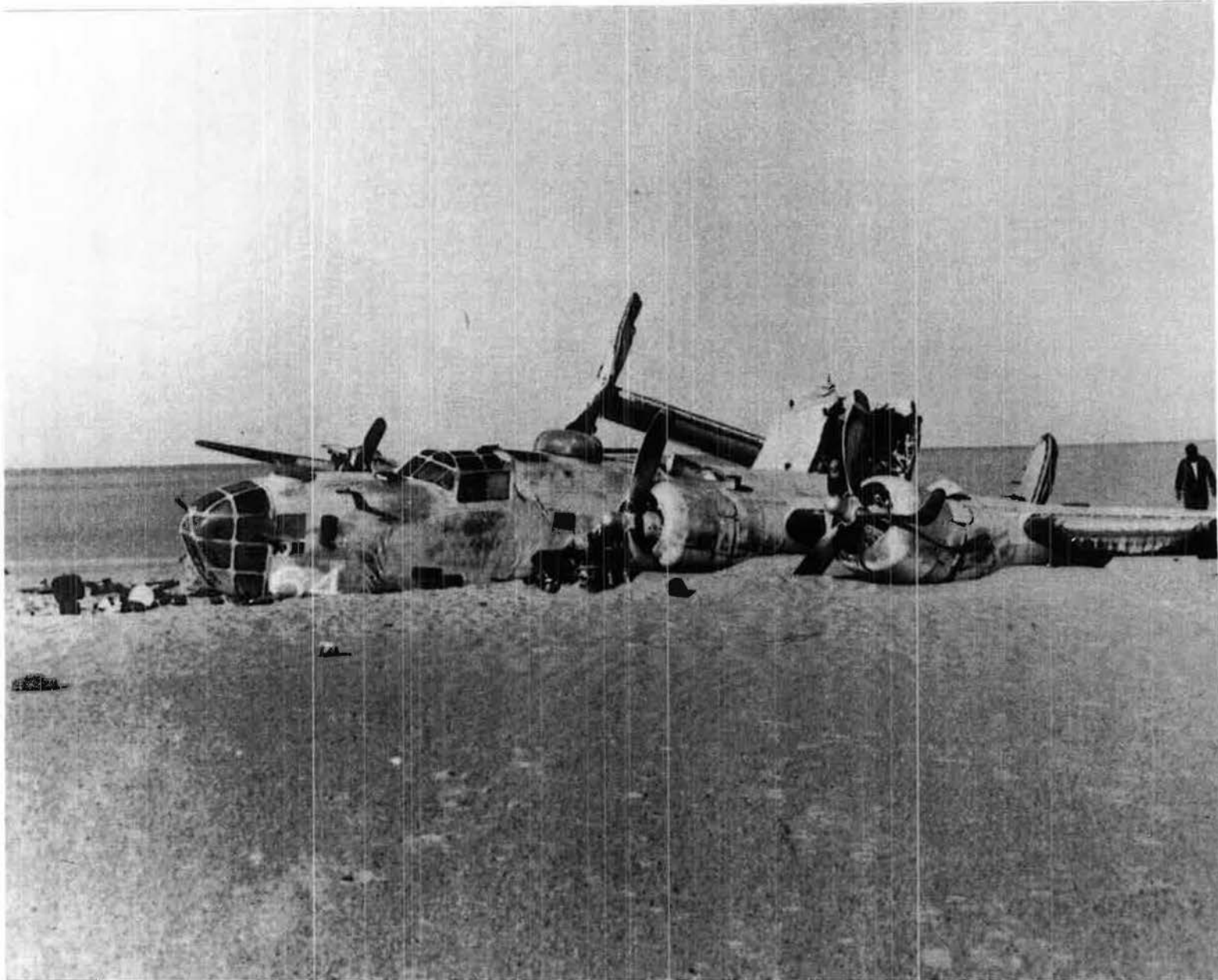
The British surveyors quickly reported their find to authorities at the US Air Force's Wheelus AB, Libya. Nine months later, in February 1959, three D'Arcy geologists drove through the desert to the wreck and found the airplane in remarkably good shape.

However, there were no obvious clues as to the fate of the airmen who had gone missing more than 15 years before.



Lady Be Good was discovered in 1958 by British geologists conducting an aerial survey.

Photo via John Lowery



An examination of Lady Be Good's wreckage revealed a thermos containing still drinkable coffee, a complete desert survival kit, and machine guns that still worked. Right: An aerial photo of the Libyan Sand Sea of Calanscio.

The Search

In the summer and fall of 1959, Air Force and Army mortuary teams began an exhaustive search for the crew's remains. The bomber had crash-landed on the gravel plain located within the Sand Sea of Calanscio. The teams determined that as fuel began to run out, each propeller had been feathered in turn, until only the No. 4 engine was still running. With the aircraft carefully trimmed, the crew had bailed out, and the pilotless bomber had made a wings-level crash-landing in the desert, coming to rest in a near-level position.

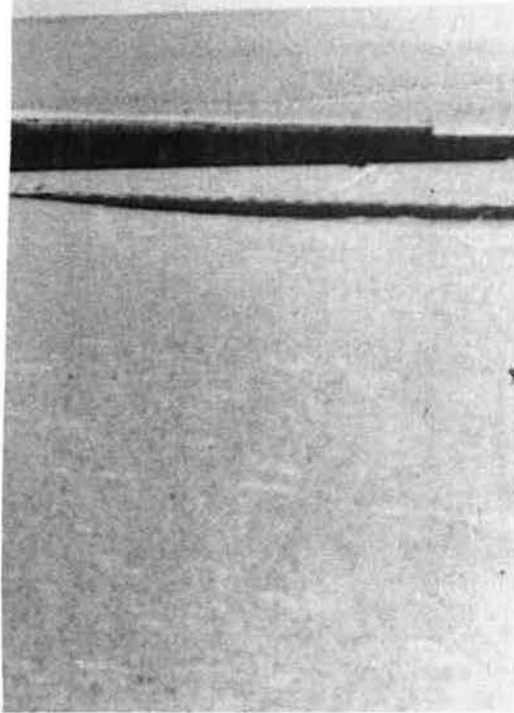
Reasoning that the crew members would recognize that they were southeast of Soluch, the mortuary team guessed the survivors would have walked northwest. Over a six-day period, the team covered some 450 square miles, but found no sign of the B-24's crew.

With daytime temperatures reaching 130 degrees Fahrenheit and nighttime near freezing, the teams searched along a northerly route for 35 miles, then east and west for 10 miles, but still they found nothing.

Then, on June 16, a clue appeared: Some 19 miles north of the crash site, searchers found a pair of small-size, fleece-lined flight boots. They appeared to have been deliberately placed, as they were left close together with toes pointing north.

The team then made random sweeps to the northwest and found the wheel tracks of five large, heavy vehicles, heading northwest.

Guessing that the tracks could be 16 years old, the searchers looked along them. In only 2.3 miles, they found a pair of medium-size flight boots, along with a mound of parachute shroud-line cuttings and the



small spring-activated frame of a pilot-chute. About 1.5 miles further on was the liner of an electrically heated flight suit.

A few hundred feet beyond that were two parachutes. One had been cut, weighted down with small stones, and placed in the form of a six-foot arrowhead, pointing northward along the five-track trail. Searchers found the parachute sign chiefly because of the pattern made by the stones.

At the base of the pattern was a section of parachute harness with the name V. L. Moore stenciled inside. SSgt. Vernon L. Moore was the B-24's assistant radio operator. Over the next few miles, pieces of equipment and parachute halves were laid out as arrows marking a route.

On July 17, Maj. Gen. H. R. Spicer, commander of 17th Air Force, joined the search and brought along helicop-

ters to assist. They followed the five vehicle tracks 51 miles into the dunes, but found no further sign of the crew.

Three days later, a radio operator in the general's party was being driven back to the B-24 site to establish contact with Wheelus when he spotted a seventh parachute-centered, stone-outlined arrowhead. Only faint traces of shredded white parachute silk were visible through the sand at the center of the marker.

Located 60 feet east of the five vehicle tracks, it was pointing on a heading of 335 degrees. This led to finding still more gear.

By this time, the comprehensive search had revealed numerous items of equipment, but there was still no trace of human remains or of the crew's ultimate fate.

Finally, on Sept. 2, 1959, the teams felt they had done all they could and called off the search. A C-130 cargo aircraft landed in the desert and airlifted the investigating team and its equipment back to Wheelus. The search was officially ended. The investigative report stated, "All the evidence indicates that if the crew members had died on the gravel plain their remains would be evident on the surface." Based on the "experience of desert personnel, in addition to observations of investigators," the team determined "that remains would be covered with sand during the intervening years."

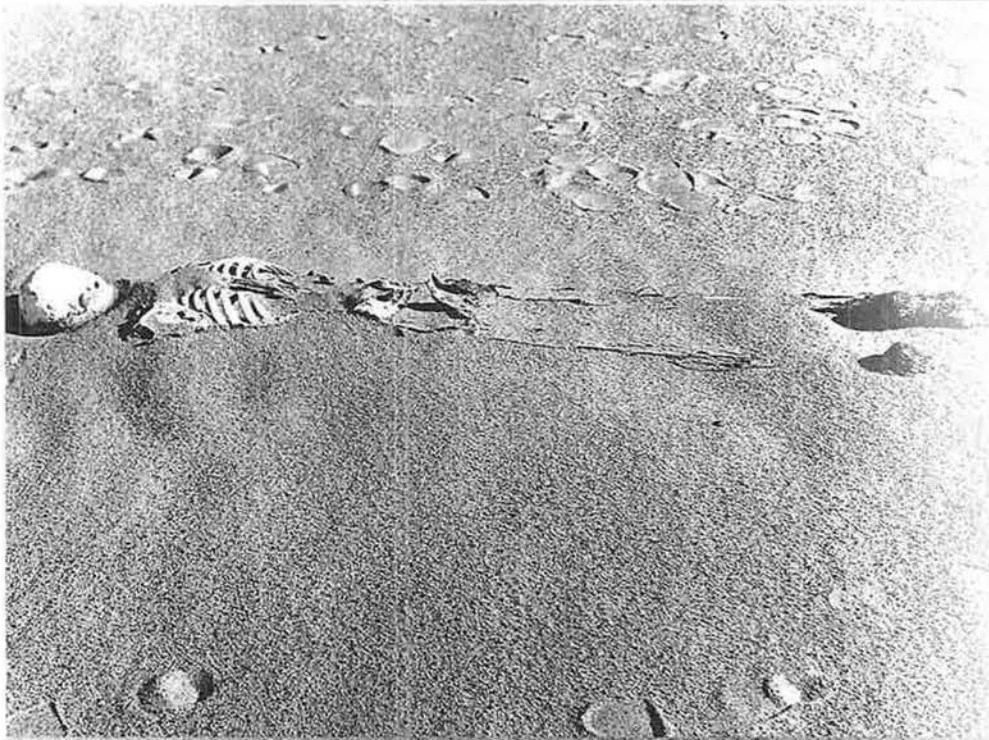
The case of *Lady Be Good* was closed. Over time the story of the wreck—which had initially attracted considerable attention because of the bomber's highly intact condition—faded from the news.

Gone, But Not Forgotten

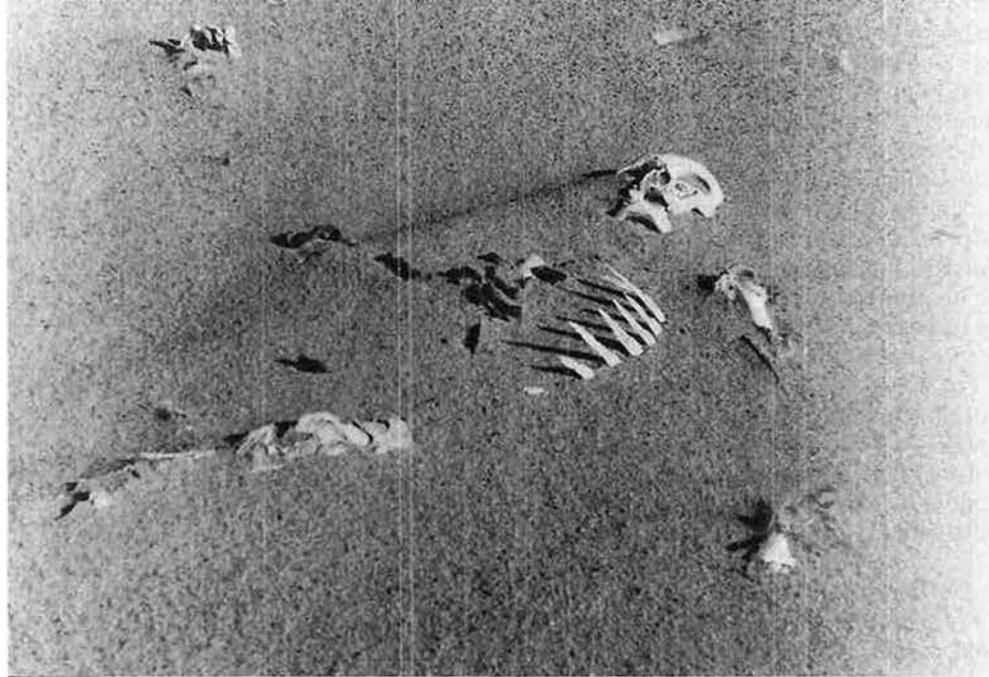
Five months later, in February 1960, members of a British Petroleum Co. subcontractor team unexpectedly discovered the nearly buried bodies of five of the B-24's crew: 1st Lt. William J. Hatton, the pilot; 2nd Lt. Robert F. Toner, copilot; 2nd Lt. D. P. Hays, navigator; SSgt. Samuel E. Adams, gunner; and TSgt. Robert E. LaMotte, radio operator.

A diary kept by Toner was recovered along with the crew's remains and told the airmen's tragically heroic story.

They had bailed out at 2 a.m. on Monday, April 5, 1943. All but bombardier 2nd Lt. John S. Woravka found each other in the desert; the other airmen never saw Woravka again. The remain-



Photos via John Lowery



The next day, Toner wrote, "Still having prayer meetings for help. No signs of *anything*, a couple of birds; good wind from [north]—really weak now, can't walk, pains all over, still all want to die. Nites very cold. No sleep."

On Monday, April 12, Toner's final entry read, "No help yet, very cold nite."

Perseverance and Endurance

Medical experts had previously estimated the limit a man could travel without water as 25 miles, with a life expectancy of two days. Yet with only a negligible amount of food and water, these eight men had journeyed 78 miles together, while three went even farther. They managed this under the most severe conditions. The airmen had pressed on through wind-blown sand, in extreme weather, for at least seven days—all without shelter.

On May 12, 1960, the BP oil explorers found the remains of a sixth crew member, Shelley. He had traveled an additional 37.5 miles into the Sand Sea, journeying a total of 115.5 miles from the bailout point.

Both of Shelley's dog tags were uncovered, three to four inches beneath the sand. Two hours of diligent search uncovered 95 percent of his remains.

Adjacent to the remains were Shelley's trousers. In one pocket were his papers and wallet. In the other they found the papers and billfold of Ripslinger. This find implied Ripslinger had died earlier and that Shelley took these effects to give to Ripslinger's family.

At this point, however, Shelley's recovery effort had to be called off because of the danger from desert vipers found hiding in the sand.

The recovery team moved on and began searching for Ripslinger, starting from where the five had been found and moving toward where Shelley's remains were discovered.

On May 17, after traveling 26 miles through the dunes, the team found Ripslinger's remains. They were almost completely buried in the sand, with only a small area of skull, right shoulder, and a few ribs exposed. The sleeves of his olive drab wool shirt had tech sergeant stripes attached, and in his pocket was a small diary.

Despite further searches, neither the remains of Woravka nor Moore were found at the time. The team chief theorized they had been covered by the windblown sand and that further

ing group of eight proceeded northwest for five days. They pressed on for the better part of a week with very little food and only a pint of water, under extreme conditions of heat by day and cold at night.

On Thursday, they reached the dunes, and Toner's diary noted, "Good wind but continuous blowing of sand. [Everyone] now very weak, thought Sam & Moore were all done. LaMotte's eyes are gone, everyone else's eyes are bad. Still going [northwest]."

After five days, they were so dehydrated and exhausted that only three of the group could go on. These were flight engineer TSgt. Harold J. Ripslinger, gunner SSgt. Guy E. Shelley Jr., and Moore.

On Friday, April 9, Toner's diary revealed: "Shelley, Rip, Moore separate & try to go for help. rest of us all very weak, eyes bad, not any travel, all want to die. Still very little water. Nites are about 35 degrees, good [north] wind, no shelter, 1 parachute left."



effort was futile. Thus, the case was again closed.

In August 1960, however, another British Petroleum team found the remains of Woravka, about 12 miles northeast of the crash site. He had died instantly on impact when his parachute failed to open completely. His corpse was still encased in his high-altitude suit and Mae West life jacket, while harnessed to the partially open parachute. His canteen was also intact. It contained almost a quart of still-potable water.

By taking a line from Woravka's body, investigators were able to locate the crew's rendezvous point after the bailout. Burned-out flares documented their effort to signal their missing comrade. After he failed to join up, though, they were forced to depart without him.

The remains of Moore are still lost in the Sahara's Sand Sea of Calanscio. But he clearly broke all records for stamina and desert survival.

The silk survival maps provided to the crew for escape and evasion terminated 20 miles north of the Kufra Oasis, 130

miles south. Since the airmen covered 115 miles, heading in that opposite direction might have brought them into contact with nomadic Arab traders in the well-traveled and populated oasis area.

Shortly before the case was closed, a propeller was taken from one of *Lady's* large engines. It was placed on a small stone monument in front of 17th Air Force headquarters at Wheelus. Soon after, however, Libya's King Idris and his government were overthrown, and the expansive, well-equipped air base was taken over by the Libyan Air Force and its Soviet advisors.

Lessons Learned

While the navigational error that led to their predicament speaks for itself, the subsequent survival performance of the eight-man group was extraordinary. Their superhuman progress over the desert testifies to both good training and discipline, combined with an exceptional will to survive. Moreover, they

never gave up and remained rational and organized to the very end.

The mission and crew provided the inspiration for a 1960 "Twilight Zone" TV series episode titled, "King Nine Will Not Return."

Lady Be Good's airmen obviously followed their aircraft commander, Hatton, in an orderly fashion. And in the best survival tradition, they left behind a trail to be followed by anyone who might search for them. While going blind from the sun's glare and blowing sand, and too weak to continue, five of the group urged the remaining three to go on and continue searching for help.

The crew of *Lady Be Good's* eight-day survival in the Sahara Desert—without shelter, food, or water—exceeded contemporary estimates of human capability—and by a wide margin.

Despite the torturous conditions, they continued in the best traditions of military airman: They died trying. ■

Above: A C-47 from Wheelus AB, Libya, lands on the Sahara hardpan to retrieve remains of five of *Lady Be Good's* crew.

John Lowery is a veteran Air Force fighter pilot and freelance writer. He is author of five books on aircraft performance and aviation safety. His most recent article for Air Force Magazine, "The Jet-Age Gladiator," appeared in the December issue. This article is adapted from his book Life in the Wild Blue Yonder.

By Frances McKenney, Assistant Managing Editor



Emerging Leaders

The Air Force Association began an Emerging Leaders Program in 2013 as an avenue to secure AFA's future.

Emerging Leaders volunteer for a year. With guidance from a mentor, they participate on a national-level council, attend national leader orientations, and serve as National Convention delegates. Emerging Leaders will be profiled here in the coming months. Here's the fourth one.

Tyler Johnson

Home State: Oregon.

Chapter: Langley.

Joined AFA: 2001.

AFA Offices: Chapter executive VP. Member of the Field Council and Membership Committee. Was executive assistant to AFA President Craig R. McKinley and Board Chairmen S. Sanford Schlitt and George K. Muellner. Was member of Development Committee.

AFA Award: National-level AFA Medal of Merit.

Military Service: Seven years Active Duty. Now a traditional Reservist, JB Langley-Eustis, Va.

Occupation: Sustainment manager for defense contractor Jacobs Technology, JB Langley-Eustis, Va.

Education: B.A., Vanderbilt University. Completing an M.A., Johns Hopkins University.

Social Media: Find Tyler Johnson on Facebook and on LinkedIn.



Q&A

How did you first learn of AFA? I was given an awesome opportunity as a cadet to see how AFA worked behind the scenes. As a senior in college I was on the Arnold Air Society national staff. ... AFA really rolled out the red carpet for us [at the National Convention], and that's where I got to see how AFA advocates for the airmen, their families. ... I knew that was important [and that] somebody was going to have to step forward and carry the torch.

How can AFA increase membership? Not only do they need to leverage social media and the communication tools of the next generation, the younger generation, ... but more than anything, I think: [From the] grasscots up, leadership down, ... we need to go out [and] explain why AFA is valuable.



Johnson with his mother, Madelon, and sisters Maddie and Meijken.



Gen. William Shelton holds the Thomas D. White Space Award at the Los Angeles Ball. With him are (l-r): Ed Peura, Gen. B. A. Schriever Los Angeles Chapter president; Thomas Taverney, chapter board chairman; and AFA Board Chairman George Muellner.

Honors at the LA Ball

Gen. William L. Shelton, commander of Air Force Space Command, received top honors during the Air Force Ball sponsored by the Gen. B. A. Schriever Los Angeles Chapter in California in November.

Air Force Association officials presented him with the Thomas D. White Space Award, recognition for outstanding contributions to the nation's progress in space.

Shelton's "adaptive leadership" sustained the Air Force's "unequaled space capabilities," said master of ceremonies Kenneth Goss, in introducing Shelton to the audience at the Hyatt Regency Century Plaza in Los Angeles. Shelton "saved billions of dollars" by driving the acquisition system to making block buys of satellites "combining procurements, implementing fixed-price contracts, and restructuring acquisition programs," Goss stated.

The space award is named for USAF's fourth Chief of Staff, who served from 1957 to 1961. Shelton has led AFSPC since January 2011.

Also at the Air Force Ball—held as the culmination of AFA's Pacific Air & Space Symposium—Maj. Gen. Martin Whelan was named a Gen. Bernard A. Schriever Fellow.

Whelan is director of requirements for AFSPC and has defined the future of space and cyberspace systems through requirements definition, architecture, and science and technology support, Goss told the audience.

AFA Vice Chairman for Aerospace Education Jerry E. White and Chapter President Edwin Peura presented the award.

Michael Gass, president and CEO of United Launch Alliance was general chairman for the ball and presented a short video about his company. In addition, Gass pointed out that the Schriever Chapter's aerospace education foundation donates funds to local AFROTC units and USAF airmen and families. He mentioned the chapter's sponsorship of 40 Visions of Exploration classrooms, supporting science, technology, engineering, and math education through the joint AFA-USA Today newspaper program.

USAF photo by Joe Juarez



Several 1st Special Operations Wing members surround A1C Andrea Posey, with her Unsung Hero Certificate. On her left is Col. William West, wing commander. At far right is CMSgt. Jeffery Maberry.

Lt. Gen. Ellen M. Pawlikowski, the Space and Missile Systems Center commander at Los Angeles Air Force Base, served as military host for the ball.

Hurlburt's Heroes

At Hurlburt Field, Fla., many airmen do "an outstanding job day in and day out, supporting the Air Force mission, but have gone unrecognized," wrote Florida State President Dann D. Mattiza in an email. The **Hurlburt Chapter** solved the dilemma with its Unsung Heroes award.

The latest awards presentation took place in December at the Soundside Club on base, for two dozen airmen. More than 100 guests celebrated with them. Col. William P. West, commander of the 1st Special Operations Wing, was guest speaker.

Each year the chapter focuses on unsung heroes from the 1st SOW during its first quarterly luncheon meeting. The spring or summer quarter meeting recognizes airmen from Hurlburt's tenant units. Each airman receives an award certificate and a chapter challenge coin.

The Unsung Heroes program began in 1997, developed by E. Max Friedauer, now chapter VP for community and industrial affairs. The local First Sergeants Group administers the program, selecting the awardees. Over the past 16 years, the chapter recognized 331 airmen.

A Chapter Community Partner, Boeing, has covered the costs of the program for the last three years.

Maryland's Thomas W. Anthony Chapter named AFJROTC cadet Mathew Simmons (below) as its Member of the Year. His mom, Beverly Simmons-Dickerson, is at left. Bottom right: Simmons "recruited" Jonathan Fernandez and Kayla Scott as chapter members. They're shown here at a chapter Cadet Council meeting.



Col. Tracey Hayes, 90th Missile Wing commander at F. E. Warren AFB, Wyo., shows the audience a statue of a cowboy. Cheyenne Cowboy Chapter President Irene Johnigan (right) gave it to Hayes for speaking at the chapter's annual banquet.

Remember Pearl Harbor: 72 Years

The **Long Island Chapter** organized and hosted its annual Pearl Harbor "Dropping of the Roses" memorial ceremony in New York on Dec. 7.

"The ceremony was a great community outreach event," commented Chapter Treasurer William Stratemeier. Some 800 spectators—including US Rep. Steve Israel (D-N.Y.) and US Rep. Timothy H. Bishop (D-N.Y.)—attended the service held at the American Airpower Museum at Republic Airport in Farmingdale, N.Y.

Three Pearl Harbor survivors who live in the area, Gerard Barbosa, Seymour Blutt, and Richard Abeles, received Congressional Proclamations as part of the event.

Long Island Chapter's Fred Di Fabio (in blue ball cap) watches the backseater receive some roses later dropped at the Statue of Liberty as part of a Pearl Harbor Day ceremony.





AFA Vice Chairman for Aerospace Education Jerry White (center, in black shirt) met with the Alamo Chapter's executive committee in San Antonio in November.

Navy Capt. Francis Bonadonna presided over the blessing of 72 American Beauty red roses—one for each year that has passed and an additional white one symbolizing 9/11. The 73 roses were then presented to pilots of a vintage AT-6 on the airport flight line. After a low pass of the field, the World War II-era training aircraft flew to the Statue of Liberty, where at the exact time of the attack on Pearl Harbor, the backseater dropped the roses into the waters surrounding the iconic American monument.

Long Island native Joseph Hydrusko started this Dropping of the Roses tradition. A medic on duty at Pearl Harbor when the Japanese attacked Hawaii, Hydrusko carried out his remembrance in his own aircraft from 1970 until his death in 1983. Today, the Geico Skytypers drop the flowers.

Chapter President Fred DiFabio, who organizes this event, said: "It is important to keep the memories of that day alive in the hearts and minds of all generations of Americans."

Teachers of the Year at Work

In Florida, three **Falcon Chapter** Teachers of the Year conducted an aerospace education workshop in November, aimed at middle school instructors.

Shawna Coddington, Trena Dinsmore, and Carla Chin—who serves as the chapter's aerospace education VP as well—also planned the lessons, ordered the materials, and arranged for a presentation on the Civil Air Patrol by cadets from the Cecil Field Squadron in Jacksonville.

Chapter Communications Director Lawrence A. Belge handled publicity for the event, while Chapter President Bruce A. Fouraker organized a breakfast for the attendees who turned out

Gil Slack (below) celebrated his Big Nine-Oh birthday at a Tarheel Chapter meeting in North Carolina in December.



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AFA is proud of the commitment and generosity of all its Thunderbird Society members. We are especially humbled to recognize these members who passed away in 2013, who had the courage and foresight to leave a legacy for AFA in their estate plans:

- James Keaton
- John & Hazel Sutton
- Virginia & Lawrence Hutchison
- Loren & Randy Spencer

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Promoting Air Force Airpower



Teacher Archie Yamul mans the pump to power a model-rocket launch at the Falcon Chapter's workshop in Florida.

for the Saturday session. Both officers also attended the teach-the-teachers workshop, held at San Jose Catholic School in Jacksonville.

Participants represented five Catholic schools in Gainesville, Jacksonville, and Orange Park.



Above: Falcon Chapter workshop presenters Shawna Coddington, Carla Chin, and Trena Dinsmore taught hands-on science activities.



At right: Students from Military Magnet Academy compete in a CyberPatriot qualification round aboard the decommissioned aircraft carrier USS Yorktown in Charleston Harbor, S.C. The Charleston Chapter partners with this floating museum for a unique venue.

reunions@afa.org Reunions

7th Air Commando Sq/7th Special Ops Sq, all years and units. May 15-18, Ramada Plaza Beach Resort, Fort Walton Beach, FL. **Contact:** Max Friedauer, 10 Ridgelake Dr., Mary Esther, FL 32569 (850-243-1343) (max@7thsos.org).

91st Strategic Recon Wg, all years and units. Aug. 12-16, Hope Hotel, Wright-Patterson AFB, OH. **Contact:** Jerry Haines, 2411 S. Tecumseh Rd., Springfield, OH 45502 (937-325-9306) (gerald_haines@yahoo.com).

345th Tactical Airlift Sq, Ching Chuan Kang AB, Taiwan, Kadena and Yokota AB, Japan, and Keesler AFB, MS. May 2-4, Orlando, FL. **Contact:** Mike Petraszko (734-330-5259) (reunion345yokota@aol.com).

446th Bomb Gp Assn. June 18-22, Inn at Ellis Square, 201 W. Bay Street, Savannah, GA. **Contact:** Lou Valenti (410-727-7976) (louvalenti@comcast.net).

612th Tactical Fighter Sq. Feb. 21-24, Shades of Green, Orlando, FL. **Contact:** Skip Beasley (skipbeasley49@gmail.com).

Nagoya/Komaki AB. May 18-21, Midwest City, OK. **Contact:** Richard Klegin, 7756 S 311 Way, Wagoner, OK 74467 (wtlight-house@yahoo.com) (918-697-6298).

Supported by the Tidewater Chapter in Virginia, AFJROTC cadets from Grassfield High School raised more than \$2,000 for Operation Homefront. The funds will help veterans and families of deployed service members.



Volunteers at the Paul Revere Chapter's holiday party for veterans in Lowell, Mass., served up nearly all the food on hand. The Air Force Sergeants Association from Hanscom AFB, Mass., co-sponsored the festivities.



The Genesee Valley Chapter supported the Veterans Choir from Henry Wadsworth Longfellow School in their Pearl Harbor Day remembrance ceremony in Rochester, N.Y. With the singers and their parents are New York State Sen. Joseph Robach (R) and Chapter President Alfred Smith (third and second from right, respectively).



U-2 Dragon Lady



The Air Force's U-2 Dragon Lady spyplane is one of the most famous and successful aircraft of all time. Lockheed produced the long-range, high-altitude reconnaissance craft to meet an urgent need to overtly heavily defended Soviet territory and snap photos of missile emplacements and other military targets. These flights led to the May 1, 1960, downing of a U-2 flown by Francis Gary Powers, who was captured, tried, imprisoned, and subsequently released by the Soviets.

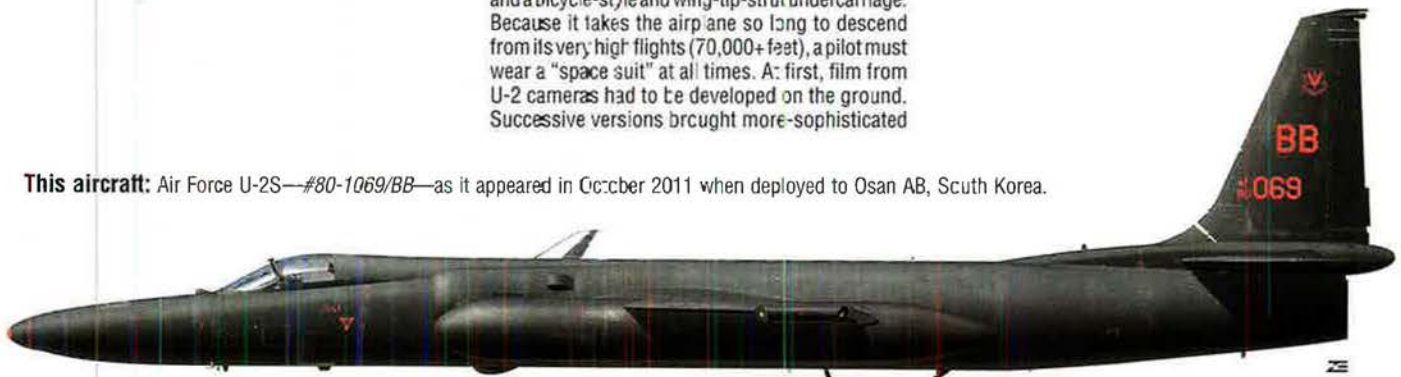
The U-2, designed by the renowned "Skunk Works" under the supervision of Kelly Johnson, emerged from a series of 1950s-era programs. It is a single-engine, all-metal, single-seat aircraft with an ultralight structure, very-high-aspect-ratio wings, and a bicycle-style and wing-tip-strut undercarriage. Because it takes the airplane so long to descend from its very high flights (70,000+ feet), a pilot must wear a "space suit" at all times. At first, film from U-2 cameras had to be developed on the ground. Successive versions brought more-sophisticated

construction, change in dimensions, and continuously improving reconnaissance equipment. All versions have been difficult to fly. There have been many losses.

The U-2 was initially operated by the CIA (with USAF pilots) and then by the Air Force directly. In 1962, its photographs revealed Soviet missile installations in Cuba, and Maj. Rudolf Anderson Jr. was shot down and killed on one of the Cuban overflights. The U-2 routinely overflew the Soviet Union, communist China, North Vietnam, and Cuba. It has served in every JS combat area for half a century. Plans call for it to remain in action for years to come.

—Walter J. Boyne

This aircraft: Air Force U-2S—#80-1069/BB—as it appeared in October 2011 when deployed to Osan AB, South Korea.



In Brief

Designed, built by Lockheed ★ first flight Aug. 4, 1955 ★ number built 90 ★ crew of one ★ endurance up to 12 hr ★ **Specific to U-2S:** one General Electric F118-GE-101 turbojet engine ★ no armament ★ max speed 500 mph ★ cruise speed 440 mph ★ max range 4,600 mi ★ weight (loaded) 41,000 lb ★ span 103 ft ★ length 63 ft ★ height 16 ft.

Famous Fliers

Shot down: Rudolf Anderson Jr. (KIA), Francis Gary Powers. **Other notables:** Pat Halloran, Steve Heyser, Hsichun Hua, Jack Ledford, Leo Stewart, Gimo Yang. **Test pilots:** Darryl Greenamyer, Ray Gcudey, Skip Holm, Tony LeVier, Bob Matye, Bob Schumacher, Bob Sieker.

Interesting Facts

Finished second to Bell X-16 in original competition ★ assigned original service life of two years ★ known as Bald Eagle, Dragon Lady, Aquatone, Oilstone, Senior Year ★ flown for CIA by "sheep-dipped" USAF pilots ★ began operations under cover as "weather research" aircraft ★ proved JFK's famous "missile gap" claim was bogus ★ brought down (May 1, 1960) by shockwave from explosions of 14 SA-2 missiles ★ obtained first photos of USSR missile sites in Cuba ★ flew within 10 mph of high or low speed stall for much of the flight ★ requires a pilot, calling out attitude and airspeed from a chase car to land ★ flew from aircraft carriers (USS *Kitty Hawk*, 1963; USS *Ranger*, 1964, and USS *America*, 1969) ★ operated by USAF, CIA, RAF, and Taiwan ★ faced early opposition from Gen. Curtis LeMay, who had no interest in aircraft without jet guns or standard wheels ★ used new low-volatility, low-vapor pressure fuel that would not evaporate at high altitudes ★ given "U" designation to denote a "utility" aircraft—a deliberate deception.



U-2 pilot Francis Gary Powers (right) with U-2 designer Kelly Johnson in 1966, four years after Powers' release from the Soviet Union, where he was imprisoned for spying.



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