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Journal of the Air Force Association

# AIR FORCE

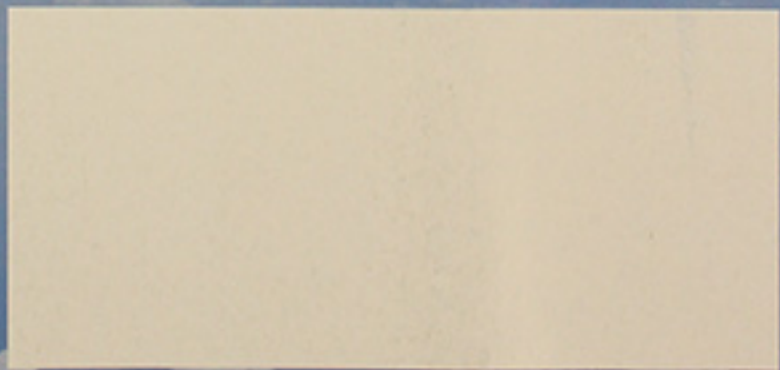
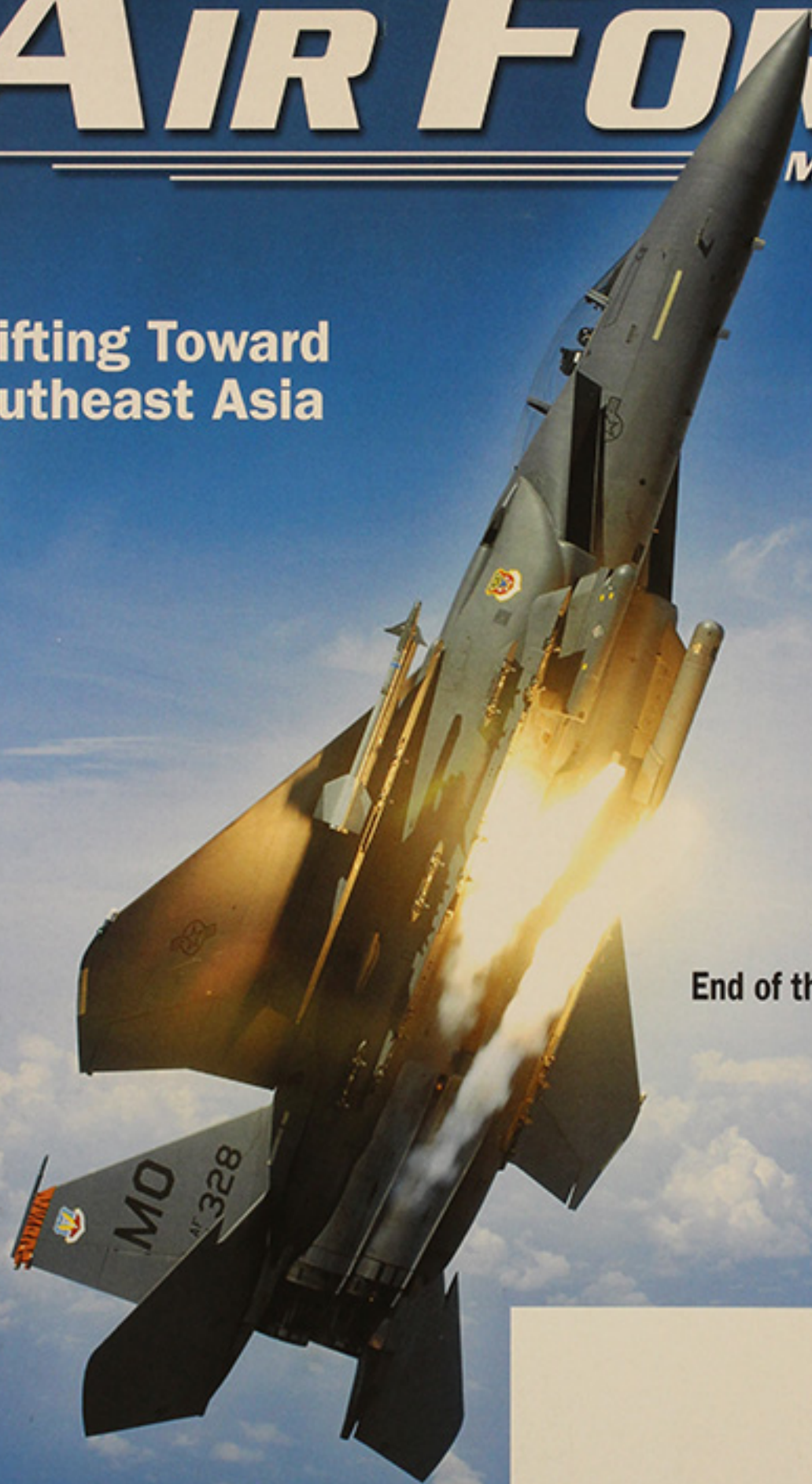
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## MAGAZINE

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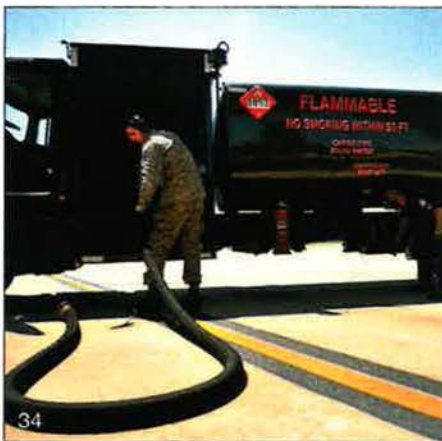
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**About the cover:** An F-15E fires flares over the Pacific Ocean. See "A SEA Change," p. 22. USAF photo by TSgt. Cecilio Ricardo.

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## Long Roads to Redemption

**T**HIS editorial begins somewhere unexpected: aboard a life raft bobbing in the frigid Barents Sea. In July 1960, when a Soviet fighter attacked an Air Force RB-47 reconnaissance aircraft in international airspace off Murmansk, Capt. John McKone and Capt. Bruce Olmstead bailed out and reached their life rafts.

A Russian fishing trawler picked up McKone and Olmstead after they had been adrift for more than six hours. They were the only two survivors among the six airmen on the mission.

McKone and Olmstead were quickly transported to Moscow's Lubyanka prison, where they endured frequently inhumane treatment and constant interrogation during seven months of captivity. They refused to confess to any wrongdoing despite intense psychological coercion, including death threats.

Forty-four years later, on Sept. 13, 2004, the two airmen were presented with Silver Stars at the Air Force Association's National Convention. The Air Force Secretary and Chief of Staff presented the long-overdue honors to the retired colonels for the gallantry and courage they showed during their captivity.

This award set in motion a chain of events that ultimately led to Francis Gary Powers receiving *his* Silver Star last month.

These events are reminders that sometimes justice comes slowly, but should also give hope to the families of other airmen still waiting for their reputations to be restored.

It was extraordinarily difficult to gather intelligence inside the Soviet Union. In addition to perimeter flights such as those flown by the RB-47, President Eisenhower authorized a top-secret program to have American pilots fly U-2s over sensitive Soviet facilities. The missions would gather intelligence the US could not collect any other way.

Politics of the time demanded a civilian cover for the missions, as military incursions would be considered acts of war. This led to a complex scheme in which Air Force pilots resigned their commissions and worked for the CIA as contract employees flying CIA aircraft.

The idea was that if a U-2 were ever shot down or crashed, the US would claim it was performing weather recon-

naissance or another non-overtly military mission. U-2 flights over Soviet territory began in 1956.

The Soviets were initially powerless to stop the incursions. They could not intercept or shoot down the high-flying spyplanes, which operated up to 70,000 feet.

Soviet leaders privately protested, but were unwilling to publicly reveal the US was overflying their territory with impunity. For four years, the Soviet leadership seethed and sought a way to bring down a U-2.

### It's never too late to set the record straight.

"There was no way of knowing when the Soviets would acquire the weapon needed to shoot them down," wrote historian Walter J. Boyne in this magazine in April 2010. "As the fourth year of operation approached, concern rose that a U-2 might be lost at any time."

Time was running out. Even after an SA-2 targeted a U-2 in 1960, the CIA got permission for another mission—Francis Gary Powers' fateful flight. Deep over the Soviet interior, an SA-2 exploded near his aircraft, snapping off its tail and forcing Powers to bail out. He was captured and sent to Lubyanka.

"The CIA failed to support him publicly or provide an adequate cover story for an event they knew was inevitable—a downed U-2," wrote Boyne.

The secrecy surrounding the mission meant that Powers was viewed with suspicion and frequently mistreated in public opinion during and after his captivity. He was criticized for not blowing up his aircraft, and even for not committing suicide before he could be taken into captivity. His daughter, Dee Powers, said last month that when she was in third grade, her teacher "told the entire class that my father should have killed himself."

In reality, Powers never betrayed the United States or his fellow U-2 pilots during his captivity, and he refused to denounce the US or make any statements for Soviet propaganda purposes. "He did not spill his guts," his son, Gary Powers Jr., said last month. "He kept back all the vital information he could."

Powers was convicted in a Moscow show trial, but the US managed to secure

his 1962 release in a swap for Soviet spy Rudolf Abel.

The truth about what his mission was and how he had performed it was not declassified until 1998, fully two decades after Powers died in a 1977 helicopter crash.

In 2000, the Air Force awarded Powers the Prisoner of War Medal, among other recognition. "The mind still boggles at what we asked [Powers] and his teammates to do," said then-Brig. Gen. Kevin P. Chilton, commander of the 9th Reconnaissance Wing at Beale AFB, Calif. "To literally fly over downtown Moscow, alone, unarmed, and unafraid."

Still, Powers' reputation continued to suffer, thanks to "part-truths, mistruth, innuendo, [and] some outright lies," said Gary Powers Jr.

McKone and Olmstead's RB-47 was shot down two months after Powers' U-2, meaning the three airmen had overlapping stays in Lubyanka prison. Last year, Gary Powers Jr. read about how the RB-47 airmen had been recognized with Silver Stars for their bravery in captivity. The younger Powers wrote to Pentagon officials to see if this set a precedent for his father to also receive the award. He was informed it did.

Powers' reputation has finally been fully restored. Longtime readers of this page may also recall the cases of John Lavelle, commander of 7th Air Force in 1972 in Vietnam, and Terryl Schwalier, wing commander at Khobar Towers in Saudi Arabia in 1996. These two men still face unjustly tarnished reputations. (See "Editorial: Justice Rejected," March 2011, p. 2.)

Lavelle allegedly violated the Vietnam War rules of engagement by allowing his airmen to proactively attack enemy air defenses. In reality he had authorization for this approach.

Schwalier was made the scapegoat for the terrorist bombing of Khobar's high-rise barracks, an attack that would today be considered an act of war. Referencing his father's case, Gary Powers noted, "It's never too late to set the record straight."

We agree. Hopefully it will not take 52 years for the Lavelle and Schwalier families to see their reputations restored. ■

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## What Pay Gap?

I feel compelled to comment on "The Long March of Military Pay," presented on the "Chart Page" in the May issue (p. 34). The chart tracks military pay raises relative to the Consumer Price Index (CPI) from 1972 to present.

The information presented appears accurate, but it is also irrelevant. That's because, since 1982, the government's Employment Cost Index (ECI)—which measures private sector pay growth—has been used as the baseline for military pay raises, not the CPI. The CPI measures relative purchasing power, not pay comparability.

Thus the concluding statement, "Today, military pay exceeds cumulative inflation by nearly 10 percentage points," leads an uninformed reader to a misleading conclusion and ought to be put in a more accurate perspective.

I served as chief of the Compensation Policy Branch at the Air Staff in the early to mid-1990s. In that capacity, I was the Air Force's flight lead on the "pay gap" and the pay raise process. Early pay problems in the volunteer force were addressed with double-digit raises in 1981 and 1982, which were generally acknowledged to have restored military pay to levels "reasonably comparable" with private sector pay, but multiple Administrations and Congress capped military raises below private sector pay growth, as measured by the ECI, in 12 of the next 16 years.

By 1999, the cumulative military pay raise shortfall had reached 13.5 percent—which was predictably accompanied by a retention and readiness crisis.

The executive branch and Congress subsequently approved military pay raises at least .5 percent above private sector pay growth for most of the last decade. Those actions, together with housing allowance improvements, have restored general pay comparability.

What they have not done is create a nearly 10 percent "excess" in military pay growth as implied by the chart and accompanying information, which is based on an irrelevant comparison to the CPI.

The challenge now is to sustain mili-

tary pay raises equal to private-sector pay growth during projected periods of budget austerity. Past experience in the 1970s, '80s, and '90s has been that tight budgets drove caps on military pay raises, and that those caps continued until they undermined retention and readiness.

Col. Dan Koslov,  
USAF (Ret.)  
Alexandria, Va.

■ *Colonel Koslov is correct that the Consumer Price Index and the Employment Comparability Index measure two different things. Data in the "Chart Page" came from the Congressional Research Service. CRS did not—and we did not—claim "a 10 percent excess in military pay growth," only that, by 2001, pay "reached the purchasing power it had in 1972" and that, today, "pay exceeds cumulative inflation by 10 percentage points." It says nothing about pay comparability. Thanks to Colonel Koslov for clearing up any misunderstanding. —THE EDITORS*

## Elevating the Reserve Components

In reading [Amy] McCullough's April article [p. 28], "Seeking a Total Force Balance": As we "balance" the Total Force, we need to look at missions and organizational structures for the Guard, Title 32, versus Reserve, Title 10 (Active Duty is Title 10).

With respect to mission allocation, we have mismatched the Title 10 roles with viable Title 32 roles. The Guard is more suited for airlift, agile combat support, and RPA type operations domestically and abroad. The Reserve needs to absorb fighter, bomber, and tanker operations. This is due to their USC Title 32 versus Title 10 status. For example, training missions aside, the "operational" fighter missions and deployments are purely Title 10. For Noble Eagle for example, the Guard pilots have "hip pocket Title 10 orders." Why? Because in the event of a scramble, the governor has no operational authority for Noble Eagle missions and the chain of command flows up to the NCA. So

why does the Title 32 component have a purely Title 10 mission? We have a Title 10 reserve component that does not have a big footprint in the Title 10 fighter mission. Instead, you have the Title 10 component with a large footprint in the airlift missions. Here, the states do have viable missions that could be flown in some type of Title 32 status and have a more direct relevance to state missions. Same goes for combat support units. If you asked the state governors along the Gulf and Atlantic coasts what they would rather have after a hurricane: airlift, RPA providing poststorm damage assessment, a civil engineering squadron, OR fighters (that probably evacuated to another base) sitting alert? I think the answer is obvious.

Looking beyond the current association models, I propose we adopt the Navy-Coast Guard model for the Army and the Air Force. The Navy does not have three components. It only has two: Active and Reserve. We need to elevate the National Guard and Air National Guard from [being] a service component to [being] its own service. But, like the Coast Guard, they would transfer to the Department of Homeland Security. So in the end, DHS would have Guards for land, sea, and air. This leverages their unique capabilities given the restrictions of posse comitatus on the Title 10 components of Active Duty and reserves. The Guards assume the missions of Homeland Security with an appropriate force structure, and homeland defense

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missions would remain with the DOD services. For the Air Force and the Air National Guard, this would open new possibilities for cross department associations on the future force structure.

Lt. Col. John Fair  
JB Charleston, S.C.

### Famous or Infamous?

As one of the original pilots and later wing commander of the SR-71 program, [I thought] it was great to see the Blackbird family brought back into focus in the "Airpower Classics" section of your May issue of the *Air Force Magazine* [p. 152]. However there were a couple of points I would like to address. You stated that the progenitor (nice word) single-seat A-12 was a larger aircraft, when the opposite was true. The empty SR-71 was about five feet longer and three tons heavier than the CIA's A-12. It also carried five tons more fuel. The normal maximum weight of the SR was 140,000 pounds (60K for the plane and 80K for fuel).

The Blackbirds were very stealthy before most folks knew what the word meant. Original RCS [radar cross section] testing of the plane showed a return of approximately one square meter.

There were a total of 19 Blackbirds lost, of which 12 were SR-71s, five were A-12s, and two were the ADC version of the Blackbird, the YF-12. In nearly 25 years of operational flying, no Air Force crews were lost in the Blackbird program, but of the four individuals who were lost, two were Lockheed flight test engineers and two were CIA pilots.

On a separate issue, the listing of Brian Shul in the section of the article which dealt with "Famous Fliers" has generated a landslide of negative comments from former crew members. As the designated "Godfather" of the program, much of that mail came to me. I appreciate and respect the medical challenges that Brian overcame to return to flying status after his crash in SEA, but the Blackbird program presented new and totally different challenges. He remains the only SR-71 pilot removed for "cause" in the history of the program. His squadron commander and wing commander had a long and appropriate list of negative activities to justify that action. He hardly qualifies as a "famous flier" by Blackbird standards. He is not a member of the Blackbird Association.

I would have put Lt. Gen. Bill Campbell on the famous flier list. He was by far the best and smartest pilot in the program and his flying career outshone all of us.

Maj. Gen. Patrick J. Halloran,  
USAF (Ret.)  
Colorado Springs, Colo.

### 21-Gun Salute

I wish to comment on the "Airpower Classics" column of the June 2012

issue that I just received today [p. 80].

Having served during the initial integration of the E-3 into the Air Force, I've always respected the aircraft and the crews that have flown and do fly her. I grew up in a Navy family, my father serving for 28 years, beginning during World War II. During his service, my father flew as PIC, pilot in command, during two separate tours with VW-1. This unit was tasked during the 1960s and into the 1970s with the airborne early warning duties for the Pacific Fleet. And for this mission, they flew the EC- and WC-121 Super Constellations—the very same aircraft that the Air Force flew for the very same mission. What I take exception to regarding the E-3 is the unwritten inference that this aircraft was somehow the first of its kind in everything I've ever read about the aircraft. In fact, in the "Airpower Classics" column I mention, there is one small comment under "Interesting Facts," mentioning that the E-3 "replaced the EC-121 Warning Star aircraft."

In reality, AWACS was created by the very aircraft the E-3 replaced! Airborne warning and control is not very far from airborne early warning, and as for control, I can put you in touch with many Navy crewmen who did exactly that in the skies over Vietnam, and I dare say you can get many responses from Air Force crews, too. The fact is, the EC-121 (and its Navy-only sister, the WC-121) was designed to provide airborne command and control over the battlefield. The Navy was the first purchaser and user, and the Air Force obviously was impressed enough to purchase plenty of its own.

I have spent countless hours researching the airplane and its predecessors. They include the P2 Neptune and the PB4Y Privateer. But what has bothered me for some time is that there is very little ever said about these aircraft and the crews that flew and died in her. And I have never seen (though I admit you may have run one before I became a subscriber) any tributes to the -121, Navy or Air Force. Actually in ANY publication!

I guess it just bothered me that so little was said about the fact that the E-3 took over a job that was really developed and perfected in the -121. Certainly though, the capabilities of the E-3 far surpass those of the -121, but quite simply because the capabilities the E-3 relies on did not exist when the EC-121 was developed. Then again, neither was secondary radar and IFF (Identification Friend or Foe), but the EC-

121 was upgraded with both as those systems were developed. The thing that caused the EC-121's demise was the very same thing that killed the P-51, P-47, B-29, B-50, etc.: piston engines versus jet propulsion. Otherwise, we might still see the Super Connies in the air. As a side note, Lockheed did convert one EC-121 to turboprops, but it never went beyond the first airframe. There was also an EC-121 that carried a dish, à la E-3, many years before the E-3 did!

TSgt. Scott Bates,  
USAF (Ret.)  
Sheridan, Wyo.

■ *More information about the EC-121 mission—and its perils—can be found in "The Fall of the Warning Stars," from Air Force Magazine's April 2005 issue, p. 78.—THE EDITORS*

### Playing in Other People's Yards

[The] May issue of *Air Force Magazine*, p. 32, has a photograph of an airman guarding a C-130J at Accra, Ghana, Africa. What I found very interesting is that the airman was not wearing combat gear, and more disturbing was that she had a weapon without a magazine clip installed. Was her intent to use the weapon as a club or was this just a photo opportunity?

SMSgt. Richard MacGillivray,  
USAF (Ret.)  
Highland, Calif.

■ *The photo of the Ghanaian airman was taken on the flight line during an exercise, African Partnership Flight. The exercise was conducted at a facility owned by the Ghanaian military, not USAF. It is not uncommon for host nation guards, in an exercise, to have unloaded weapons, per host nation protocols. For example, in this photo of a flight line gate at Korat RTAB, Thailand, at Cope Tiger 2012, the guard has no magazine in his weapon.—THE EDITORS*



## The J-20 will be ready early; Wishy-washy assessment; Cyber attacks from China; Remaining clear-eyed is key ....

### PUFF THE MAGIC DRAGON

China wants to “avoid direct confrontation with the US” and continues to configure its armed forces for action against Taiwan, according to the latest official Pentagon assessment of China’s military power. Nevertheless, China is pursuing a long-term military modernization program with designs on projecting power well beyond its traditional sphere of influence, the report concludes.

The publicly released version of the 50-page document, “Military and Security Developments Involving the People’s Republic of China 2012,” offers the least-detailed survey of China’s armed capabilities since Congress began requiring the annual report in 2000. In broad terms, the report touts the potential for the US and China to avoid military conflict—including a new section focusing on US and Chinese military-to-military contacts—and goes light on details of China’s advancements in key areas such as missiles and stealth.

A classified version also was supplied to Congress.

China maintains a steady pace in adding to its conventional missile technology and arsenal, particularly near Taiwan; is fielding advanced air defense systems; and is proceeding with a robust upgrade of its nuclear forces, according to the report. It is also aggressively asserting its claims on disputed territories in and near the South China Sea and continues to mount cyber attacks and intrusions on military and contractor networks around the world, the Pentagon report said.

Briefing reporters on the document’s public release in May, David F. Helvey, acting deputy assistant secretary of defense for East Asia, acknowledged the annual report has “a new look

Though the report was similarly mum on the J-20’s in-service date, Helvey said it is expected to become an “effective operational capability no sooner than 2018.” This is two years earlier than former Defense Secretary Robert M. Gates forecast three years ago.

Helvey said the estimate of the J-20’s schedule takes into account the need to have sufficient operational aircraft, integrated weapon systems, trained pilots, and further development. He described the aircraft as still in “prototype phase” and didn’t want to speculate on its potential mission.

### COMMITTEE EDITING

The document is a product of an all-of-government approach, Helvey said. It may therefore have fallen victim to committee editing.

The report goes through “a fairly extensive coordination process” giving not only the armed services but the Departments of State, Homeland Security, Commerce, Energy, and Treasury and “the Intelligence Community” a chance to tinker with it, Helvey pointed out.

He noted that President Obama and China’s President Hu Jintao agreed in January 2011 to work toward a “cooperative partnership based on mutual respect.” The Pentagon report assesses China’s direction, “strengths and weaknesses, and opportunities and potential challenges” in the 21st century.

Helvey also said that with China’s rising economic power and influence, the giant communist nation has greater “presence” around the world, “expanding economic and diplomatic interests,” and “new roles and responsibilities.” This has led China to focus on a military able to conduct “a wide range of missions, including those that are far from China.”

While China’s relations with Taiwan have warmed and “continue to improve” with the reelection of Taiwan’s President Ma Ying-jeou, “China’s military shows no sign of slowing its efforts to prepare for Taiwan Strait contingencies,” Helvey said.

China has conducted a number of missions, “at great distance” from its shores, in counterpiracy, noncombatant evacuation, and peacekeeping, Helvey observed—underscoring

the Administration’s wish to effect China’s emergence as a responsible and conscientious global power.

“So, there’s an opportunity here ... for China to partner with us and with other countries to address the types of challenges that we all face” in this century, he asserted.

However, Helvey recited a long laundry list of Chinese efforts in areas that have little to do with peacekeeping missions. There is “sustained investment” in “nuclear forces, short- and medium-range conventional ballistic missiles, advanced aircraft and integrated air defenses, cruise missiles, submarines and surface combatants, and counterspace and cyber warfare strategies, which appear [to be] designed to enable what we call anti-access and area-denial missions, or what [People’s Liberation Army] strategists refer to as ‘counterintervention operations,’” he said.



Photo via chinesemilitaryreview.blogspot.com

*The J-20: Meh, it’s just an inconsequential investment in stealth technology.*

and a new format. We’ve streamlined and consolidated” the information in it, he said, in keeping with new Pentagon guidance “for how we’re handling reports to Congress.”

In its early years, the report was a treasure trove of details on Chinese military systems and their potential for challenging or defeating US capabilities, though never as detailed as its progenitor, “Soviet Military Power,” produced in the 1980s by the Reagan Administration. That document, slickly produced, included intelligence photos and numerical analysis of nearly every aspect of the Soviet military enterprise.

However, the 2012 version of the China report, for example, publicly shrugs off China’s J-20 stealth concept fighter as simply an indication that China is “investing in stealth technology.” No specific role is suggested for the aircraft, nor potential weapons load or estimated range.

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The A2/AD threat is something the US has raised with China in a series of high-level discussions this year, Helvey said, though he didn't mention that nation's response. It is a topic "we're paying very, very careful attention to" because it affects "the ability of our forces or other forces in the region to be able to operate in the Western Pacific."

## **MONEY TALKS**

All this Chinese military modernization is sustained by "robust increases" in defense spending, and the country is now marking more than two decades of sustained military growth. Last year, the Pentagon noted that China's officially announced military budget was \$91.5 billion, but due to its "lack of accounting transparency," the Defense Department's analysis pegged the actual number at nearly twice that. This year's official Chinese defense budget is \$106 billion, but Helvey said the Pentagon has yet to calculate the likely real figure.

The unreported monies spent probably have to do with nuclear forces, research and development, and acquisition of foreign systems, much of which Helvey said the US thinks China keeps "off budget" or hides among other accounts.

The US is promoting the notion of military-to-military contacts, and Helvey mentioned several visits by Chinese officials to the US this year. Similarly, US Pacific Command chief Adm. Samuel J. Locklear III was to visit China this summer. Air Force Chief of Staff Gen. Norton A. Schwartz said recently he was anticipating a visit from his Chinese counterpart as early as this month.

Among areas of "concern" to the US, beyond the A2/AD investments, is China's continued development of "technologies and capabilities to deny others access [to] and use of space."

In response to a reporter's question, Helvey said he "wouldn't read too much" into slightly stronger wording in this report that states bluntly that China is initiating many cyber attacks, whereas in last year's report, it was labeled as "likely" to have done so. He said the US has "greater confidence" in the statement that many such attacks originate from China, thanks to new forensic tools. He wouldn't venture to say whether the US believes the attacks were authorized by the Chinese government, however.

In one of its few blunt cautions, the report notes China's continuing development of the ship-killing DF-21D retargetable conventional ballistic missile.

"It's got a limited operational capability," Helvey said, "and I think that's reflected in the report. They continue to work on that and develop that and deploy that." The DF-21D, with an expected range in excess of 1,000 miles, is considered a severe challenge to Navy carrier operations, since it can fly to the target area and find a carrier that has moved since launch, attacking the carrier with such speed that defenses would be hard-pressed to stop it.

Helvey acknowledged that China has "developed weapons systems and capabilities that appeared either earlier than we expected or that we were surprised [by] when we saw it. Several years ago, we were surprised by the appearance of a new class of submarine that we hadn't seen before." He said, "That is something we have to anticipate and expect." However, "we've been surprised in the past, and we may very well be surprised ... in the future."

## **PACIFIC PIVOT DEFINED**

Shortly after the unveiling of the Pentagon's low-key assessment of China's growing military capabilities, Defense Secretary Leon E. Panetta announced the US is putting its hardware where its mouth is and shifting a majority of its extant military forces to the Pacific, in recognition of the increasing economic and political importance of that theater.

The US, Panetta said, "in a steady, deliberate, and sustainable way" is "bringing an enhanced capability development to this vital region."

He also said the major developmental weapon systems in the US pipeline or on the drawing boards—the F-35 fighter, KC-46 tanker, and new long-range strike bomber—are driven by the demands of the Pacific.

In a June speech at the "Shangri-La" conference in Singapore, organized by the International Institute for Strategic Studies, Panetta announced that by 2020, the US Navy will focus its deployments on the Pacific, shifting its distribution of vessels from the current Pacific-Atlantic split of 50-50 to 60-40.

He also forecast a sharp increase in the number of bilateral and multilateral military exercises in the region, an uptick in port visits—including "in the Indian Ocean"—and affirmed a long-term plan to maintain Marine air and ground units on a rotating basis in Australia, "capable of rapidly deploying across the ... region" for both military and humanitarian missions. The first unit deployed in April.

"All of the US military services are focused on implementing the President's guidance to make the Asia-Pacific a top priority," Panetta said.

The "rebalancing," as Panetta called it, will involve maintaining "six aircraft carriers in this region," as well as "a majority of our cruisers, destroyers, littoral combat ships, and submarines."

The core commitment of the US to the Pacific will be in its forward deployed forces, Panetta said, and the US will "sharpen the technological edge" of its military powers.

In an apparent dig at China's burgeoning anti-access and air defense systems, though, Panetta said, "We are investing specifically in those kinds of capabilities—such as an advanced, fifth generation fighter, an enhanced Virginia-class submarine, new electronic warfare and communications capabilities, and improved precision weapons—that will provide our forces with freedom of maneuver in areas in which our access and freedom of action may be threatened." He later reiterated the point, also mentioning "an advanced maritime patrol and anti-submarine warfare aircraft," the Navy's P-8 Poseidon.

The Pacific shift, and increased operating tempo there, will happen despite substantial cuts in the expected defense budget, he asserted.

"We have made choices and we have set priorities, and we have rightly chosen to make this region a priority," he said.

Panetta said the new focus is not meant as a challenge to China. "The relationship between the United States and China is one of the most important in the world," he said. "We in the United States are clear-eyed about the challenges, make no mistake about it, but we also seek to grasp the opportunities that can come from closer cooperation and a closer relationship."

The US won't take sides in the ongoing tensions between various countries over disputed islands in the Asia-Pacific region, Panetta said, urging all involved to exercise "restraint" and seek a diplomatic solution.

He said the US seeks closer military ties with China, noting the two countries can cooperate on anti-piracy missions, anti-drug trafficking, and humanitarian relief—operations that can benefit both countries and the region.

"We're not naïve about the relationship and neither is China," which has taken umbrage at US moves to provide arms to the Philippines and Taiwan. "I don't think we should take the attitude that just because we improve their capabilities that we're asking for more trouble," Panetta insisted, adding that no harm will come from countries having an ability to defend and promote their own security.

"What both of us have to recognize is that we are powers in this region. We have common interests," he said. "We have common obligations to try to promote peace and prosperity and security in this region." ■

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**GENERAL DYNAMICS**

## Welsh Nominated as Chief of Staff

President Obama nominated Gen. Mark A. Welsh III, now serving as commander, US Air Forces in Europe, to succeed Gen. Norton A. Schwartz as the USAF's next Chief of Staff.

Pending Senate approval, Welsh would become the Air Force's 20th Chief of Staff. Defense Secretary Leon E. Panetta in a May 10 press briefing announced the nomination.

"If confirmed, I'll do everything in my power to live up to the example set by [General Schwartz and the other] great officers who have led our service so well throughout its remarkable history," said Welsh.

Prior to leading USAFE, Welsh worked for Panetta at the CIA; Welsh was the associate director for military affairs when Panetta was director of the agency.

"Over the course of our time working together, I developed a deep appreciation for his wisdom and his counsel," Panetta said in his statement.

Before the CIA job, Welsh was vice commander at Air Education and Training Command. He graduated from the Air Force Academy in 1976 and has logged more than 3,400 flight hours, mostly in fighters and training aircraft.

## Senior Leaders Shift

Vice Chief of Staff Gen. Philip M. Breedlove has been tapped to command US Air Forces in Europe at Ramstein AB, Germany, Pentagon officials announced May 11.

Breedlove has served as vice chief since January 2011 and was confirmed May 24 for his new position. He will replace Gen. Mark A. Welsh III at USAFE's helm.

Also on May 24, Lt. Gen. Larry O. Spencer received confirmation for a fourth star. He will replace Breedlove as vice chief of staff.

Spencer has served as Joint Staff's director of force structure, resources, and assessment since April 2010.

## Proposed F-35 Sale To Japan

The Pentagon notified Congress of a potential foreign military sale of F-35A strike fighters to Japan earlier this year.

The \$10 billion deal would supply Japan four aircraft along with parts and

support, opening the additional option of purchasing 38 more F-35s, according to the Defense Security Cooperation Agency.

"Japan is one of the major political and economic powers in East Asia and the Western Pacific and a key ally of the United States in ensuring the peace and stability of this region," DSCA stated in an announcement May 1.

"The proposed sale of aircraft and support will augment Japan's operational aircraft inventory and enhance its air-to-air and air-to-ground self-defense capability," the agency said.

Japan selected the F-35 as its next generation fighter last December to begin replacing the Japan Air Self-Defense Force's aged F-4J Phantom fleet.

Meanwhile, Australia has decided to delay purchasing its 12 initial F-35s by two years as a budgetary measure, *Business Week* reported three days after Congress was apprised of the Japan sale.

## Lightning Plan B, Again

Britain has abandoned fitting its new class of aircraft carriers with catapults and arresting gear to accommodate the F-35C strike fighter, opting instead to return to the F-35B short takeoff and vertical landing variant.

Defense Minister Philip Hammond said the UK government's 2010 decision to abandon the F-35B in favor of the longer range, carrier-optimized F-35C "was right at the time, but the facts have changed and therefore so, too, must our approach."

Hammond said cost estimates for building Britain's two Queen Elizabeth II-class carriers with electromagnetic catapults had doubled since 2010, asserting that the cost outweighed the strategic benefits of a more capable and interoperable carrier.

The F-35C "no longer represents the best way ... and I am not prepared to tolerate a three-year further delay to reintroducing our carrier strike capability," he said in justifying his decision to Parliament May 10.

Britain's first F-35B is scheduled to enter service this summer, beginning carrier trials aboard HMS *Queen Elizabeth II* in 2018, according to Hammond.

USAF photo by A1C Ashlee Galloway



### Get Ready To Sandbag

Air Force Reservists can now be activated to respond to a natural disaster or civil emergency, according to a new measure included in the Fiscal 2012 defense authorization act.

"We mobilize Reservists to handle contingencies overseas, so it makes sense that we do that to take care of our own country," said Lt. Gen. Charles E. Stenner Jr., Air Force Reserve Command boss, in a news release May 20.

In presidentially declared emergencies, state governors can now request reserve assistance from every service branch, for up to 120 days, according to AFRC officials.

Since it is under the control of the states during peacetime, the National Guard has traditionally filled this role. The Reserve force is under federal control, but as a result of the new law, both the Guard and Reserve may now be called upon to provide state aid.

The law also permits reserve mobilizations for extended periods to support deployed theater security missions.

### NATO Missile Shield Operational

NATO has an operational interim ballistic missile defense, shielding the European mainland, the Alliance announced at its summit in Chicago, May 21.

The interim system comprises a command and control hub at Allied Air Command headquarters, Ramstein AB,



**06.13.2012**

*During a moment of downtime, Maj. Pete Reddan works on a song while he and his guitar lean against the tire of a C-17 Globemaster III at JB Charleston, S.C. Reddan, a 437th Airlift Wing pilot, wrote "Off to War," which was recently recorded by country and western recording artist Brad Anderson.*

## Senior Staff Changes

**RETIREMENTS:** Lt. Gen. Marc E. Rogers, Maj. Gen. Kathleen D. Close, Maj. Gen. Richard T. Devereaux, Maj. Gen. Howard N. Thompson, Maj. Gen. Mark R. Zamzow, Brig. Gen. Gregory L. Brundidge.

**NOMINATIONS:** **To be General:** Paul J. Selva, Larry O. Spencer. **To be Lieutenant General:** Darren McDew, Noel T. Jones, Thomas W. Travis. **To be Major General:** Timothy M. Ray. **To be Brigadier General:** David B. Been, Bobby V. Page. **To be ANG Lieutenant General:** Michael A. Dubie, Joseph L. Lengyel. **To be ANG Brigadier General:** Russ A. Walz, Donald S. Wenke, Wayne A. Zimmet.

**CHANGES:** Brig. Gen. Dwyer L. Dennis, from Dir., Intel., Surveillance, Recon, & Rqmts., AFMC, Wright-Patterson AFB, Ohio, to PEO, Fighters & Bombers, AF Life Cycle Mgmt. Center, AFMC, Wright-Patterson AFB, Ohio ... Maj. Gen. Sharon K. Dunbar, from Dir., Force Mgmt. Policy, DCS, Manpower, Personnel, & Svcs., USAF, Pentagon, to Cmdr., AF District of Washington, JB Andrews, Md. ... Brig. Gen. Mark A. Ediger, Cmdr., AF Medical Ops. Agency, Office of the Surgeon General, San Antonio, to Dep. Surgeon General, Office of the Surgeon General, USAF, Pentagon ... Brig. Gen. Edward A. Fienga, from Exec. Officer to the Cmdr., AFSPC, Peterson AFB, Colo., to the Dep. Dir., Prgms., Office of the DCS, Strat. Plans & Prgms., USAF, Pentagon ... Brig. Gen. Gina M. Grosso, from Dir., Manpower, Orgn. & Resources, DCS, Manpower, Personnel, & Svcs., USAF, Pentagon, to Dir., Force Mgmt. Policy, DCS, Manpower, Personnel, & Svcs., USAF, Pentagon ... Brig. Gen. Francis L. Hendricks, from Cmdr., Army & AF Exchange Svc., Dallas, to the Spec. Asst. to the DCS, Manpower, Personnel, & Svcs., USAF, Pentagon ... Brig. Gen. Richard A. Klumpp Jr., from Dir., US Forces-Afghanistan Liaison to the US Embassy, CENTCOM, Kabul, Afghanistan, to Dir., Strat. Planning, DCS, Strat. Plans & Prgms., USAF, Pentagon ... Brig. Gen. Mark M. McLeod, from Dir., Log., PACAF, JB Pearl Harbor-Hickam, Hawaii, to Dir., Log., Engineer, & Security Assistance, PACOM, Camp H. M. Smith, Hawaii ... Maj. Gen. Kenneth D. Merchant, from Cmdr., Air Armament Center, AFMC, Eglin AFB, Fla., to PEO, Weapons, AF Life Cycle Mgmt. Center, AFMC, Eglin AFB, Fla. ... Maj. Gen. Craig S. Olson, from PEO, Business & Enterprise Sys., ESC, AFMC, Maxwell AFB-Gunter Annex, Ala., to PEO, Command, Control, & Comm. Info. & Networks, AF Life Cycle Mgmt. Center, AFMC, Hanscom AFB, Mass. ... Maj. Gen. Darryl L. Roberson, from Dir., Strat. Planning, DCS, Strat. Plans & Prgms., USAF, Pentagon, to the Vice Dir., Jt. Staff, Pentagon ... Gen. (sel.) Larry O. Spencer, from Dir., Force Structure, Resources, & Assessments, Jt. Staff, Pentagon, to Vice C/S, USAF, Pentagon ... Maj. Gen. Margaret H. Woodward, from Spec. Asst. to the DCS, Ops., Plans, & Rqmts., USAF, Pentagon, to AF Chief, Safety, USAF, Pentagon.

Germany, linking various nations' missile interceptors and sensors spread across the continent.

"Our system will link together missile defense assets from different allies—satellites, ships, radars, and interceptors—under NATO command and control," said NATO Secretary General Anders Fogh Rasmussen.

"It will allow us to defend against threats from outside the Euro-Atlantic area," he noted, including Iran and North Korea.

The first stage anti-ballistic missile system includes US Aegis radar ships equipped with interceptor missiles as well as US ground-based radars stationed in Kurecik, Turkey, US officials said.

Full operational capability of the Alliance's BMD is expected "around the end of the current decade or early next decade," according to NATO.

### AEHF-2 Easing Into Position

The Air Force and Lockheed Martin recently completed the first stage of raising the second Advanced Extremely High Frequency satellite into an operational orbit, Air Force Space Command announced.

The satellite completed its liquid apogee burn and deployment of its

solar array to begin onboard power generation, AFSPC said May 17. This step marked the "completion of approximately 60 percent of AEHF-2's total

orbit-raising activity," said Col. Michael Sarchet, AEHF program manager. The crucial boost also "raised the satellite above the Van Allen radiation belts and region of space with the densest space debris," he said.

Controllers then began firing the satellite's Hall Current Thruster, to gradually dampen AEHF-2's elliptical orbit onto a more circular trajectory until the satellite achieves its intended geosynchronous rotation.

AEHF-2 blasted off atop a United Launch Alliance Atlas V rocket from Cape Canaveral AFS, Fla., May 4.

The first AEHF satellite finished on-orbit testing earlier this year. The complete constellation is intended to replace the military's current Milstar communications satellites.

### RPA Pilots Finish ANG FTU

The first four Active Duty aircrew members graduated from the New York Air National Guard's MQ-9 Reaper formal training unit at Syracuse in May, according to wing officials.

The 174th Fighter Wing schoolhouse is the first ANG Reaper unit and is tasked with training Active Duty, ANG, Air Force Reserve, and foreign military MQ-9 pilots.

Half the 45-day course, to upgrade from the MQ-1 Predator to the MQ-9 Reaper, is done at Syracuse, while the other half is spent flying Reapers over a military range near Watertown, N.Y., or Creech AFB, Nev., according to the wing.



**Not a Space Vacuum:** The X-37B Orbital Test Vehicle (OTV-2), USAF's unmanned, reusable spaceplane, lands at Vandenberg AFB, Calif., June 16. OTV-2 launched from Cape Canaveral AFS, Fla., in March 2011. It conducted secret on-orbit experiments for 469 days.

USAF video image



## Francis Gary Powers Awarded Silver Star

Chief of Staff Gen. Norton A. Schwartz on June 15 presented a Silver Star medal to Francis Gary Powers, posthumously honoring the Cold War U-2 pilot for gallantry and sustained courage during 21 months of captivity in the Soviet Union.

Grandchildren of Powers accepted the Silver Star on behalf of their grandfather, who died in August 1977 at age 47. The decoration came more than 50 years after Powers returned from Soviet captivity.

A Russian SA-2 surface-to-air missile downed Powers' U-2 airplane during a top-secret CIA-run reconnaissance mission over the Soviet Union on May 1, 1960. The Soviet Union held him in solitary confinement in Lubyanka prison in Moscow until his release in a US-Soviet spy swap on Feb. 10, 1962.

"For almost 107 days" during this period, "Powers was interrogated, harassed, and endured unmentionable hardships on a continuous basis by numerous top Soviet secret police interrogating teams," reads his Silver Star award citation.

"Although greatly weakened physically by the lack of food, denial of sleep, and the mental rigors of constant interrogation, Captain Powers steadfastly refused all attempts to give sensitive defense information or be exploited for propaganda purposes," states the citation.

It continues: "As a result of his indomitable spirit, exceptional loyalty, and continuous heroic actions, Russian intelligence gained no vital information from him."

Powers' shutdown and capture was one of the Cold War's most memorable incidents. It heightened tension between the two superpowers and delivered Soviet Premier Nikita Khrushchev a propaganda coup.

Despite faithfully serving his country and helping to gather invaluable intelligence on Soviet military activity for the Eisenhower Administration during his secret U-2 flights over Soviet territory starting in 1956, the nation never treated Powers as a hero until after his death.

Powers was in part a victim of Cold War secrecy, with decades passing before the US government declassified details of his service. Cold War politics also caused the government that should have embraced him to shun him upon his return.

Slowly, the veil lifted and the truth has emerged. The Air Force Board for the Correction of Military Records (AFBCMR) decided on Dec. 8, 2011—after Powers' son, Francis Gary Powers Jr., petitioned the board in March of last year—that Powers

"met the eligibility criteria for the Silver Star," according to an Air Force statement.

Further, "based on the precedent of the award to two other officers similarly shot down and held prisoner in the USSR," it found that awarding Powers the Silver Star "would be appropriate." Consequently, the board directed that Powers receive the medal.

The Silver Star is the third-highest combat military decoration awarded to a member of any US military branch for valor in the face of the enemy.

When Powers, then a first lieutenant on Active Duty, joined the CIA's Aquatone overhead reconnaissance program in 1956 to fly the U-2, he ostensibly became a civilian, like the other U-2 pilots of that time.

"The national security interests of the United States required that [Powers] be publically presented as a civilian contractor," according to the Air Force's statement. However, "in reality, he was a commissioned officer on Active Duty until March 1, 1963," reads the statement.

The AFBCMR on Feb. 15, 2000, corrected Powers' records to acknowledge his Active Duty status throughout the Aquatone program up until his discharge as a captain. It also recognized him as a prisoner in the Soviet Union, for

which he posthumously received the Prisoner of War Medal.

Prior to Powers' fateful mission, U-2s had operated for several years with impunity in Soviet airspace, but US intelligence knew that the Soviets were fielding missiles that could reach the high-flying reconnaissance aircraft.

Powers took off from Pakistan on a course meant to take him across Afghanistan and over the Soviet Union until exiting Soviet airspace near Murmansk and eventually landing in Norway. However, about four hours into his flight, the SA-2 detonated near Powers' U-2, blowing off the aircraft's tail.

Powers bailed out and was quickly captured. The Soviets staged a show trial that sentenced him to prison for espionage.

After his return to the United States, Powers worked for Lockheed for seven years and then became a helicopter pilot broadcasting traffic updates in Los Angeles. He died in a helicopter crash.

Powers has also posthumously received the Distinguished Flying Cross, National Defense Service Medal, and, from the CIA, the Director's Medal. ■



Powers (r) with U-2 designer Kelly Johnson in 1966.



Gen. Norton Schwartz, Air Force Chief of Staff, presents Powers' Silver Star to his grandchildren, Francis Gary Powers III and Lindsey Berry.

“The Syracuse FTU has been top notch from Day 1—easily the best learning environment I’ve experienced in the Air Force,” said one of the first trainees to graduate.

**Falcon Targets Debut**

A QF-16 Full Scale Aerial Target flew for the first time—albeit in manned configuration—on a flight from Naval Air Station Cecil Field near Jacksonville, Fla., May 4.

“With this successful first flight of the QF-16, the Air Force, Boeing, and our supplier partners have laid the groundwork for the program to enter low-rate production in 2013,” said Torbjorn Sjogren, Boeing’s upgrades vice president in a company news release following the flight.

The optionally manned QF-16 drones are converted from retired early model F-16s pulled from the Davis-Monthan AFB, Ariz., “Boneyard.” USAF plans to purchase as many as 126 FSATs to gradually replace its inventory of QF-4 Phantoms in the aerial test and practice target role.

The first six QF-16s will go to Tyndall AFB, Fla., for testing over the Gulf Coast target range in October, and the first production QF-16 is slated for delivery in 2014, the company said.

The Air Force awarded Boeing first phase of the QF-16 modification contract in 2010.

**Laser Lancer**

B-1B bombers from Ellsworth AFB, S.D., recently dropped the first in-service 500-pound GBU-54 laser guided Joint Direct Attack Munitions during a Combat Hammer weapon evaluation in Utah this spring.

Aircrews from the 34th Bomb Squadron and 37th Bomb Squadron successfully dropped six GBU-54s against moving targets on the Utah Test and Training Range near Hill AFB, Utah, during exercises May 14-16.

“It was gratifying to be part of the first operational release” from the B-1, said Capt. Charles Armstrong, a 37th BS weapon systems operator and a mission leader for Combat Hammer.

**KC-46A Moves Ahead**

Boeing’s KC-46A tanker passed its USAF preliminary design review in May, demonstrating the aircraft “meets system requirements and establishes the basis for proceeding with detailed design,” the company stated.

“Working closely with our Air Force teammates, we’ve made tremendous progress in the past 14 months and have the foundation in place to enter the detailed design phase,” Maureen Dougherty, Boeing KC-46 program manager, said on May 8.

Boeing says it remains on course to deliver the initial 18 mission-ready KC-46As as promised by 2017.

“I’m happy with Boeing’s performance. They’re maintaining a very tight focus on meeting commitments and staying on or ahead of schedule,” said Maj. Gen. Christopher C. Bogdan, KC-46 program executive officer, reviewing the design this spring.

Boeing and USAF are now aiming at the next program hurdle: next summer’s critical design review, which will certify the design is mature enough for the factory floor.

USAF also announced on May 14 its basing criteria for a KC-46A formal training site and two main operating bases—one Active Duty and one Air National Guard. Once selected, the FTU and Active Duty sites would take delivery of their first aircraft in 2016, followed by the ANG location in 2018.

Primary factors in the Air Force’s final decision on operational sites will be their proximity to receiver aircraft, ramp space, capacity, and cost. Air Mobility Command plans to release a list of preferred alternatives this December.

**Crashing the Fighter Party**

Two B-52s flew from Andersen AFB, Guam, and tangled with US and South Korean aircraft for the first time during a Max Thunder exercise at Gwangju AB, South Korea, earlier this year.

The twice-yearly drill has traditionally been a fighter-only air-to-air combat exercise and Max Thunder 12-1 marked the first time heavy bombers of any type have taken part, according to officials at nearby Osan Air Base.

“Bringing the B-52 to Max Thunder is really great training for everyone,” said Capt. Seth Spidah, B-52 pilot and exercise liaison. “A lot of the time we don’t get to integrate with other fighter aircraft.”

During the two-week exercise, the B-52s delivered 40 percent of the weaponry, hitting 85 percent of the exercise’s planned ground targets, according to the release.

“This exercise has been a series of firsts and this has been an excellent addition to show our capabilities,” said

Max Thunder deployed commander Col. Patrick Matthews.

**Texan Targets**

Turboprop T-6A Texan II trainers recently began flying “aggressor” sorties simulating slow-moving, low-altitude threats at the Air Force Weapons School at Nellis AFB, Nev.

“It is difficult for fighter aircraft to simulate low and slow targets, so the T-6 Texan II fills that void,” said Lt. Col. Daniel Garoutte, 33rd Flying Training Squadron operations director from Vance AFB, Okla., in a Nellis press release May 15.

“We add another dimension to [the weapons school students’] decision-making, and we increase the numbers of the opposing forces” that they face in the training drills, he said.

Paired with F-15 and F-16 aggressor aircraft from Nellis, the Vance T-6s force the students to “prioritize their intercept decisions based on the type of threat they were facing,” explained Maj. Jason Zumwalt, adversary integration boss with the USAF Warfare Center.

Debuting in the weapons instructor course this May, the Texan IIs add a “unique intercept challenge against an asymmetric threat,” he said.

**Weapons School Holds Mobility Drill**

Nearly 70 aircraft—mostly C-17s and C-130s—dropped paratroopers in a forced-entry airborne invasion exercise over the Nevada Test and Training Range during the Air Force Weapons School’s biannual Mobility Forces Exercise this spring.

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## NATO Greenlights Global Hawk Buy

NATO allies have signed a \$1.7 billion contract to purchase five RQ-4 Global Hawk Block 40 remotely piloted surveillance aircraft. The deal was inked at a NATO summit in Chicago this spring.

"The signature of the procurement contract for the AGS [Alliance Ground Surveillance] system is an important step towards the delivery of this key capability to the Alliance," said NATO Deputy Secretary General Alexander R. Vershbow, addressing Defense Ministers at the signing ceremony May 20.

Thirteen NATO members, including the United States, signed the initial Alliance Ground Surveillance contract, which includes initial operation and maintenance costs, as well as the purchase of the actual Global Hawk fleet.

The allies will use the Global Hawks to protect ground forces in Afghanistan, provide maritime security, and support counterterrorism, peacekeeping, and disaster relief.

The fleet will carry Northrop Grumman's advanced MP-RTIP ground surveillance radar, according to the company. Several European suppliers will work with Northrop Grumman to provide the system mobile, remote, and transportable ground stations.

"Northrop Grumman and our entire trans-Atlantic industry team are proud to be bringing this strategic capability to NATO and its member nations," said Wesley G. Bush, the company's chairman, CEO, and president.

"The decision to move ahead with the Alliance Ground Surveillance program in today's difficult economic climate sends a powerful message," added Vershbow. The Alliance plans to fully field AGS by 2017.

Orchestrated from Nellis AFB, Nev., the participating aircraft came from bases around the world and were synchronized to arrive over the range as a combined force.

MAFEX focused on the tactics needed to defeat air defenses and insert troops into a defended enemy country, according to Nellis officials, and is part of the weapons school's six-month weapons instructor course.

The C-130s and C-17s delivered more than 100 paratroopers and supporting equipment in airdrops and landings on an unimproved landing strip.

### Iceland's Anytime Wingmen

F-15Cs from RAF Lakenheath, UK, temporarily deployed to Iceland on a NATO aerospace control alert to Keflavik Airport this May.

"In this NATO mission, we identify and escort unauthorized aircraft before they reach Iceland's sovereign airspace," said 493rd Expeditionary Fighter Squadron Commander Lt. Col. Michael Casey.

Air Force Eagles provided continuous quick-reaction alert under a bilateral agreement with Iceland until 2006. NATO fighters now intermittently rotate for several weeks at a time to defend Iceland's skies, at the request of the Icelandic government.

"We practice scramble launches and when we receive an alert, the F-15s can be in the air within 15 minutes," added Casey, detailing the squadron's rotational mission.

KC-135s from RAF Mildenhall, UK, and C-130Js from Ramstein AB, Germany, deployed with the alert package to provide aerial refueling and rescue support.

German Air Force F-4s completed a stint at Keflavik earlier this spring and departed several weeks before the 48th Fighter Wing aircraft arrived May 12. The F-15s completed their mission and returned to Lakenheath, June 7.

### Hill F-16 Crashes

An F-16 fighter assigned to the 388th Fighter Wing at Hill AFB, Utah, crashed during a training mission over the Utah Test and Training Range May 4, wing officials said.

The pilot successfully ejected without injury and was taken to nearby hospital as a medical precaution, Ogden's *Standard-Examiner* reported, citing wing officials.

The Air Force is investigating the cause of the accident.

### Spartans Triumph Down Under

The Air Force awarded L-3 Communications a \$321 million foreign military sales contract to build 10 C-27J Spartan airlifters for the Royal Australian Air Force in May, the Pentagon announced.



**Whoa, That's Heavy, Man:** A C-17 Globemaster III drops heavy equipment supplies on Fort Bragg, N.C., June 4 during Joint Operations Access Exercise 2012. JOAX is a two-week mobility and ground combat exercise designed to prepare Air Force and Army personnel to respond to worldwide crises and contingencies.

USAF photo

USAF photo by SrA. Brett Clashman



Australia's Defense Ministry announced the overall \$1.4 billion purchase of aircraft, equipment, and spares in early May, shortly followed by the USAF contract May 31.

Australia is buying the C-27 to fill a short-field airlift gap left by the retirement of the RAAF's 14-strong DHC-4 Caribou fleet several years ago, as well as the planned phase-out of the RAAF's 12 legacy C-130s.

"The C-27J has the capacity to carry significant load and still access small, soft, narrow runways that are too short for the C-130J," while complementing the RAAF's existing C-130 and C-17 fleets, said defense officials discussing the deal May 10.

They said the Spartan "best met all the essential capability requirements and provides the best value for money," beating Airbus Military's C-295 transport in a competitive bidding process. The Australian fleet is scheduled for delivery and beddown at RAAF Richmond near Sydney in 2015, according to the Defense Ministry.

Australia's purchase comes just as the US Air Force is attempting to divest its own fleet of C-27Js, asking to retire the type in its Fiscal 2013 budget request.

### Beyond Supersonic

An experimental supersonic-combustion ramjet successfully accelerated to Mach 8 from atop a rocket launched at the Pacific Missile Range Facility in Hawaii, according to the Air Force Research Lab.

The Hypersonic International Flight Research Experimentation Program vehicle boosted to Mach 6.5 on a three-stage sounding rocket, then accelerated away from the rocket, using its scramjet to reach Mach 8.

HiFIRE maintained Mach 8 flight for 12 seconds yielding "unique scientific data about scramjets transitioning from subsonic to supersonic combustion," said NASA project scientist Ken Rock in an AFRL news release May 8.

AFRL has launched a total of four vehicles in collaboration with NASA and Australia's Defense Science and Technology Organization, but the recent shot was "the first time we have flight-tested a hydrocarbon-fueled scramjet accelerating ... to Mach 8," said Rock.

The three program partners are studying flight dynamics beyond supersonic and into the hypersonic speed range above Mach 5.

Though AFRL officials declined to divulge the fourth test flight's date, they said the agency plans to launch as many as six additional hypersonic test vehicles.

### AWACS Cockpit Remodel

The Air Force awarded Boeing a \$368 million development contract to design and build a modernized prototype flight deck for the E-3 AWACS.

"This move from analog systems to a digital flight deck will enable the US and NATO AWACS fleets to meet current and identified future air traffic management requirements for flying in worldwide airspace," said Jon

**Let Me Show You Around:** A C-17 moves to take on fuel during a media demonstration of aerial refueling capabilities over Kyrgyzstan on June 8. Kyrgyz media were invited on the demonstration flight, which provided an orientation to the journalists who may report on the US presence at Manas Transit Center in Kyrgyzstan.

Hunsberger, Boeing's AWACS program manager, announcing the deal May 23.

Boeing will upgrade two aircraft under the initial contract phase, one NATO and one US, with five panel glass cockpit displays and digital avionics for the purpose of flight testing.

Boeing plans to upgrade NATO's first E-3 Sentry next year, followed by a USAF AWACS in 2014, completing both aircraft by the end of 2015.

The initial phase reviewed aircraft subsystem requirements and wrapped up in March, according to Boeing, and the engineering, manufacturing, and development contract is the second phase of the company's AWACS upgrade program.

### LAIRCM Upgrade

USAF approved full-up production of Northrop Grumman's NexGen infrared missile warning system to equip its C-5, C-17, and C-130 fleets, the manufacturer announced May 14.

The missile-detection system augments the company's Large Aircraft Infrared Countermeasures already onboard many USAF airlifters, improving their ability to counter the man-portable

### Operation Enduring Freedom

#### Casualties

By June 21, a total of 2,006 Americans had died in Operation Enduring Freedom. The total includes 2,003 troops and three Department of Defense civilians. Of these deaths, 1,581 were killed in action with the enemy while 425 died in noncombat incidents.

There have been 16,526 troops wounded in action during OEF.

#### NATO Affirms Post-2014 Mission to Afghanistan

At a summit in May, NATO members agreed to an Alliance-led advisory mission in Afghanistan beyond the 2014 end of its combat role there.

The follow-on mission "will focus on training, advising, and assisting Afghan forces" once they assume full security responsibility for the country from the International Security Assistance Force, according to NATO officials in Chicago, May 21.

"Let me be clear: This will not be ISAF under a different name," said NATO Secretary General Anders Fogh Rasmussen, outlining the plan during the second day of NATO's two-day summit in Chicago. "It will be a new mission, with a new role for NATO," he said.

Afghanistan's government welcomed NATO assistance, and member countries also agreed to begin handing the lead combat role over to Afghan forces by the middle of next year, stated the release.

President Obama said the handover "will mark a major step" toward the goal of "completing the transition to Afghan lead for security by the end of 2014 so that Afghans can take responsibility for their own country and so our troops can come home."

#### Kandahar Opens Expanded Aerial Port

Engineers recently expanded the aerial port at Kandahar Airfield, NATO's busiest airfield in-country, according to the 451st Air Expeditionary Wing, which is in charge of the base.

The project added more than 15,000 square meters of additional space for handling inbound and outbound aerial cargo shipments.

Before the new ramp was built, "in a lot of ways, we were limited by our surroundings," said Lt. Col. Joseph Browning, 451st Expeditionary Logistics Readiness Squadron commander. "This new ramp will make us ready for whatever the mission demands," he said. The 451st ELRS airmen "are able to handle a lot of passengers and cargo," he said in the wing's May 22 press release.

The Army Corps of Engineers also upgraded the airfield's safety and security infrastructure adding several new features, such as enhanced lighting and airfield fencing.

#### Terre Haute to Afghan Heights

Joint terminal attack controllers of the Indiana Air National Guard's 113th Air Support Operations Squadron deployed for the first time as a unit to Afghanistan, May 14, according to wing officials.

Teamed with the Army National Guard's 37th Infantry Brigade Combat Team, the JTACs are part of an all-Guard presence mentoring Afghan forces in Kunduz province in northern Afghanistan. On the ground, the ANG teams will directly support the security force assistance coordinating air support for the Ohio and Michigan Army Guard units.

Each of the unit's deployed JTACs and air liaison officers, who are assigned to Hulman Field near Terre Haute, volunteered for the assignment.

The 113th ASOS' parent 181st Intelligence Wing stood up in 2008, training and equipping battlefield airmen over the last few years to bring the air support squadron up to deployment readiness.

air defense threat, said Col. Shawn Shanley, LAIRCM acquisition leader.

"This latest milestone decision will ensure the Air Force has the most advanced missile warning system with longer detection range and reduced false

alarms," added Carl Smith, Northrop Grumman IR countermeasures vice president.

The Air Force originally selected the company's NexGen MWS in January 2009.

#### Red Tails Stand Down

Air Forces Central deactivated the 332nd Air Expeditionary Wing in Southwest Asia this spring.

"As the largest combat wing in the Air Force for most of its timeframe, this wing served with distinction," said Maj. Gen. James J. Jones, Air Forces Central deputy commander, retiring the wing colors May 8.

The unit began operations as the 332nd Air Expeditionary Group at Ahmed Al Jaber AB, Kuwait, in 1998, quickly becoming one of USAF's busiest combat wings.

"In the nearly 10 years since the wing flag was reinstated, the Red Tails have been the very backbone of AFCENT forces engaged in Operation Southern Watch, Operation Iraqi Freedom, and Operation New Dawn," said Jones.

At the height of operations, the wing boasted nine groups at JB Balad, Iraq, and at four geographically separate groups, as well as several detachments scattered throughout the theater.

The wing relocated from Balad last November to fly top cover for the US troop withdrawal from Iraq the following month. It traces its lineage to the 332nd Fighter Group—World War II's famed Tuskegee Airmen.

#### Whiteman Association Takes Shape

More than 100 Active Duty joined Air Force Reserve Command's 442nd Fighter Wing, standing up a new active association at Whiteman AFB, Mo., as part of an ongoing initiative to associate every reserve component fighter unit.

"There is a synergy with this setup: We get full-time manpower, which will help with our high operations tempo and deployments," said Col. Gregory A. Eckfeld, 442nd Fighter Wing vice commander.

"The Active Duty airmen get the benefit of our experienced Reservists, who will help train and season their pilots and maintainers."

The Air Force announced its plan to stand up active associations at every Air National Guard and AFRC fighter unit last November, and the 442nd is one of several units receiving an injection of Active Duty manpower this year.

Under the active association concept, the ANG or AFRC unit owns the aircraft—in this case the 442nd Fighter Wing's A-10 Thunderbolt IIs—and Active Duty pilots and maintainers from Air Combat Command assist in daily operations.

The Active Duty commander will take day-to-day operational direction from 442nd boss, Brig. Gen. Eric S. Overturf, wing officials said May 22.

#### Cyber Split

Air Force Space Command officials recently announced plans to restructure

USAF photo by S/A. Jarvis Z. Wallace



**No Spa Mud Bath:** A member of the 39th Security Forces Squadron jumps into the mud pit after a tug-of-war competition during Sports Day at Incirlik AB, Turkey. The 39th SFS won the event. Other competitions included squadron-vs-squadron volleyball, softball, basketball, and dodgeball.

the Air Force Network Integration Center at Scott AFB, Ill., divesting many of its operational functions to several new squadrons.

Instead of serving as the service's cyberspace lead command, AFNIC will now concentrate exclusively on maintaining and securing the Air Force's internal networks.

"These changes will allow AFNIC to focus on its core mission and ultimately make AFNIC the premier Air Force organization providing network integration and engineering services for the Air Force," said Lt. Gen. Michael J. Basla, AFSPC vice commander.

AFNIC's cyber-related staff functions, such as training and requirements support, will go to AFSPC's new Cyberspace Support Squadron, activated at Scott, May 14.

Oversight of AFNIC's former operation and maintenance functions transfers over to the 92nd Information Operations Squadron and 38th Cyber Readiness Squadron.

The units stood up at Scott in April in preparation for the reshuffle, under 24th Air Force, the command's cyber operations arm headquartered at JBSA-Lackland, Tex.

**New Home for Battlefield Airmen**

Keesler AFB, Miss., and JBSA-Lackland, Tex., are the Air Force's candidate locations to host a relocated tactical air control party and air liaison officer schoolhouse.

Due to the demand for tactical air control in theater, the TACP/ALO training pipeline has outgrown the current facilities at Hurlburt Field, Fla., service officials said in a news release May 15.

As a result, "these candidate bases will be analyzed to determine which location will best host this mission," said Air Force installations chief Kathleen I. Ferguson.

The service leadership has given Air Education and Training Command the nod to begin site surveys at Keesler and San Antonio-Lackland. Based on AETC's feedback, leaders are expected to select a preferred base this summer.

The final decision will be made following a full environmental impact study, according to officials.

**Pushing Bytes**

The Air Force Test Pilot School launched a Cyber Systems Test Course as the newest part of its intense year-long

test pilot master's program at Edwards AFB, Calif.

"This is the first course of its kind that includes a disciplined, yet flexible approach to testing cyber intensive systems," said Col. Noel Zamot, TPS commandant, explaining the course in May.

"Whether it's testing ... the Joint Strike Fighter, the radar signal processor of a Global Hawk, or even a laser targeting pod for the B-1 or F-15 Strike Eagle, ... students will look at systems in a disciplined fashion," he added.

TPS instructors taught the CSTC several times thus far this year, including during the school's inaugural Enlisted Flight Test Course in April, said school officials.

The school plans to expand cyber instruction from the current four-hour class, to anywhere from six hours to a week, TPS faculty said.

**Hawaiian Active-Associate Deal**

The Active Duty 15th Wing recently signed a memorandum of understanding formally defining the command structure of its association with the Hawaii Air National Guard's 154th Wing at JB Pearl Harbor-Hickam, Hawaii.

"Maintaining unity of effort can be a challenge due to separate chains of command ... and even different work rules," said Brig. Gen. Braden Sakai, 154th Wing commander, in a May 8 release.

"By signing this MOU, we are giving our officers, [noncommissioned officers], and civilians the structure and tools they need to ensure unity of effort in their integrated workforce," he added.



USAF photo by Don Peek

**What I Do With My Time Off:** Reservists from the 94th Civil Engineer Squadron Explosive Ordnance Disposal Flight, Dobbins ARB, Ga., maneuver a remote control robot for a demonstration during an Employer Appreciation Day at the base. Civilian employers of Dobbins Reservists were given an extensive orientation tour of base operations as thanks for their support.



**Thanks, Bud:** Capt. Matt Mansell (l), a pilot with the 774th Expeditionary Airlift Squadron, shakes the hand of SrA. Timothy McMahon before a C-130H mission at Bagram Airfield, Afghanistan. McMahon is an aerospace maintenance journeyman deployed to the 455th Expeditionary Aircraft Maintenance Squadron. Flying safely is a tricky proposition at Bagram because of harsh conditions, and pilots appreciate the work maintainers do to keep their aircraft in the air.

joining 436 Transport Squadron the same week it was accepted.

### Legendary Lightning Ace Dies

Bill Harris, a World War II triple ace, died at age 96 in Midland, Ore., May 23, reported neighboring Klamath Falls' *Herald and News*.

Harris, who enlisted in the Navy in 1936 joined the Army Air Corps shortly after the war broke out, scored 16 confirmed aerial victories flying a P-38 Lightning against the Japanese.

During the war Harris rose to the rank of lieutenant colonel but returned to civilian life, working as a rancher and entrepreneur after the end of hostilities.

"What people don't know about Bill is that, more so than what he did in the war, he was just a fine man," said Col. Curtis Waite, president of the Air Force Association's chapter in southern Oregon named in honor of Harris.

In his later years Harris continued to influence airmen, often speaking and offering advice to the Oregon Air National Guard's 173rd Fighter Wing at Klamath Falls Arpt./Kingsley Field, according to the newspaper.

### Airmen Excel in Warrior Games

Airmen brought home 18 medals from the 2012 Warrior Games held at the Air Force Academy in Colorado Springs, Colo—the team's best performance in three years.

"I think we exceeded all expectations," said team coach Maj. James Bales. "The goal for the team was just to come out here and perform at the best of their ability, and they did that," he said.

The Warrior Games bring together ill, injured, or wounded athletes across the US and British militaries to compete in paralympic sports.

USAF athletes medaled for the first time in seated volleyball and wheelchair basketball, earning a bronze medal in both. They brought home a gold medal and two silver medals in swimming; two silver medals and a bronze medal in cycling; and two gold medals, three silver medals, and four bronze medals in track and field.

The Marine Corps team won the trophy for the most cumulative medal points during the competition at the academy April 30 to May 5. ■

The new structure empowers functional supervisors—whether Active or Guard, to direct the day-to-day activities of the airmen under their direction. "This authority is crucial ... to effectively employ all of the airmen working in their shops," said Lt. Col. Stanley Springer, 15th Maintenance Group deputy commander.

### Canadian Herks Complete

Lockheed Martin delivered the last of 17 Royal Canadian Air Force CC-130J-30 Super Hercules—the "stretched" version—in a ceremony at the company's Marietta plant in Georgia this spring.

"The aircraft [type] has already proven its worth around the world in places like Afghanistan and Libya, as well as here

at home in Canada," said RCAF Lt. Col. Colin Keiver, 436 Transport Squadron commander, accepting the new airframe May 8.

"Our partners at Lockheed Martin have delivered us an aircraft that more than lives up to the motto of 436 Squadron: ... 'We Carry the Load,'" he said.

Canada signed a \$1.4 billion contract with Lockheed Martin for the 17 Super Herks and associated support services in December 2007.

The company delivered Canada's first aircraft—designated CC-130J in RCAF service—in June 2010. It completed delivery of the fleet ahead of schedule this year.

Canada's final Super Herk flew to its new assigned base at Trenton, Ontario,



# A SEA Change

By Marc V. Schanz, Senior Editor

**The US military is refocusing its attention on the threats and opportunities in Southeast Asia, a region often overlooked in the last decade.**





USAF photo by MSgt. Cohen Young

*An F-15C takes on fuel from a KC-135 while flying over Korat, Thailand, during Cope Tiger 2011.*

**T**his past spring, a long simmering area of tension flared up, approximately 123 miles west of Subic Bay in the Philippines in the South China Sea.

A Philippine military aircraft spotted Chinese vessels in the disputed Scarborough Shoal, prompting the deployment of the Philippine Navy's largest ship, BRP *Gregorio Del Pilar*, a former US Coast Guard cutter. Filipino naval personnel boarded the vessel for an inspection and discovered large amounts of illegally collected coral, shellfish, and other marine animals. Not long after, two Chinese maritime surveillance ships positioned themselves between the Filipino ship and the Chinese, preventing arrest of the fishing crews, causing a high-level diplomatic standoff between the two countries. Eventually, the Filipinos withdrew their warship, and the Chinese vessels slipped away. Not long after, Chinese ships returned to the shoal and tensions remained as of the first week of June.

The incident was one of several such skirmishes in recent years where China has forcefully asserted claims in areas around the South China Sea, emboldened by its increasing economic and military power. As a result, many countries in Southeast Asia have quietly supported a more assertive US presence in the region as a check on Beijing. While public statements from the region's governments are often cautious, concern about China's willingness to bully its way through territorial disputes is pressing nations to increase their ties

USAF photo by MSgt. Matt Summers



Royal Malaysian Air Force Cpl. Shahzaihar Zainol, a combat air rescuer, "recovers" USAF Capt. Daniel Parrish during Cope Taufan, a bilateral training exercise aimed at sharing knowledge and tactics between the US and Malaysian air services.

with the US. In early June, Secretary of Defense Leon E. Panetta referenced the the Scarborough Shoal incident during the Shangri-La Security Dialogue in Singapore. He said the US opposes "coercion" in the region and urged settlement "in a manner consistent with international law."

Preceding and following the Scarborough confrontation, numerous multinational US military exercises unfolded across Southeast Asia, rarely grabbing headlines beyond the region. In Thailand this February was Cobra Gold 2012—a US Pacific Command combat exercise hosted by Thailand, involving forces from the US, Indonesia, Malaysia, Singapore,

Thailand, South Korea, and Japan. It was followed by Cope Tiger 2012 in March, an air combat and mobility exercise featuring USAF, Thai, and Singaporean forces.

In early April, as tensions rose off the coast of the Philippines, Pacific Air Forces sponsored a biennial aerial exercise in Malaysia—Cope Taufan—featuring 67th Fighter Squadron F-15s from Kadena AB, Japan, flying with Royal Malaysian Air Force MiG-29s, F/A-18s, and other aircraft. PACAF also conducted subject matter exchanges with the Malaysian military on topics such as force protection and engineering and participated in civil affairs projects. And while the standoff evolved at Scarborough, the US and Philippine armed forces conducted Balikatan 2012, the 28th iteration of the multiservice joint exercise, with more than 4,400 US personnel. It featured a range of combat and humanitarian response training events, including aircraft control, communications, and pararescue activities.

The command chief of PACAF, CMSgt. Brooke P. McLean, visited the exercise and met with many Philippine and US service members. "Having partnered nations and strong capabilities on both sides are very important," McLean said. "The Philippines has been a treaty ally with us for many years."

The activity is deliberate, even if the timing is coincidental. McLean's sentiment reflects the strategic thinking now playing out in the so-called "Pacific

*A-10Cs taxi at Osan AB, South Korea, on return from deployments to Balikatan in the Philippines and Thailand's Cope Tiger in 2011.*



USAF photo by SSgt. Chad Thompson

rebalancing” of US military priorities, as the US adapts to changing security dynamics. The effort in PACOM intends to safeguard and ensure the interests of allies in Asia and the Pacific.

A subtle shift in US attention has great implications. The presence of US military forces in the Asia-Pacific has long emphasized northeast Asia—South Korea and Japan—and American territory in the Pacific Ocean, most notably Hawaii and Guam. While the US continues to capitalize on the relationships built on Cold War “hub-and-spoke” alliances with Japan and South Korea, it is moving to expand its military and security cooperation activities in Southeast Asia as nations in that region worry about the growing military power of the People’s Republic of China.

### A Rising China

America’s allies are careful in their statements about the US military in Asia, while also voicing their concerns about the Chinese. Singapore’s Foreign Minister Kasiviswanathan Shanmugam said during a February speech in Washington, D.C., that “the world and Asia are big enough to accommodate a rising China and a reinvigorated US,” as many nations of Southeast Asia have economic and trade ties with both countries. But, he added, “the US has long played a major role in the region’s stability and prosperity,” and Singapore for one had encouraged the US to engage with Southeast Asia “long before it was fashionable.”

As part of the rebalancing of forces in the Asia-Pacific and the development of concepts such as AirSea Battle, the Pentagon is reviving traditional ties with longstanding allies such as Singapore, the Philippines, and Australia, and expanding contacts with emerging regional players such as Malaysia, Indonesia, and even Vietnam. By doing so, it is expressly acting on the new US defense guidance, which emphasizes the “existing alliances” in Asia and also the need to “expand our networks of cooperation with emerging partners.”

The “emerging partners” piece of the strategy is playing a greater part in US efforts in Asia, as evidenced by senior Obama Administration officials, DOD statements, and visits with allies.

Even prior to the January 2012 release of the Obama Administration’s updated defense strategic guidance, senior Administration officials telegraphed there would be no cutbacks of investment in the Asia-Pacific. In October 2011, Panetta made his first trip to the region since assuming the top post at the Pentagon, to assure allies

USN photo by Lt. Cmdr. Mark C. Jones



**A US Marine Corps CH-46 helicopter passes USS Tortuga and the Royal Thai Navy ship HTMS Surin during the exercise Cobra Gold in February. Some Southeast Asian countries such as Thailand see a “collective opportunity” for enhanced interoperability with the US and other nations in the region.**

the US would maintain its presence despite a forecasted period of belt-tightening of defense expenditures. His first stop was, tellingly, Indonesia, where he met with the Defense Ministers of the 10-member Association of Southeast Asian Nations (ASEAN). He announced the US would not back away even through hard times. From PACOM’s perspective, ASEAN and its numerous forums—including its annual meeting of Defense Ministers, the East Asian Summit, and the Asia-Pacific Economic Cooperation initiative—“have advanced to become the most effective Asia-Pacific multilateral organizations,” according to Adm. Robert F. Willard, then PACOM commander.

Historically somewhat derided as a “talkshop” when contrasted with alliances such as NATO, ASEAN’s influence in the region has steadily grown in the last decade—especially regarding humanitarian assistance and disaster relief operations. Singapore and Indonesia, both founding members of ASEAN, have actively pushed for the group to build closer defense ties within its ranks. The US has moved to elevate its security cooperation with Indonesia in particular and in June 2010 announced a US-Indonesia Comprehensive Partnership to expand a wide range of joint activities, according to PACOM officials. Along with the Philippines and Malaysia, Indonesia is key in not only the South China Sea, but in the Sulu and Celebes Seas as well, officials with the command note, and building cooperation in intelligence, surveillance, and reconnaissance sharing, disaster response, and air and maritime capability is of concern to all three nations.

US partnership with Australia has also been reinvigorated. While the November 2011 announcement by Australian Prime

Minister Julia Gillard and President Obama emphasized the new US Marine presence in the country’s north, the military agreement will expand USAF’s presence in the future and promises wide-ranging military cooperation. Australian officials confirm that future deployments and rotations of aircraft may include heavy bombers (B-52s) and mobility airlift (C-17s). These potentially would operate from Royal Australian Air Force Base Tindal, about 200 miles southeast of Darwin.

US forces in the region are also pursuing more multilateral training opportunities, both with traditional allies and emerging partners, PACOM and PACAF officials say.

US relations with the Philippines, Indonesia, and Malaysia “seek to enhance current bilateral cooperation [and] where possible expand bilateral relations to multilateral,” a PACOM official said, regarding the state of US military cooperation in the region. PACAF is steadily expanding its participation in exercises such as Cope Taufan in Malaysia and Pacific Angel joint humanitarian, capacity-building exercise.

Flexible and tailored partnerships—from small footprint civil affairs visits to large-force exercises—will be vital as the US builds mil-to-mil relations in Southeast Asia. “Every nation has a bilateral opportunity, but multilateral processes [are] critical to having interoperability and unity of effort when it is required,” said PACAF Commander Gen. Gary L. North in February. North said the nations of Southeast Asia recognize this, and as their defense and security budgets are sized for their needs, they also see a “collective opportunity” for interdependence and interoperability. This is evident in efforts such as Cope Tiger in Thailand.



**Air Chief Marshal Itthaporn Subhawong, Commander in Chief of the Royal Thai Air Force (l), and USAF Gen. Gary North, PACAF commander, pass through the JB Pearl Harbor-Hickam, Hawaii, honor guard cordon. Itthaporn visited the base last September to discuss common concerns and regional cooperation.**

“Is it the way of the future?” North asked rhetorically. “When diplomatic and political entities approve of multilateral [operations] in real world... contingencies and ... exercises, it is advantageous to us all.” North noted the most recent iteration of Cope North was a great example of this trend. Cope North is a major aerial exercise held on Guam, traditionally with the Japanese Air Self-Defense Force and USAF. February’s event involved the Royal Australian Air Force for the first time and more than 78 aircraft participated in a range of large-force combat exercises and simulated disaster relief and humanitarian assistance scenarios.

**The Pivot in Motion**

Since the rollout of the new strategy in January, US defense officials have pushed initiatives and partnership activities with allies in the region. Several Southeast Asian Defense Ministers have visited the Pentagon since January. The US finalized a deal to rotate littoral combat ships through Singapore and has expanded longstanding defense ties with the small nation, particularly with its Air Force. Singapore is home to the bilateral Commando Sling air combat exercise held with USAF, is one-third of the Cope Tiger exercise, and has four Republic of Singapore Air Force training detachments in the US. During his visit to Washington in April, Singapore’s Defense Minister, Ng Eng Hen, specifically cited training cooperation with USAF as a “testament indeed to the strong and close defense ties that we have.”

The US has escalated security discussions with the Philippines, hosting a “two-plus-two” meeting between the defense and foreign ministers of both countries in

April in Washington. It was the first such meeting for the two nations that signed a mutual defense treaty in 1951.

In a joint April 30 statement from the meeting, they agreed to reaffirm their obligations under the treaty, enhance security cooperation, support efforts to increase multilateral cooperation with ASEAN and the ASEAN defense ministerial, and pledged to find ways to strengthen the defense capabilities of the Philippines.

Disputes with China over the South China Sea loomed over the document. The statement pledged expansion of joint training and exercises to increase US-Philippines interoperability and to expand joint ISR activities to “deter and respond proactively, rapidly, and seamlessly to various situations in the region.”

According to Philippine Foreign Affairs Secretary Albert F. del Rosario, speaking before the two-plus-two meeting, his country would like to increase contacts

with the US and would submit a request for more military equipment sales. The nation wants to buy another cutter and a squadron of decommissioned F-16s to build its tactical air forces. Del Rosario also said the country would discuss opening its military facilities for joint use with US forces. The last permanent US bases in Southeast Asia were in the Philippines and were shuttered in the early 1990s when the Air Force left Clark Air Base and the US Navy departed its base at Subic Bay.

Today’s climate has even allowed for developing ties with a one-time foe, Vietnam, which has its own complicated and sometimes hostile relationship with China. (China’s People’s Liberation Army’s most recent sustained combat, it should be noted, was its abortive punitive invasion of Vietnam in 1979.) The Vietnamese have long running territorial grievances with the Chinese in the South China Sea, which they refer to in their latest defense white paper as the “East Sea.” The country is also currently modernizing its sea and air forces in light of China’s increasingly powerful military. In addition to enlarging its submarine fleet with the purchase of Russian attack subs, Vietnam also moved to acquire a dozen Su-30MKK fighters.

“We are very excited about mil-to-mil relationships with the Vietnamese;... this relationship is building,” North said in February, adding that he traveled to the country in 2011 on an official visit. The Navy has conducted several ship port calls and exchanges with the Vietnamese, and North noted one important area for cooperation is search and rescue exercises and training. Vietnam has a lengthy coastline, and its Air Force holds the responsibility for SAR operations. “There were good discussions on this,” North said.



**Amphibious assault vehicles launched from USS Tortuga land on a beach as ordnance from an F/A-18D Hornet explodes during a Cobra Gold live-fire exercise.**

Maritime security and ISR have become regular themes in meetings with military chiefs, according to PACOM officials, and the defense priorities of the region are evolving to reflect the reality of challenges and threats that air and naval forces are designed for. Despite the region's geography, many countries have militaries dominated by their armies, PACOM officials said, and many of these focus on internal security.

While a great deal of the emphasis on security cooperation in the region has focused in the last decade on countering terrorist groups, many countries have been steadily modernizing their conventional military forces, particularly their naval and air arms. In almost all cases, this modernization is driven by concerns about China's expanding power projection capabilities and the military imbalance it is creating.

Singapore-based military analyst and scholar Richard A. Bitzinger noted in a paper on ASEAN countries' military modernization that almost all nations in the region now possess at least some fourth generation fighter aircraft—either Russian or US variants—and have standoff-range radar guided missiles. Many Southeast Asian nations have built up command and control and airborne early warning capabilities, in large part to respond to the increasing power of the PLA Navy and Air Force.

Of course, not all US partners have the same capabilities, and engagement must reflect this, officials state. "We're not just talking about what we're going to have to do, but [also] shaping for conflict prevention," said Lt. Col. Jeff Kronewitter, the Southeast Asia branch chief for security cooperation and assistance programs in PACOM's logistics shop. "You have to balance the realities of how those countries are built up, ... and it's a very land-centric force, [even though] everyone has a coastline of some sort," he said. "Some countries are waking up to the fact that, 'Hey, we actually need a fairly good maritime capacity,'" Kronewitter said.

Airborne ISR is a vital piece of this for many nations that don't necessarily want to create interdiction capacity but want to know what's happening on the edges of their territory. Some US allies in the region—such as Thailand—have fairly modernized and capable militaries but are seeking to improve their sustainment and maintenance practices, Kronewitter said. The Thai military responded proactively to the 2011 floods that ravaged wide swaths of the country, he said, and



Staff photo by Marc V. Schanz

**USAF TSgt. Steven Raethel (second from left) walks to a C-17 with members of the Royal Thai Air Force at Don Muang Airport, Thailand, this past March. Raethel served as jumpmaster on the C-17 in a large-force parachute jump exercise involving both the RTAF and Royal Thai Army during Exercise Cope Tiger 2012.**

have worked closely with airmen from Guam's 36th Contingency Response Group to refurbish some of Thailand's maintenance capacity lost to flooding that affected its mobility hub at Bangkok's Don Muang Airport.

### Places not Bases

Since there are no permanent bases in Southeast Asia, access will remain a key factor in the Pentagon's future cooperation efforts. The increase in attention to the region reflects a "strong desire to balance ... forces more effectively into Southeast Asia and South Asia," said then-PACOM commander Willard testifying in March. Currently, all permanently garrisoned forces outside of Guam and Singapore are "by and large in northeast Asia," Willard noted, and there is little enthusiasm for the return of a large permanent US presence like at Clark and Subic Bay in the Philippines.

The prospect of a bigger US military footprint in the region is a touchy subject for ASEAN countries—even those with longstanding treaties with the US—due to the complex relationships many have with China. For US officials, however, the permanent basing of forward forces is a slightly semantic argument. Willard said whether forces are stationed permanently or rotated is "inconsequential," and what is most important is that US forces can be ready and respond when needed.

"They have to dwell there long enough to be trained and exercised and equipped and resourced, and engaging on a fairly continuous basis. To that end, deploy-

ments such as the new Marine presence in Australia "will be very effective," he said.

This approach has become known as "places not bases"—where the Pentagon will seek visiting forces and cooperation agreements with allies and not to build new facilities on par with Cold War garrisons. The places-not-bases construct is here to stay, North said in February. "There's no appetite to support new bases [in the Pacific]; we must leverage partners and allies." This will involve utilizing existing locations to conduct activities and exercises, temporary deployments, staging areas, and access agreements for contingencies, and other approaches.

This is where multilateral operations and exercising will pay off, he added. "It's something we do as a matter of practice, ... so the arrangements where we can have access or throughput in our partner nations [will be] critical to our success in the future."

DOD's new strategic guidance has "invigorated some of those discussions," PACOM's Kronewitter explained. For several years, there was not much consideration for basing and access in places such as south and Southeast Asia, mostly due to DOD's priority on securing transit to and from US Central Command. Now, the US wants "to be a bit more habitual with [this] type of relationship," and with several countries, he said.

The US is not the only interested party angling for influence in the region, several officials also noted. "It's the Iranians sailing around, it's the Chinese sailing around," said one. "It's not just us."

# A FORCE REBALANCED

Through the declining budgets, the Air Force will remain unmatched.

By John A. Tirpak, Executive Editor

**I**N THE movie "Apollo 13," NASA Flight Director Gene Kranz, trying to get a handle on an unfolding space disaster and frustrated by a quickly mounting list of critical problems and system failures, demands of his controllers a positive status report. "What have we got on the spacecraft that's good?" he asks.

Given the budgetary body blows dealt the Air Force in this and the past few years—hundreds of aircraft prematurely retired, thousands of personnel to be separated, and numerous important programs postponed or terminated outright—many are asking a similar question about USAF's future.

The surprising answer is: quite a lot.

Air Force leaders say while these are indeed Spartan times, and force structure is coming down to historically low levels, the service's bedrock modernization programs remain largely intact and will continue, though slowly. They insist the Air Force will remain capable of performing whatever missions it may be assigned in the coming decade.

Gen. G. Michael Hothage, head of Air Combat Command, said in an April speech that even if USAF eventually bears grave cuts amounting to 18 to 20 percent of last year's budget, "that will still leave the Air Force at a \$100 billion force ... still the most powerful Air Force on the planet," able to take on missions with greater "quantity and quality" than any other.

"We won't go as many places and we won't stay as long," Hothage added, "but we still have that capability."

"You needn't worry about the health and safety of the Air Force," he added, provided the modernization program now on the books is allowed to play

out and service leaders succeed in preventing the retained force from being hollowed out.

The new national strategy is part of the reason USAF has fared reasonably well with its core programs, said Lt. Gen. Christopher D. Miller, deputy chief of staff for strategic plans and programs. The strategy elevates the importance of the Air Force since it emphasizes a swing toward the Pacific; long-range intelligence, surveillance, and reconnaissance; and the ability to defeat anti-access, area-denial measures (A2/AD). USAF's capabilities in global reach, ISR, and stealth are tailor-made for the new strategy.

## A2/AD Proliferation

"I think the new strategy is very positive for us," Miller said in an interview, because it matches well with USAF's strengths. Moreover, "it doesn't dismiss or minimize what we have done in the last decade in the wars in Iraq and Afghanistan." The investments made in ISR—such as in remotely piloted aircraft, as well as "joint operations and ... in air [operations] command and control ... will be sustained in this budget and on out," he said.

However, the strategy also "focuses us back on the fact that we have to equip and train for the more challenging end of the spectrum," namely, capabilities against a near-peer power with modern A2/AD capabilities.

Thus, while all the services saw some cherished programs deferred or terminated in recent years, the Air Force's key modernization programs—F-35 fighters, KC-46 tankers, a new bomber, and satellites—survived the cutting. Among the services, expensive new starts such as the bomber are rare.

Lockheed Martin photo



In combat power, USAF's flagship program is the triservice F-35 fighter. Despite headlines deriding the project as a "trillion dollar airplane," those estimates include design, development, procurement, operation and maintenance, military construction, and all other countable costs over 50 years of service—and are for all three variants of the jet for the three armed services.

Given such headlines, it is significant that the objective of 1,763 Air Force F-35s wasn't touched in the Fiscal 2013 budget plan. Service leaders believe USAF must keep moving toward an all-fifth generation force.

In the near future, Hothage said, the proliferation of A2/AD threats around the world will make A-10s, F-15s, and F-16s—no matter how souped-up with



*An F-35 and KC-135 rendezvous over Edwards AFB, Calif., on the F-35's first night refueling mission on March 22.*

new radars, sensors, and weapons—unsurvivable on their own.

The F-35 procurement program has been slowed in order to reduce concurrency (the period when jets are in production at the same time the test program is still discovering design flaws that require altering the line and modification of initial batches) and save some money in the current five-year plan. Rather than rapidly ramp up to a production rate of 48 or more per year for USAF, the plan is to buy about three dozen a year for a few years. The idea is to wait until the jets are being produced at a more stable configuration and at more efficient rates, which include production for export partners.

The slowdown in the F-35 has led many—notably former Chief of Staff

retired Gen. Ronald R. Fogleman—to suggest the Air Force bridge the gap between the current backbone fighter fleet and the F-35 with buys of new fourth generation aircraft with the latest gear. However, Hostage rejected that notion out of hand.

New aircraft would have a life expectancy of three decades or more, and an expensive logistics train would have to be retained to support them. However, even if they were ordered immediately, they would enter service just at that time in the near future when they could not survive modern battlefields, Hostage said.

“Sinking money into brand-new fourth generation [fighters] is just dumb,” he said.

Moreover, the F-22 fleet isn't large enough to provide the edge necessary

to enable a mostly fourth gen inventory.

The F-22, Hostage noted, will be a low-density, high-demand fleet “forever.” It cannot be everywhere the Air Force may need large numbers of fifth gen fighters to be at the same time, so USAF must bring on the F-35.

Service leaders will “get to a more affordable F-35 as fast as we can, given the production and test program, and we will stay on track for a fifth generation-capable fleet,” Miller said.

The Air Force is mindful that its plans for having a lot of fifth gen fighters in service at this point haven't panned out, and its F-15s and F-16s are not up to the same level of capability as versions serving in some allied countries.

Because USAF can't afford to rapidly change out its fighter inventory, it will



Boeing photo illustration

**A B-1B gets into refueling position behind a KC-46 tanker in this Boeing photo illustration. USAF will buy 179 KC-46s.**

be necessary to perform a service life extension program on its F-15s, F-16s, and A-10s to keep them viable during the decade-long transition to a mostly F-35 fleet, Miller said.

“We are committed to a SLEP of 350-ish F-16s,” both for capability and structural life, Miller said. The number is not firm because it’s not yet known how fast the F-35 will be brought on, nor how much service life the F-16s actually have left. That’s being studied, both in individual fighters by tail number and through destructive testing of a representative aircraft.

Although the F-22 has largely taken over as the prime air superiority aircraft of the Air Force, a fleet of about 250 F-15C/Ds will be retained in the Air National Guard, able to supplement the F-22s and conduct air superiority missions in theaters where the enemy fighter threat is less potent. Of these, 174, called “Long-Term Eagles,” will get new active electronically scanned array radars and some other measures to keep them viable through the 2020s.

As for the F-16s, Miller said there are “a lot of options” to go higher than 350 life-extended aircraft, should that prove necessary.

“We’re doing RDT&E for the capability enhancement,” Miller added, noting that a fully fleshed out package of improvements and a buying decision for SLEP kits is still a few years away.

Even though it takes some money away from F-35 procurement, the F-16 SLEP is necessary because “it’s important to keep a quantity” of fighters on hand, Miller said. While combat aircraft effectiveness has improved by leaps and bounds, “you can’t be in two places at the same time,” and USAF must keep enough squadrons available while the transition to the F-35 takes place.

### Something Else

He echoed Hostage’s comments about buying new fourth gen fighters, saying USAF believes that “15 to 20 percent of the cost of a new airplane will get you another few thousand hours of an

existing airplane.” That’s probably all USAF needs, and buying new fourth gen fighters solves nothing for USAF.

“The threats are continuing to evolve,” Miller said. “That’s just a fact, and if you have larger numbers of airplanes that just aren’t capable of dealing with the threat, it just doesn’t do you any good” to buy them.

All told, the fighter force will level off at about 1,900 aircraft, which will eventually be all F-22s and F-35s.

The F-15Cs will age out first, followed by blocks of F-16s as they are replaced by F-35s.

The Air Force will press on with rewinging and capability upgrades of about 231 A-10s, which will carry that fleet into the 2030s.

By that time, USAF also will have to start replacing its earliest F-22s, but what will succeed it has not yet been decided.

“When do we need it, ... when will we be able to afford it, [and] ... what does it look like?” are the questions “inherently linked” to any discussion of an F-22 follow-on, Miller said.

Chief of Staff Gen. Norton A. Schwartz has said the Air Force has no room in its budget for a sixth generation fighter program at this point. Miller said part of the issue is that USAF doesn’t know “how we sustain air superiority ... 15 or 20 years from now.” The solution may be a sixth generation fighter. Or “it might look like something else.”

For now, the Air Force’s research arms are doing basic science to rough out what capabilities will be needed in the 2030s to achieve control of the air.

USAF photo by MSGT. Mark W. Forlin



**F-15s land at Tyndall AFB, Fla. Officials say the proliferation of advanced threats will make even souped-up Eagles unsurvivable.**



Miller said the F-22 follow-on is “a very high priority, and when the resources are available,” he’s “pretty confident the Air Force will start moving in that direction.”

### Long Way To Go

The long-range strike bomber is still not a “program of record,” and the reasons why are classified.

However, “the fact that we have the program started, that it’s continuing onward—I think that’s very positive.” The bomber is a project “directed by the Secretary of Defense and we’re moving forward with it,” Miller said. Not many details are available, but the plan calls for starting delivery of 80 to 100 aircraft in the mid-2020s.

Miller also noted that the three existing bombers—the B-52, B-1B, and B-2—will all receive upgrades to keep them functional and credible well beyond initial deliveries of the new long-range strike aircraft.

The new national strategy calls for “reversibility”: the capacity of the armed forces to change course if expected conditions don’t prevail and the nation needs a larger military.

For the ground branches, reversibility is understood to mean an ability to quickly recall large numbers of troops to service. However, it’s “a little bit different” for the Air Force, Miller said.

One piece of reversibility is USAF’s “Boneyard” in Arizona, Miller noted.

“When we think that we may need a platform and its capability in the foreseeable future, we can put it into Type 1000 storage.” This preserves an aircraft in a condition that would allow it to be returned to service in a relatively short period of time. Miller didn’t say how many aircraft will go into this kind of storage, but it is more expensive than simply parking aircraft at the facility. Returning such aircraft to service also would require bringing on additional people to maintain, crew, and service them, he said.

However, the key aspect of reversibility is “about keeping forward momentum and never allowing the capabilities that we have to degrade,” Miller asserted. That means preserving the force retained in as ready a condition as possible, with vigorous exercises, a healthy flying hour program, and well-stocked bins of spare parts and weapons.

Miller said it will be important to keep the industrial base healthy, so it can be ready to build the equipment the

USAF Photo by Abner Guzman



**SSgt. Daniel McQuiston inspects a C-17 at JB Lewis-McChord, Wash. Keeping skilled maintainers becomes ever more important as the fleet ages.**

Air Force needs. The F-35 line will help keep that capability “alive,” he said.

One item that will likely not be part of the F-16 SLEP is the installation of large overwing fuel tanks, such as those that have appeared on export models for the last few years.

While range is key to dealing with future threats, Miller said the conformal F-16 tanks are usually desired by air forces that lack “robust refueling capability.”

The KC-46 tanker—USAF’s No. 1 acquisition priority—will obviate the need for such equipment on F-16s.

“If you have the tanker fleet” to carry out operations, “that’s the best of both worlds, because [the F-16s] don’t carry around the weight” of the extra fuel tanks “for the life of the airplane,” Miller said.

### Seeking Efficiencies

Research into new more fuel-efficient engines also will play a role in extending the combat range of all aircraft while reducing the load the tanker fleet has to bear.

The Air Force will buy 179 KC-46s through the next decade, at which point it plans to recapitalize the rest of its KC-135s and KC-10s with future tanker competitors, notionally known as the KC-Y and KC-Z. The exact numbers have yet to be decided because it isn’t clear how many aircraft USAF will have then. It’s also not known whether new engine technology will be retrofittable to legacy aircraft at an affordable price.

The KC-46A just went through a month-long preliminary design review

involving not only procurement officials but operators from Air Mobility Command.

The Government Accountability Office has determined that development of the new tanker will cost about \$900 million more than is in the contract. Out of that, the government is only on the hook for \$500 million, leaving the remainder—and any future overrun—to be borne by Boeing. The company has said it bid “aggressively” on the tanker because the benefits of winning the program—market share and strategic position—exceeded the simple profit to be earned on it.

The GAO said the KC-46 program will cost \$51.7 billion, with a unit cost of about \$230 million. Production starts in 2015, deliveries begin in 2017, and full operational capability is expected in 2019.

The element of USAF’s fleet that markedly does not have a major modernization program is the “big wing” ISR fleet. These aircraft—the E-3 AWACS, the E-8 JSTARS, RC-135 Rivet Joint, and others—are old, and USAF has not laid in a plan for replacing them.

Schwartz, speaking in early May, said USAF just doesn’t “have the space” in its budget to afford a “new-start successor” for any of these aircraft in the next five years, nor can it even afford to re-engine the JSTARS, a modification touted as offering increased capability, power, and reliability. A replacement project called the E-10 was tabled several years ago and senior USAF officials said it will not return to the budget.



USAF photo by 2nd Lt. Joel Cooke

**Lt. Gen. Christopher Miller addresses airmen at Robins AFB, Ga. Miller believes USAF's operating tempo will remain high, and the service won't have the luxury of a "reset" after the war in Afghanistan winds down.**

A recently completed analysis of alternatives that examined possible JSTARS replacements determined the most "attractive option is a business-class aircraft with cheek sensors that operates at 40,000 feet-plus, and at much less of a flying hour cost," Schwartz reported.

Hostage said the big wing ISR fleet didn't get a modernization plan in the next five years because it can function "right now." He acknowledged that "we've got a problem with the JSTARS aging. It's an old airframe to begin with; it's an old engine." However, "I just don't have the checks to write."

He added, "You're going to see us living longer with legacy platforms. And when we make a leap to a new capability, it's going to be a greater leap than the typical cycle." The Air Force can't afford small incremental improvements in capability for the near term, he said.

Moreover, Miller observed, "just because something is now done by a large platform doesn't mean it would take a large platform to do it in the future." Miniaturization of sensor technology and the processing electronics that support it have come a long way since the ISR fleet was built.

It is "incumbent on us" to give industry a clear idea of where the Air Force wants to go in ISR, Hostage said, so it can use its independent research dollars most wisely. Also unclear is how the F-22 and F-35—which have extremely

powerful sensors—will contribute to future ISR needs, Miller said.

"It is absolutely true that we need to recap" the big wing ISR fleet, Miller noted. "There are lots of ideas out there, and we are thinking about all of them. ... We're open to innovative ways of recapping the platforms."

In terms of fresh airframes, one of the youngest fleets in the Air Force today is the MQ-9 Reaper remotely piloted aircraft. The Air Force will continue to buy it for the next few years, building up to a level of 65 "orbits" of 24-hours-a-day coverage. Though the aircraft were introduced for the wars in Afghanistan and Iraq, all theater commanders want the aircraft for a variety of ISR missions.

Miller said the overall health of USAF's modernization program will be maintained because "we're continuing to spend on [science and technology], ... [the] seed corn for the future." Basic research for future capabilities is "a priority for DOD; it's also a priority for the Air Force. And it's important. So for the far distant future, we're still investing in the basic stuff we need to."

The Air Force has been replacing war losses as it has endured them during

the last decade of war, and those have been paid for largely out of the overseas contingency operations, or OCO, accounts—the war supplemental bills passed by Congress, Miller noted. The OCO accounts also have paid much of the cost for flying hours, maintenance, and munitions expended during the wars.

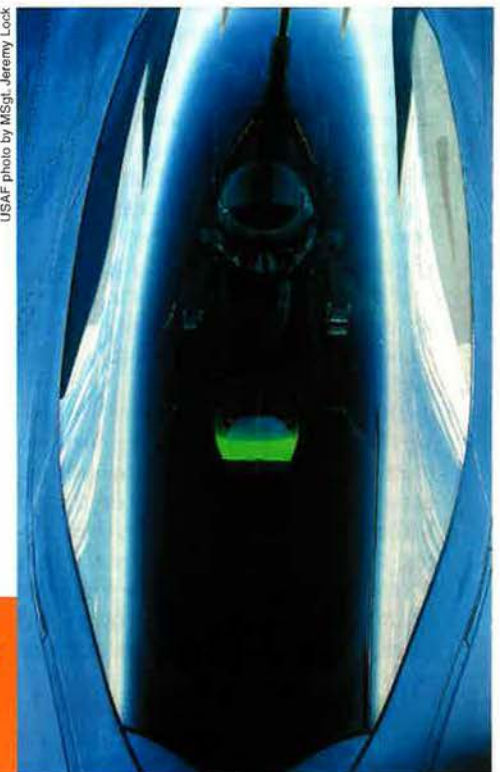
However, even as the war in Afghanistan begins to wind down, Miller said there's every reason to believe the Air Force's operating tempo will not diminish. The service won't have the luxury of a months long "reset" as it took after Operation Allied Force in 1999. The biggest immediate challenge to Air Force modernization, then, is to ensure that USAF doesn't have to pay for those ongoing operations out of hide when the OCO funding stops, he said.

"What is important for us in the future is to understand the increased optempo that we are going to have to sustain in terms of presence" in and around Iraq and Afghanistan, Miller said. USAF has to make sure that level of effort "is resourced in our baseline and not taken out of procurement and modernization, and basically building our capability for the future."

He also said history has shown that defense funding tends to be "cyclical," and that while military spending is now in a downturn, it could bounce back when the economy improves.

However, asked if USAF is counting on that, Miller replied simply, "No." ■

USAF photo by MSGT. Jeremy Lock



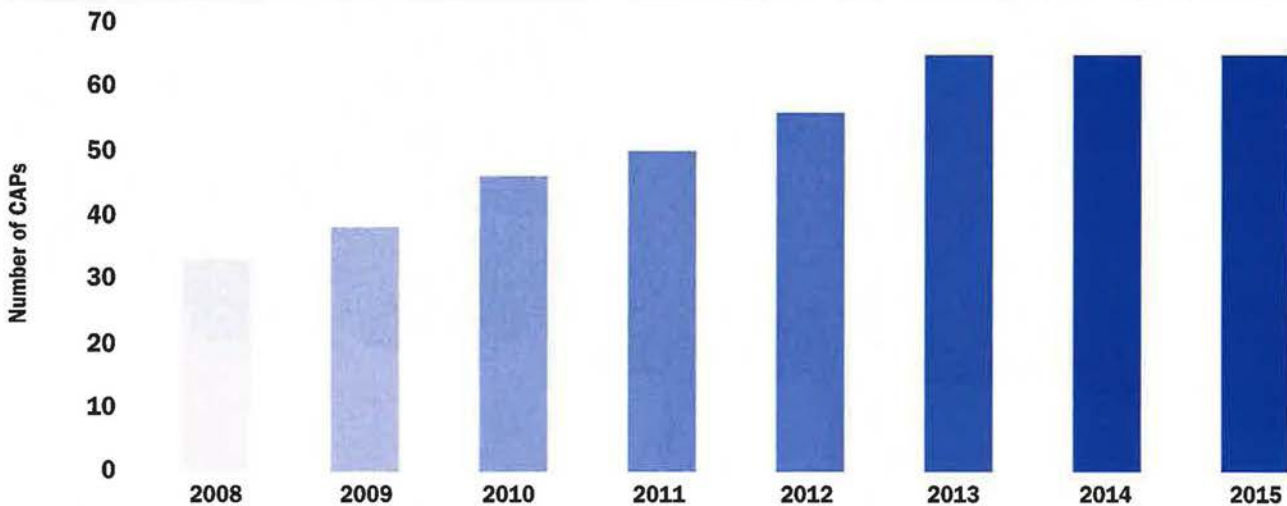
**A Raptor takes on fuel over the Atlantic Ocean. The F-22 fleet isn't large enough to provide the edge necessary to enable a mostly fourth gen inventory of fighters.**

## Will the Air Force Drown in Data?

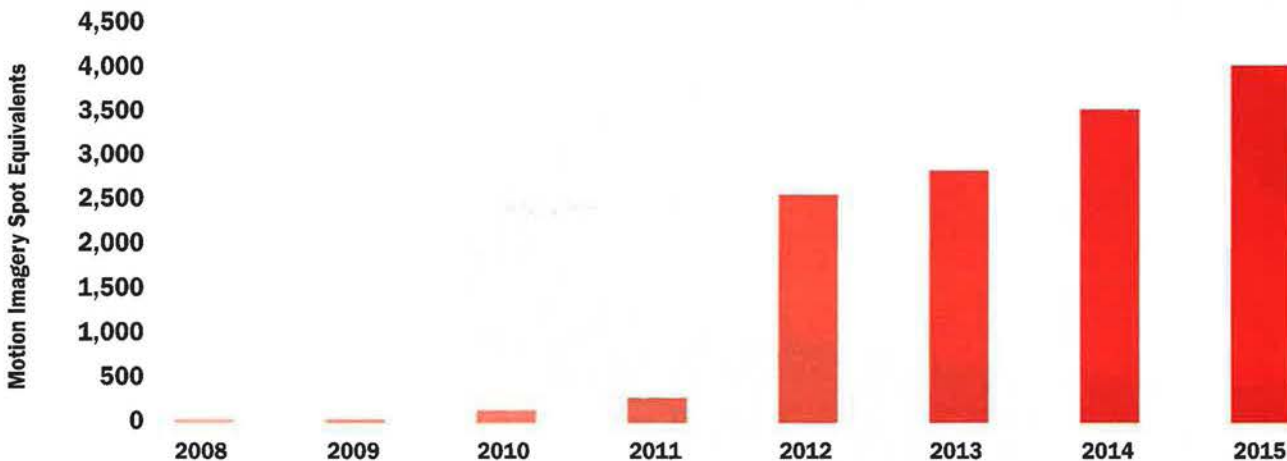
"We're going to find ourselves ... swimming in sensors and drowning in data." The prediction came in 2010 from the Air Force ISR chief, now-retired Lt. Gen. David A. Deptula. It is being borne out. USAF's fleet of remotely piloted aircraft such as Reaper and Predator will produce a tsunami of full-motion video; it threatens to swamp USAF intelligence analysts. As the two

charts show, there will be steep growth in RPA operations, but steeper growth of the video "take" from RPAs (expressed in terms of full-motion imagery "spots," or individual camera views). A new RAND report asserts USAF must bulk up its processing-exploitation-dissemination force—also known as "PED"—if it hopes to convert raw imagery to usable intelligence.

### Growth in Predator and Reaper Combat Air Patrols



### Growth in Predator and Reaper Full-Motion Imagery



"The Future of Air Force Motion Imagery Exploitation: Lessons from the Commercial World," Lance Menthe, Amado Cordova, Carl Rhodes, Rachel Costello, Jeffrey Sullivan, RAND Corp., Santa Monica, Calif., March 6, 2012. Reproduced with permission. Based on data from Lt. Gen. David A. Deptula, USAF (Ret.), and Air Force RPA Task Force.



A1C Timothy Schnitzer stows a refueling hose after refueling an F-15E at Seymour Johnson AFB, N.C. The Air Force has seen a 57 percent increase in fuel expenses from 2009 to 2011.



**USAF faces a \$1.3 billion budget shortfall due to rising fuel prices. It hopes non-petroleum fuels can help solve this recurring problem.**

USAF photo by SSGT. Eric Harris

# The Air Force's Fuel Problem

By Gabe Starosta

**N**o single entity in the United States has been more severely affected by recent fuel price increases than the Air Force. USAF is the largest consumer of fuel in the federal government, but buys its supplies on the open world market and has little or no control over what it pays per gallon.

The Air Force spends almost \$10 billion every year to fuel its airplanes and power its bases. Most of that money goes toward the purchase of jet propellant 8 (JP-8), the service's petroleum-based kerosene standard.

In Fiscal 2011, \$8.3 billion of the Air Force's \$9.7 billion energy bill went to pay for fuel. The challenge service officials face almost every year is figuring out where to get the money to cover that expense when costs rise over the course of the fiscal year.

The Air Force, like the rest of DOD, is forced to project estimated costs almost two years in advance as part of its annual budget drill. Performing that sort of exercise is difficult enough for aircraft programs the Air Force directly controls, but it is much harder when trying to predict fuel prices set by a world market that is much too large for the service to influence.

Analysts at the Office of the Secretary of Defense provide the military services with a planning factor, essentially a placeholder figure for the estimated cost of fuel two years into the future. The gap between that planning factor and the actual cost of fuel often presents service officials with a funding headache.

This year, the Air Force is experiencing a \$1.3 billion funding shortfall for fuel in Fiscal 2012 alone—a \$1 billion gap that service officials attribute mainly to "blue" base budget operations, or Air Force-specific programs and partly to overseas contingency operations (\$300 million).



An F-22 refuels from a KC-135 tanker off the East Coast. Some 85 percent of the Air Force energy bill goes toward jet fuel.

The service originally estimated a \$1.4 billion outstanding fuel bill but has since revised that figure downward. Still, the Air Force's fuel situation is more serious than that of the Army or Navy—simply because the Air Force uses more fuel than its sister services.

Back in 2010, the Air Force projected that a gallon of fuel in 2012 would cost about \$3.12, but the actual price is now around \$3.85, said Maj. Gen. Edward L. Bolton Jr., the Air Force's deputy assistant secretary for budget. Because the service buys 2.5 billion gallons or more per year, that gap becomes hugely significant and forces the Air Force to move money away from other priorities so that it can keep flying its airplanes, both domestically and overseas.

The funding shortfall is bigger this year than it has been in the past. It is larger because the gap between the projected and actual prices was abnormally large and because fuel prices jumped near the beginning of the fiscal year, increasing the time over which USAF had to offset its obsolete price estimate.

Still, the service is familiar with having to find money late in the year to pay for gas.

"Back in 2009 when we were planning for 2011, the planning factor was \$2.37," said Kevin T. Geiss, the Air Force's deputy assistant secretary for energy. "We entered 2011 at \$3.03, and we went up to \$3.95. That shows you the huge disconnect, or potential

disconnect, [associated with] the planning factor."

### More Desperate

DOD is sometimes fortunate and overbudgets for the price of fuel, "and that's fun for that short period of time," Geiss said. That last occurred in Fiscal 2009, when the Air Force had the luxury of using funding set aside for JP-8 to pay for other needs.

More commonly, though, the department's predictive measures lag behind reality, and the impact of that lag has

become much more serious in the last 10 to 12 years. During that span, the price of fuel has consistently grown both in absolute terms and relative to the early estimates.

"The difference between what was budgeted and what we're paying [this year] is somewhere around \$25, \$26 a barrel," Bolton said. That cost increase alone "is almost exactly what we were paying per barrel in 2000. Not only has it gone up by five or six times, but the increase this year was equal to what we were paying in one year," he noted.

Statistics provided by the Defense Logistics Agency, the organization through which the Defense Department buys fuel, illustrate the trend.

In Fiscal 2009, the Air Force spent \$5.6 billion for 2.61 billion gallons of fuel. In Fiscal 2011, the service bought almost the same amount of fuel but paid \$8.8 billion for it. That's a \$3.2 billion increase, or 57 percent, in energy expenses over just two years.

The situation in Fiscal 2012 is even more desperate. Through the first half of this fiscal year, which spanned October 2011 to March 2012, the Air Force paid DLA \$4.6 billion for 1.18 billion gallons of fuel. At that pace, the service would spend more than ever—but buy less fuel than it has used in any year since Fiscal 2006 (the earliest year for which DLA provided fuel purchasing records).

Once a funding gap is identified, the Air Force has several options it can employ to cover its fuel expenses



TSgt. Lequan Davis guides a fuel hose back to a truck after fueling a C-17 at McEntire JNGB, S.C. The Air Force will have to raid other budget areas to offset this year's massive energy budget shortfall.

## USAF Fuel Purchases

Fiscal Year	Dollars (In Billions)
2006	\$5.99
2007	\$5.93
2008	\$8.18
2009	\$5.63
2010	\$7.30
2011	\$8.83
<b>TOTAL (2006-2011)</b>	<b>\$41.87</b>

Fiscal Year	\$ Per Gallon
2006	2.24
2007	2.24
2008	3.17
2009	2.16
2010	2.73
2011	3.40
2012 (Oct to March)	3.93

each year. The service can slow down some operations and conserve fuel; it can move money from other areas into its fuel account, a process that requires approval from Congress; or it can use some combination of the two.

Each June, DOD submits an omnibus reprogramming request to Congress asking for permission to move money around and fund urgent needs or pay “year-of-execution” expenses, that is, bills that must be paid during the current year. The Air Force’s portion of the reprogramming often covers a wide range of programs and funding needs, but Bolton said that this year, the service will only ask Congress to let it shift money to pay its must-pay bills covering fuel and the war in Afghanistan, which sometimes overlap.

According to Bolton, whose financial management and budget office prepares the service’s draft reprogramming before it is evaluated by OSD, the service has to be careful—and a bit political—in determining what funding sources to ask for permission to raid.

This year, for instance, Bolton said he’s confident Congress will approve the Air Force’s recommendation to move money set aside for, but not spent on, incentivizing civilian and military employees to retire early. The service’s working capital fund also is likely to provide some available funding that can be used for fuel payments.

After those funding streams, which Bolton called “easy takes,” have been exhausted, the service enters slightly more contentious territory. “The next level of controversy would be programs that have had recent restructures,” Bolton said. “For example, the [F-35 strike fighter] has had three restructures in the last five years. We did slow down the production rate, so when you go back and you look at [Fiscal 2012 funding], you may, hypothetically, happen to find some money there

based upon restructures, fact-of-life changes, underexecution.”

The third level of the reprogramming, according to Bolton, includes the programs that the Air Force has recommended canceling or downsizing in Fiscal 2013, such as the Global Hawk Block 30 or C-130 Avionics Modernization Program. The service is free to ask Congress for permission to move money from those programs, but lawmakers also have instructed DOD not to take any irreversible actions that assume those recommendations will be approved. Stripping money from those programs while Congress is still evaluating the 2013 budget request might be construed by its members as too presumptive and lead them to reject the Air Force’s proposals.

Beyond those sources, the Air Force is left with few other options but to tap its operation and maintenance accounts, which fund flying hours, base operations, weapon systems sustainment programs, and many other daily activities that keep the service up and running.

“After we take the things we know we can take, and after we take the investment things that we feel we can take and negotiate, it’s going to come from O&M,” Bolton said.

### Seeking Efficiencies

Cutting flying hours is an easy but largely unpopular way to save money, although the Air Force has sometimes chosen to fly less to cover outstanding fuel bills in the past. Geiss stressed, however, that if Army troops in theater call for supplies, an airlift out of danger, or an overhead strike from an F-15, those flights will happen no matter the cost of fuel. Given that need and the consistently high operational tempo in Afghanistan, it is little surprise that flying hours in Fiscal 2012 are on pace to nearly equal those in 2011.

A majority of those flights, Geiss said, come from the mobility fleet, which includes cargo aircraft and aerial refuelers. Those aircraft account for 900 flights a day and 60 percent of all Air Force fuel consumption on an annual basis.

The Air Force has experience in scrambling to pay fuel bills in the last several months of a fiscal year. At the same time, the service is working on a number of fronts to limit those unforeseen expenses in the future.

One avenue the Air Force is pursuing is investing in engine upgrades to some of its legacy aircraft, such as the KC-135 tanker and C-5 cargo hauler, in an effort to generate fuel savings and make sustainment cheaper over the long term. The Fiscal 2013 budget includes funding for KC-135 improvements that Geiss said should avoid \$150 million in fuel expenses over the aircraft’s lifetime, but maybe more importantly, save \$1 billion in general sustainment costs.

The service also has stressed the need to be more efficient with the way it flies its legacy platforms. Service officials often cite improving engine wash procedures, flying more direct routes, enhancing formation flying techniques, and optimizing how much cargo an aircraft takes on board before takeoff as small but important changes the Air Force is making to save fuel.

Third, the service is making a point to simply use less fuel, and its target is to decrease consumption by 10 percent (compared to 2006 levels) by 2015. Geiss said the Air Force has managed to trim its fuel usage by about four percent so far. If not for that progress, the service’s outstanding 2012 fuel bill could be even bigger.

“If we reduce our consumption in the Air Force, those are real dollars that the Air Force won’t have to steal from somewhere else [in the service], year after year,” he noted.



**A C-17 on the first transcontinental flight fueled by a synthetic fuel blended with JP-8 passes over New York City in 2007. The Air Force plans to certify its aircraft on other synthetic fuel blends as soon as possible.**

There's also the potentially game-changing process of replacing JP-8 with domestically produced, non-petroleum-based fuel. Air Force officials say they are making progress certifying aircraft to operate on alternative fuels, but the service is not at the point yet of actually buying those fuels in bulk and putting them to operational use. Moreover, Air Force officials have said publicly that they hope to buy alternative fuels from market-based sources rather than investing in developing those fuels within the service.

Jeff Braun, chief of the Air Force's Alternative Fuels Certification Division at Wright-Patterson AFB, Ohio, said that the service has certified every aircraft in the inventory to fly on a 50-50 blend of petroleum-based kerosene and synthetically produced fuel known as Fischer-Tropsch synthetic paraffinic kerosene. The SPK fuel is derived from coal, natural gas, or potentially a naturally occurring biomass.

According to Braun, the Fischer-Tropsch blend is available commercially

at about the same price as JP-8 and in quantities that would allow the Air Force to cut back on petroleum purchases. This may not save the Air Force money in the short run, but it could help introduce some stability into the fuel budget planning because these synthetic fuels are not subject to the same price fluctuations as traditional jet fuel.

### Creating a Single Standard

Braun said that if it wanted to, the Air Force could buy "hundreds of millions" of gallons of SPK fuel per year for the same cost as JP-8.

A problem Braun's office is dealing with today is proving that its coal- and natural-gas-based SPK blends are no worse for the environment than JP-8, a standard the Air Force is required by law to meet before investing heavily in their procurement. Braun said measuring a fuel's greenhouse gas footprint is difficult and somewhat subjective,

making it hard to say definitively how the synthetic energy source compares to typical jet fuel.

"There are ongoing efforts [both within the Department of Energy and academia] to attempt to characterize the greenhouse gases footprint of both petroleum and the FT SPK," Braun explained. "That is to say: How much [carbon dioxide] and other environmentally harmful products are produced through the cultivation, harvesting, mining, delivery, production, and combustion phases of utilizing these fuels? ... Unfortunately, due to subjectivity, every study seems to produce a different characterization."

The Departments of Defense, Agriculture, and Energy, and the Environmental Protection Agency, are working to build a single standard by which to characterize greenhouse gas emissions, he added.

Beyond the SPK blend, the Air Force has plans to certify its aircraft on at least two other types of alternative energy sources. A fuel known as hydrotreated renewable jet fuel should be certified for use by the end of this year, after a test on the F-22 Raptor's F119 engine this summer. HRJ will eventually be certified for use by the entire Air Force inventory.

HRJ comes from plant oils and animal fats, and for that reason, the fuel is likely to meet the environmental requirements more easily than coal-based options, he said.

A third alternative, called alcohol-to-jet fuel, is planned for certification by the end of 2014. It, too, will be certified for use by all USAF aircraft.

None of those alternative fuels are likely to be operational by the beginning of Fiscal 2013 this fall, when the OSD planning factor for JP-8 is \$3.73 per gallon. Only time will tell if that estimate again proves too optimistic, putting the Air Force in another stressful financial situation a year from now.

The Air Force is tired of this annual fuel cost scramble and hopes to gain financial stability and cost savings by decreasing its reliance on petroleum-based jet fuels. Had USAF been able to meet its 10-percent consumption-reduction target this year, "instead of a \$1.4 billion shortfall right now, maybe we'd have half that," Geiss said. "So it's not a goal for the sake of having a goal. That's real dollars." ■

*Gabe Starosta is the managing editor of the defense newsletter Inside the Air Force. This is his first article for Air Force Magazine.*



By Robert S. Dudney

## Make or Break

"The Air Force has arrived at a make-or-break moment. The past 10 years have seen the service's share of the defense budget decline to record lows—hovering around 20 percent of the total—while 90 percent of the Fiscal 2013 defense budget cuts were levied on the Air Force. In fact, the 2013 budget marks the fewest number of Air Force aircraft purchased in a given year since 1916, when the aviation section of the Army Signal Corps was buying Curtiss JN4 Jenny biplanes. The country actually managed to buy more aircraft in the midst of the Great Depression than it will next year."—*Former Secretaries of the Air Force F. Whitten Peters and Michael W. Wynne, Washington Times, June 1.*

## It's a Global Thing

"The AirSea Battle concept ... is a genuinely global concept, consistent with the globalized environment in which we operate. It is not the design for any particular region of the world, but rather it is to ensure that US forces remain able to project power to support combatant command requirements worldwide. Simply put: AirSea Battle is agnostic with regard to specific regions of the world, and is intended to assure access wherever our wide-ranging strategic interests are located."—*Gen. Norton A. Schwartz, Chief of Staff of the Air Force, remarks at the Brookings Institution, May 16.*

## Slow Reader

"AirSea Battle is demonizing China. That's not in anybody's interest."—*Retired USMC Gen. James E. Cartwright, former vice chairman of the Joint Chiefs of Staff, Financial Times, June 1.*

## Super-Ready

"In order to be a credible military threat, we must be super-ready—and as far as I'm concerned, we're super-ready. There is a lot of chatter and public debate on this matter. The Iranian issue—capabilities or lack thereof, how things are developing and where it's going—is very dynamic, and very few people know what is possible or impossible."—*Lt. Gen. Benny Gantz, Chief of Staff of Israeli Defense Forces,*

*on preparations for Iran operation, remarks to the Knesset, June 5.*

## How Cyberwar Looks

"The plant operators were clueless. There were no warning lights, no alarm bells, no dials gyrating wildly. But anyone down in the plant would have felt, and heard, that the centrifuges were suddenly going haywire. First came a rumble, then an explosion."—*David E. Sanger, from his book Confront and Conceal, regarding use of the Stuxnet cyber weapon to attack Iran's uranium centrifuges at Natanz, quoted in New York Times, June 5.*

## Hail, Caesar 2.0

"Previous cyber attacks had effects limited to other computers. This is the first attack of a major nature in which a cyber attack was used to effect physical destruction. Somebody crossed the Rubicon."—*Retired USAF Lt. Gen. Michael V. Hayden, former director of the CIA, on use of the Stuxnet virus against Iran's nuclear facilities, New York Times, June 1.*

## I, Ethical Robot

"As human operators struggle to assimilate the information collected by robotic sensors, decision-making by robots seems likely to increase. This might be a good thing, says Ronald Arkin, a roboticist at the Georgia Institute of Technology, who is developing 'ethics software' for armed robots. By crunching data from drone sensors and military databases, it might be possible to predict, for example, that a strike from a missile could damage a nearby religious building. Clever software might be used to call off attacks as well as initiate them."—*From "March of the Robots, The Economist, June 2.*

## To the Finland Station

"After four years of Dmitry Medvedev keeping the czar's throne warm, Vladimir Putin is once again Russia's President. There were no public celebrations to accompany Mr. Putin's inauguration on May 7. Quite the opposite. Moscow's streets had been cleared by a huge security presence; the city turned into a ghost town. This scene came the day after massive

protests showed that the Russian middle class rejects Mr. Putin's bid to become their President for life. With no independent legislature or judiciary at our disposal, Mr. Putin's impeachment will have to take place in the streets."—*Garry Kasparov, leader of Russian pro-democracy group United Civil Front (and former world chess champion), Wall Street Journal, May 21.*

## Paper Tiger?

"I do not see the Chinese strategic deterrent as a direct threat to the United States. We are not enemies. Could it be [a threat]? I suppose if we were enemies it could be, and therefore we at least have to be aware of that."—*USAF Gen. C. Robert Kehler, US Strategic Command, remarks to the Council on Foreign Relations in Washington, May 30.*

## Except for Osama

"There was nothing, frankly, overly sensitive about the raid. We did 11 other raids much like that in Afghanistan that night. From a military standpoint, this was a standard raid and really not very sexy."—*Adm. William H. McRaven, commander of the SEAL mission against Osama bin Laden, Reuters.com, May 24.*

## Trials of a Veteran

"To be honest, I think being a veteran makes it harder to find work, not easier. People thank us for our service but are so worried that we're unstable or have mental problems that they pass over us for jobs. I'm willing to come in on the ground floor, but even that doesn't work."—*Former Marine Corps corporal Moses Maddox, an Iraq veteran, on the difficulty of finding work, National Journal, May 26.*

## On Vietnam Service

"You were often blamed for a war you didn't start, when you should have been commended for serving your country with valor. You were sometimes blamed for misdeeds of a few, when the honorable service of the many should have been praised. ... It was a national shame, a disgrace that should have never happened."—*President Barack Obama, address to veterans at the Vietnam War Memorial, May 28.*

# End of the Cold

**T**he Air Force was born of the Cold War, a conflict that defined the service and shaped its forces, organizations, and focus for decades. Then, in the late 1980s and early 1990s, the Cold War came to an end faster than almost anyone predicted even a few years earlier. The Berlin Wall came down in 1989, Germany reunited, and the Soviet Union dissolved in December 1991.

Where would the Air Force go from there?

The Air Force had already debuted a new strategic framework backed by a sweeping reorganization. This was the handiwork of Secretary of the Air Force Donald B. Rice and Chief of Staff Gen. Merrill A. McPeak. "The Air Force was not—and could not afford to be—on autopilot," Rice later wrote.

Out went the singular focus of US defense strategy: the confrontation in Europe. In came a new national security

**Merrill McPeak and Donald Rice dramatically reshaped the Air Force in 1991 and 1992, creating the organization still used today.**

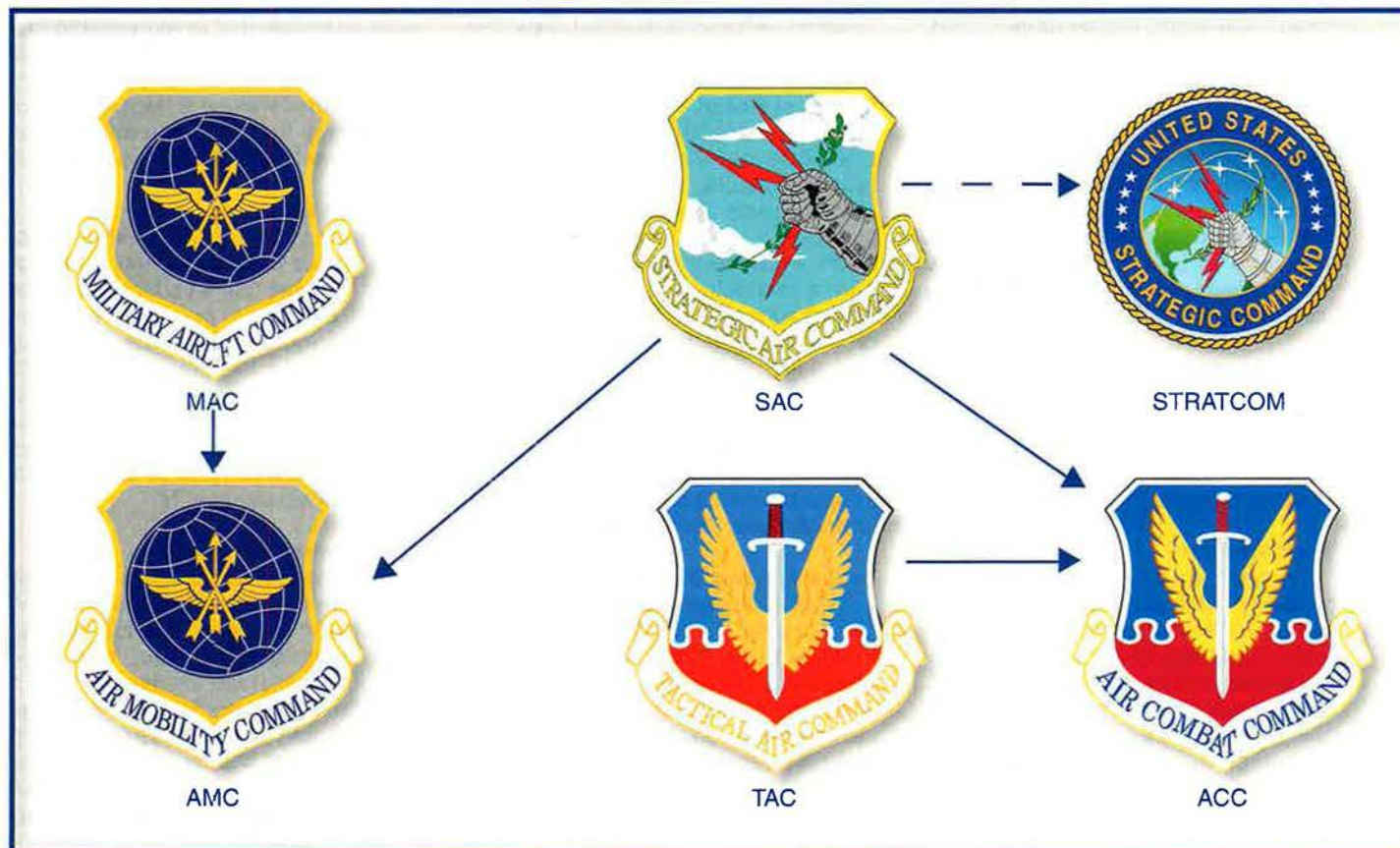
strategy in March 1990. The strategy embraced the end of the Cold War and prepared for an uncertain "new world order" where the main military challenges would come from regional conflicts.

"As we're pulled on the one hand by a changing world and on the other by a constricting budget, a fundamental question emerges: What role will the Air Force play in a new world order?" asked Lt. Gen. Jimmie V. Adams, then USAF deputy chief of staff for plans and operations, in 1990. "The answer

is increasingly clear: a role that is the essence of airpower—the ability to react fast, far, and overwhelmingly."

Rice quickly captured this essence in "The Air Force and US National Security: Global Reach, Global Power," a short paper published in June 1990.

The paper's main thrust was introducing a new structure for airpower in national defense—in scenarios from humanitarian operations to major theater war. Conventional forces were essential for regional conflicts, so the new force planning called for "an in-



# War Air Force

By Rebecca Grant



*Gen. Merrill McPeak (l) and Air Force Secretary Donald Rice speak jointly to reporters at the Department of Defense. Air Force reorganization was a top priority for them.*



*Yes, it was as complicated as it looks.*

creased emphasis on force projection capabilities—even more flexible, rapidly responding, precise, lethal forces with global reach.”

The White House also put the services on notice that it was time to reform. President George H. W. Bush advocated “not merely reductions, but restructuring” of the military in a speech in Aspen, Colo., in August 1990.

What to do next ended up squarely in the hands of Rice and a new Chief of Staff, McPeak, who took over in October 1990 when his predecessor and friend, Gen. Michael J. Dugan, was fired after just two months on the job during the buildup for the Persian Gulf War.

“I went in immediately to Don Rice’s office,” McPeak recalled. “I said, ‘Let’s reorganize the Air Force.’ He said, ‘OK, how do you want to do it?’”

McPeak served as a fighter pilot in the 1960s, including combat time in Vietnam. He’d come up in a rough



DOD photo by R.D. Ward

**Rice briefs the press corps on the B-2 program in 1992. Rice and McPeak made Air Combat Command the centerpiece of the post-Cold War Air Force.**

working-class childhood with no father, and the Air Force opened up another world for him. As a general officer, he worked on the US Air Forces in Europe staff, held the Air Staff's top programs and resources job, and commanded Pacific Air Forces from 1988 to 1990.

Rice came from a business-oriented family and his father was mayor of Frederick, Md. Rice earned a degree in chemical engineering from Notre Dame, served in the Army, and worked as a "Whiz Kid" in the McNamara Pentagon before taking over RAND Corp. in 1972, at age 32. He transformed RAND from a boutique Air Force think tank to a broad-based policy institute serving the Air Force, Army, and other DOD agencies and doing research for the federal government.

Rice and McPeak were cool, cerebral personalities. Both in their early 50s, they were professionals at the top of their game and seized the chance provided by fast-moving events to remake the Air Force.

The time was right, despite the hectic pace of events leading up to Operation Desert Storm.

The Goldwater-Nichols Act of 1986 had taken the military departments out of the warfighting chain and gave a service Secretary and Chief considerable room to maneuver in the areas of organizing, training, and equipping the services.

McPeak wanted to move fast. He felt a four-year term was not much time

to drive change into the fabric of USAF. "I saw organization as my job," he said.

Rice was ready, too. "He let me do stuff no other Secretary would have had the courage to do," McPeak later said.

"By Dec. 31, 1990, Rice and I had made all the fundamental decisions," McPeak recalled. "Including some mistakes we made."

It was not just the end of the Cold War that drove them. Both were motivated by deep convictions about how to optimize USAF. "It was a desire to make a stronger Air Force," McPeak said.

To be sure, USAF budgets were tumbling. The four fiscal years from 1990 to 1993 saw USAF's

budget decline from \$103.6 billion to \$83.9 billion, as measured in constant Fiscal 1993 dollars. Still, strategy came first. The Air Force "focus is on evolving US national security needs," Rice wrote in "Global Reach, Global Power," and "not simply on fiscal constraints, though they too are real."

"We would want to pursue these initiatives even if there were no budget pressure to do so," McPeak insisted as the reorganization took hold. The summer of 1992 found USAF upending organizational structures from the squadron level to major commands. Soon the Cold War behemoth Strategic Air Command was gone and massive decentralization across the service pushed general officers out of headquarters staffs to command wings at bases.

### **SAC, MAC, and TAC**

By the time Rice's and McPeak's initiatives were fully implemented, practically every airman in the force had a new master and the Air Force was primed for an era of expeditionary operations.

With Rice's new strategic framework in place, it was time to focus the Air Force on what McPeak saw as its core task: prevailing in "manned, winged combat," in his words.

This streamlined operational philosophy prized simplicity and eliminating clutter at every level of organization from bases to major commands.

"What's important around here?" was the question McPeak asked himself.

Perhaps the No. 1 goal was achieving greater agility for airpower in regional conflicts small and large. That called for command reorganization to better integrate forces. McPeak had experienced problems with force integration while he commanded Pacific Air Forces.

PACAF had C-130s at Yokota AB, Japan, but they belonged to Military Airlift Command.

Similarly, Strategic Air Command owned the tankers based at Kadena AB, Japan.

The Persian Gulf War provided momentum to rationalize the command structures. "The unified employment of airpower in Desert Storm confirmed that change was needed within the Air Force," Rice later explained.

Rice and McPeak had plenty of latitude for change, and as soon as Desert Storm ended, hints of the reorganization emerged. First up were SAC and Tactical Air Command.

"I never could understand the difference between a bomb dropped from a bomber and a bomb dropped from a fighter," McPeak said. "What separates strategic from tactical? The target doesn't care."

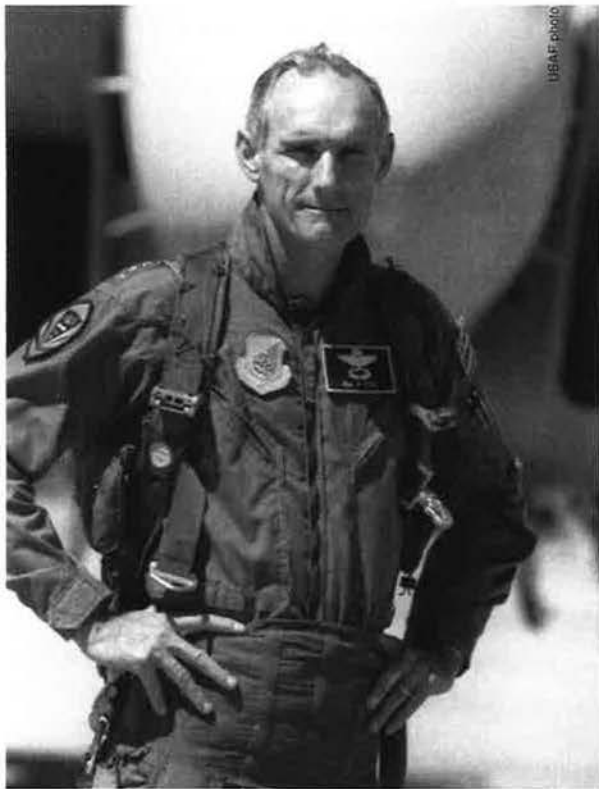
Desert Storm wiped away the strategic and tactical distinctions, as F-117 fighters flew strategic missions and B-52s provided tactical, front-line support.

Rice and McPeak decided to create one single command—Air Combat Command—as the centerpiece of theater airpower.

"Air Combat Command will possess all the bomb dropping, bullet shooting, and support capabilities that we know must be integrated in modern air combat," McPeak said at the time. "In other words, it will itself be able to conduct independent, integrated air operations."

The subtext here resonated with issues raised by Air Force operations from Vietnam through Desert Storm. In those conflicts, SAC had kept jealous control of its bombers and its crucial tankers. Regional air force commanders had to work out agreements with SAC for use of their assets, as SAC still had a nuclear deterrent to maintain. However, commanders chafed at having to deal with SAC while also deploying and fighting.

Dismantling SAC, long viewed as the crown jewel of Air Force organizations, was no easy task. The storied command was a Cold War icon, steeped



**McPeak during his tenure as PACAF chief. As USAF Chief of Staff, he moved fast to implement organizational changes within the Air Force.**

nuclear training, alert missions, and weapons handling. "I had 300 nuclear weapons at Upper Heyford [UK], and no one was better at keeping track of them than me," McPeak said.

What about the ICBMs? McPeak decided they, too, were "shooters" and ordered them to ACC, which was based at TAC's old headquarters of Langley Air Force Base in Virginia.

"That was stupid and I did that as quick as I could, without it looking like I spilled ketchup on my tie," he said later. "It made no sense to move the ICBMs to Langley." He chalked the ICBM decision up to being too eager to get the reorganization under way.

On another point, he hesitated—and later regretted it. "It was a mistake not to put all tankers at Langley" under the control of Air Combat Command, McPeak later said. "There is no capability more critical to theater air warfare than air refueling."

On June 1, 1992, Rice and McPeak stood up ACC in the morning then flew to Scott AFB, Ill., to turn Military Airlift Command into Air Mobility Command. "We now understand that the real requirement is for mobility—that is, deployability and sustainability in combination," McPeak said at the ceremony.

Air Combat Command was based on strong principles about how air forces should deploy for war. McPeak wanted ACC to pick up and fly off to war fast. Little did leaders realize how quickly it would be tested, as expeditionary operations soon began to dominate Air Force operations. The task of sending expeditionary air forces to numerous locations on a moment's notice was greatly facilitated by the new ACC and AMC commands.

Other changes moved on apace. Field operating agencies were restructured, too.

"We needed to look at every echelon down to squadron level and ask: Is this as simple as it can be?" McPeak later said. "If structures are not simple they will fail."

Breaking up functional stovepipes was another major goal. Weather was

one of the best examples. At one point in time, the Air Weather Service was part of MAC and boasted 5,000 people and six weather wings. Rice and McPeak took it apart and set up a field operating agency with 1,100 people, headed by a brigadier general reporting to the Air Staff. The change shed people, put policy at headquarters, and decentralized operations out of Washington. It was textbook for what the Chief and Secretary wanted.

The bulwark of the Rice-McPeak changes was the concept of one base, one wing, one boss.

Previously, colonels usually commanded combat wings. McPeak himself had been a colonel when he commanded the 20th Tactical Fighter Wing at Upper Heyford.

Now Rice and McPeak wrung billets for general officers out of headquarters and elevated many wing commands to one-star rank. This was a fundamental change for operational airpower. At the peak, 65 wings out of 115 had general officer commanders. (Today, roughly 18 out of 96 wings are commanded by brigadier generals.)

Some changes have occurred since, but the structure has endured. Wings acquired operations, logistics, and support groups as cornerstones of wing organization. This provided "accountability for mission accomplishment," Rice and McPeak noted in a September 1991 white paper.

Another innovation was the creation of composite wings of multiple types of aircraft. This did not take root so deeply, but it did push USAF thinking on how to prepare forces for air intervention.

### **Systems + Logistics = Materiel**

Air Force Systems Command and Air Force Logistics Command suffered similar fates as SAC and TAC.

The four-star Systems Command housed at Andrews AFB, Md., had been so redesignated in 1961 after several years of debate about how best to handle research, development, and risk management. Post-World War II reviews by luminaries such as Theodore von Karman and Jimmy Doolittle had long recommended a separate R&D command.

McPeak believed Systems Command had been essential in the large-scale developments of the 1950s and early 1960s and a key ingredient in winning the Cold War. "There was a period when we needed a four-star Systems Command," he said.

in tradition and prestige. Step 1 was the retirement of SAC Commander Gen. John T. Chain Jr., who "would never have acquiesced" to the command's dissolution, said McPeak.

McPeak believed that intercontinental nuclear war was not solely an Air Force mission. SAC had led the way in the first years of nuclear deterrence, but the mission had become joint at the end of the Eisenhower era. The Joint Strategic Target Planning Staff was created in 1960 to convert broad national strategy into the detailed single integrated operational plan.

Going forward, Rice and McPeak wanted conventional bombers ready for theater warfare. Hence came the need to break bombers out of SAC.

"The impetus for disestablishing SAC was to integrate manned, winged combat forces," McPeak said. "That's why the manned bomber force had to come over." McPeak proposed to Army Gen. Colin L. Powell, Chairman of the Joint Chiefs of Staff, that SAC convert to a new joint command with leadership rotating between the Air Force and the Navy. US Strategic Command, based at the SAC headquarters site of Offutt AFB, Neb., would oversee DOD's nuclear planning and warfighting.

USAF leadership did not worry about preserving the nuclear culture of SAC because TAC had a nuclear mission, too. McPeak and countless other commanders in TAC had long experience with

By 1990, technology had moved on. The civilian sector, not USAF, led information technology development. With the SAC, TAC, and MAC reorganizations, Rice and McPeak were guided by operational experience. They had less to go on in structuring what remained of USAF-led research, development, acquisition, and sustainment.

Personnel reductions were a factor. "We decided nationally we had a Cold War legacy which we would cash in on," recalled Gen. Lawrence A. Skantze, who led Systems Command from 1984 to 1987.

But there was more to the story. The Goldwater-Nichols reforms removed most acquisition authority from service major commands and into a chain of authority running from the Office of the Secretary of Defense to the service Secretariat's acquisition deputies. "We no longer need to provide four-star leadership for what has become, in important respects, an administrative support activity," explained McPeak.

The operators also had beefs with Systems Command, which "produced pretty good equipment, but when they handed it off, [the operators] found it was hard to maintain," McPeak recalled. This was more a symptom of increasing complexity in the weapon systems, but in 1990, many thought better planning would solve the problem.

Skantze confirmed that by 1990 there was little love lost for Systems Command outside of the organization itself. Previous chiefs had "encounters with Air Force Systems Command which left somewhat of a bad taste," said Skantze. Likewise, "Don Rice had been president of RAND and had several encounters with the Systems Command hierarchy." The net result, according to Skantze, was that "the idea of abolishing Systems Command did not seem to be too difficult."

McPeak said the primary goal for merging Air Force Systems Command with Air Force Logistics Command was to create "one commander responsible for life-cycle weapon system support." In line with other themes of the reorganization, the merger reduced headquarters while keeping power and resources in the field. "In the process, we liberate 17 more general officers," McPeak noted at the time.

Beyond this, it was thought that the new Air Force Materiel Command could reduce maintenance and depot costs by anticipating requirements early in system design—"If it all works like we hope," McPeak added.

"It was done very quietly, in camera," Skantze said of the decision.

The merger was the last moment of silence. McPeak soon found himself vociferously defending the move.

There lay the problem. "Following World War II and on the eve of the greatest takeoff in aeronautical engineering technology, the essential difference in management of aircraft logistics support versus contracting for research and development was recognized as a distinction of first importance," wrote author and analyst A. G. B. Metcalf. "Those differences are just as true and far greater today," Metcalf said.

Skantze concurred. "I think the problem was that Systems Command and Air Force Logistics Command had entirely different philosophies. The two didn't match up very well."

The logistics focus of AFMC was a success, but the Air Force struggled to repair lasting damage to its acquisition capabilities. Skantze felt that the AFMC commander had no leeway to rebuild acquisition or conduct summits and quarterly program reviews. The AFMC commander "is staggering under the requirements for intensive logistics support to Air Force flying and ground forces half a world away," Skantze pointed out. "It is a continuous 24/7 challenge that outranks any other concern."

### Honing the Bayonet

Harder to gauge was the overall loss of finesse in managing research and development. However, the transfer of power to OSD was already a fait accompli.

"We had lost our deputy chief of staff for R&D," said McPeak. The authority "moved over to an assistant secretary of the Air Force for acquisition." He and Rice sparred over who would hold requirements authority. McPeak wanted requirements in the XO requirements shop, the forerunner of today's A3/5, but many billets were moved to the Secretariat's side.

"You mean to tell me you want civilians saying how sharp the bayonet has to be?" McPeak demanded of Rice.

Responsibility for setting requirements came back to the Air Staff.

Ultimately, the end of the Cold War gave Rice and McPeak a golden

opportunity and they took full advantage of it.

As they knew, their restructuring ultimately touched "every man and woman in the Air Force." In less than two years, six four-star Majcoms were consolidated or renamed and significantly revamped.

The change continued at a slightly lower level as well. A series of major commands led by two- or three-star generals also lost their stand-alone Majcom status. Air Force Communications Command, Air University, Alaskan Air Command, and Air Force Intelligence Command all ceased to be major commands between 1990 and 1993. The reorganization left behind an Air Force with a flatter organization, clear priorities, and a meaty slogan in "Global Reach, Global Power."

The simpler structure was not set up to feed operations in Iraq, Bosnia, Kosovo, Afghanistan, and around the world. Yet that was exactly what it did, creating the building blocks for the expeditionary air force rotational structure developed by future Chiefs of Staff Gen. Michael E. Ryan and Gen. John P. Jumper in the 1990s and 2000s.

Rice and McPeak were not shy about explaining each step. Dry humor crackled on occasion. "Our tenure has been characterized by change—I hope, constructive change," McPeak said in the midst of it all in June 1992. "Others might call it turmoil, even confusion!"

There were many more innovations. McPeak had come to believe training was more important than equipment and well worth a four-star command. "Rank is the best sign of sincerity in the military," he said, and the three-star Air Training Command consequently became a four-star major command in December 1992 and was redesignated Air Education and Training Command in July 1993.

Certainly USAF was lucky in having two bold leaders committed to the unique vision of how the Air Force served America.

The strategic vision brought the Cold War focus to an abrupt end in the best possible way: by clearing the path to remake the Air Force into a structure exquisitely in touch with the uncertain future operational environment.

"Are we properly organized?" said McPeak. "That's something every Chief should ask." ■

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*Rebecca Grant is president of IRIS Independent Research. Her most recent article for Air Force Magazine was "Linebacker I" in the June issue. See also "The Short, Strange Life of PSAB," this issue, p. 50.*

## Stennis Slams McNamara

*In March 1965, Washington opened an air war against North Vietnam. "Rolling Thunder" was desultory, so tightly micromanaged that President Lyndon B. Johnson once boasted, "They can't even bomb an outhouse without my approval." By summer 1967, Sen. John C. Stennis was fed up. The Mississippi hawk, using hearings before his subcommittee, blasted Defense Secretary Robert S. McNamara. The panel's blistering report said "overly restrictive controls, limitations, and the doctrine of 'gradualism'" had "shackled the true potential of airpower." McNamara refused to change his ways.*

**E**arlier this year many statements appeared in the press which were calculated to belittle the effectiveness of the air campaign over North Vietnam. ...

That the air campaign has not achieved its objectives to a greater extent cannot be attributed to inability or impotence of airpower. It attests, rather, to the fragmentation of our air might by overly restrictive controls, limitations, and the doctrine of "gradualism" placed on our aviation forces which prevented them from waging the air campaign in the manner and according to the timetable which was best calculated to achieve maximum results. ...

In our hearings, we found a sharp difference of opinion between the civilian authority and the top-level military witnesses who appeared before the subcommittee over how and when our airpower should be employed against North Vietnam. In that difference we believe we also found the roots of the persistent deterioration of public confidence in our airpower, because the plain facts as they unfolded in the testimony demonstrated clearly that civilian authority consistently overruled the unanimous recommendations of military commanders and the Joint Chiefs of Staff for a systematic, timely, and hard-hitting integrated air campaign against the vital North Vietnamese targets.

Instead, and for policy reasons, we have employed military aviation in a carefully controlled, restricted, and graduated buildup of bombing pressure which discounted the professional judgment of our best military experts and substituted civilian judgment in the details of target selection and the timing of strikes. We shackled the true potential of airpower and permitted the buildup of what has become the world's most formidable anti-aircraft defenses. This approach had considerable support from those who hoped to accomplish our objectives with minimum force and who feared that a greater use of airpower risked a confrontation with the USSR and communist China. It was adopted over contrary recommendations of the military leaders. ...

This strategy has not brought the war to an end. ... Had we not taken the air action in the North and injected large-scale US ground forces into the battle in the South, the communists would surely have prevailed and freedom would have perished in South Vietnam. We have not lost, but we have not achieved our objectives and war goes on. ...

It is not our intention to point a finger or to second-guess those who determined this policy. But the cold fact is that this policy has not done the job and it has been contrary to best military judgment. What is needed now is the hard decision to

### "Air War Against North Vietnam"

Preparedness Investigating Subcommittee  
Sen. John Stennis (D-Miss.), Chairman  
Washington, D.C.  
Aug. 31, 1967

Find the full text on the  
*Air Force Magazine's* website  
[www.airforce-magazine.com](http://www.airforce-magazine.com)  
"Keeper File"

do whatever is necessary, take the risks that have to be taken and apply the force that is required to see the job through.

For reasons which are apparently convincing to him, although not to us, the Secretary of Defense deprecates the impact of a continued and more effective air campaign on Hanoi's ability and will to support the aggression in the South. The top military leaders of this country are confident that the port of Haiphong can be closed, the land lines of communication to China interdicted, and Hanoi's receipt and distribution by sea and land routes of war-sustaining materiel greatly reduced by Air Force and Navy aviation, if they are permitted to do so.

The subcommittee is of the opinion that we cannot, in good conscience, ask our ground forces to continue their fight in South Vietnam unless we are prepared to press the air war in the North in the most effective way possible.... The Joint Chiefs and other military experts believe it [the air campaign] can accomplish more—much more. ...

All must agree that we are in a major war. More than 500,000 of our fighting men are engaged in deadly combat. We believe that, within the broad policies and objectives laid down by the Commander in Chief, unless policy reasons to the contrary exist, this requires that greater weight be given to recommendations for military actions which our high-ranking military experts, with lifetimes of experience and expertise behind them, believe to be necessary to bring the war to a successful conclusion. ...

Every military witness who testified emphasized that the air war has been waged under severe handicaps which were contrary to military principles. Complex and complicated rules and controls, plus the necessity to obtain approval in Washington for even relatively insignificant actions and tactics, have been the order of the day. ... It is high time, we believe, to allow the military to be heard in connection with the tactical details of military operations. ■

**For a short time, the Air Force had thousands of nuclear-tipped weapons ready to defend the United States against Soviet bombers.**

U.S. AIR FORCE

FALCON

# The Hey Nuclear







*Left: The Falcon GAR-11 guided nuclear anti-aircraft missile weighed 50 pounds. Here: An F-106 Delta Dart fires a Genie air-to-air missile over a range.*

DOO photo

# day of Air Defense

By Christopher J. Bright

**F**or decades, Air Force interceptors sat on strip alert, ready to defend the United States from Soviet bomber attack. Around the clock and across the country, crews were at the ready, able to take flight in minutes toward approaching Soviet aircraft, guided by a web of Air Force radar stations across North America.

Much less remembered, however, are the small nuclear weapons carried both by the interceptors and atop hundreds of long-range Air Force Bomarc surface-to-air missiles. The defenses stemmed from concerns in the aftermath of World War II, where increased bomber speeds and cruising altitudes made destroying an aircraft in flight a daunting task. Anti-aircraft guns were

ineffective, while air-to-air engagement required high-performance interceptors that could locate a target, fly high and fast enough to overtake it, and then sustain an extended fight.

The inadequacy of existing weaponry was accentuated after the USSR detonated a nuclear bomb in August 1949. Given continuing superpower tensions, American leaders became concerned about the prospect of a surprise Soviet bomber attack. While an air raid on American cities or defense facilities would have been damaging in any case, a nuclear attack raised the possibility of even greater destruction and larger numbers of casualties. The perceived need for better American defenses grew.

As early as 1951, the Air Force contemplated developing nuclear anti-

aircraft arms. The destructive force and large blast volumes produced by such weapons potentially reduced the need for pinpoint accuracy and increased the odds of assuredly destroying attacking aircraft. At that time, however, the size and weight of US nuclear explosives made such armament impractical. But, within a few years, startling advances in weapon design and production meant the US developed and obtained large numbers of relatively small, lightweight warheads with advanced safety features.

An Air Force surface-to-air missile had been under design by Boeing and the University of Michigan Aeronautical Research Center since 1950. It was tagged with an awkward name combining the first letters of one originating organization with an acronym for the other. Bomarc was launched vertically by a rocket booster and then propelled by two ramjet engines.

Designated IM-99 (for "interceptor missile"), Bomarc was designed to fly as far as 400 miles at up to 80,000 feet, while receiving guidance information transmitted from various ground points during most of its flight. As Bomarc approached the target, an onboard radar kicked in and concluded the interception.



*Fran Frost, a model for a beautician representing Utah in a national hairdressing competition, poses next to a Bomarc replica. The hairdresser who designed Frost's look utilized the "buzz" about the missile as inspiration. Press from the time pointed out that Miss Bomarc's hairstyle suggested that the missile's "nuclear payload" had gone into "super action."*

The Joint Air Defense Board "un- equivocally recommended" the deployment of atomic air defense weapons in 1953. The Air Force slated the Bomarc to receive a 6.5 kiloton nuclear warhead (about half the size of the bomb dropped on Hiroshima) once the advanced missile's complex development challenges were addressed.

Concerned about what they thought was a growing vulnerability to Soviet bombers, especially after the Soviet Union detonated a thermonuclear device in 1953, American political leaders were unwilling to wait for Bomarc to be

perfected and the Army's shorter-range Nike Hercules missiles to be fielded. Consequently, the Joint Chiefs of Staff authorized the development of the Air Force's Genie (later designated the AIR-2A) unguided air-to-air rocket. Built by Douglas Aircraft, this was a relatively simple weapon, carrying a 1.5-kiloton warhead, roughly one-ninth the size of the bomb dropped on Hiroshima. The Genie could be readied quickly and fitted to specially modified Northrop F-89 Scorpions.

The Air Force declared initial operational capability on Jan. 1, 1957, when a handful of rockets and 15 interceptors capable of carrying them were ready at Wurtsmith Air Force Base in northern Michigan and Hamilton Air Force Base outside of San Francisco. Weeks later, with President Dwight D. Eisenhower's approval, the Pentagon announced it had "begun deployment of nuclear weapons within the United States for air defense

purposes. Nuclear air defense weapons now have been developed which provide by far the most effective form of defense against air attack.

"It is essential to our national security that we incorporate these new weapons into our air defense system," the announcement continued.

As hard as it may be to believe today, the statement was met with widespread approval by major newspapers, elected officials, and others. Indeed, throughout the period that these and other nuclear air defense arms were in the Air Force inventory, they were the subject of few protests and objections. This was the case even when it became known that President Eisenhower (and his successors) authorized or "predelegated" nuclear use authority if operational commanders could not get orders from the senior-most civilian leaders in the hectic period after a bomber attack.

### Shot John

In April 1956, Eisenhower signed an "Authorization for the Expenditure of Atomic Weapons in Air Defense." It gave the military advance authority to use nuclear arms in some instances when defending against aerial attack in the United States, such as when an aircraft "commits a hostile act" or one "manifestly hostile in intent."

Air Defense Command's chief, Gen. Earle E. Partridge, accidentally revealed the existence of the policy in a 1957 interview with *US News and World Report*. It caused little stir at the time.

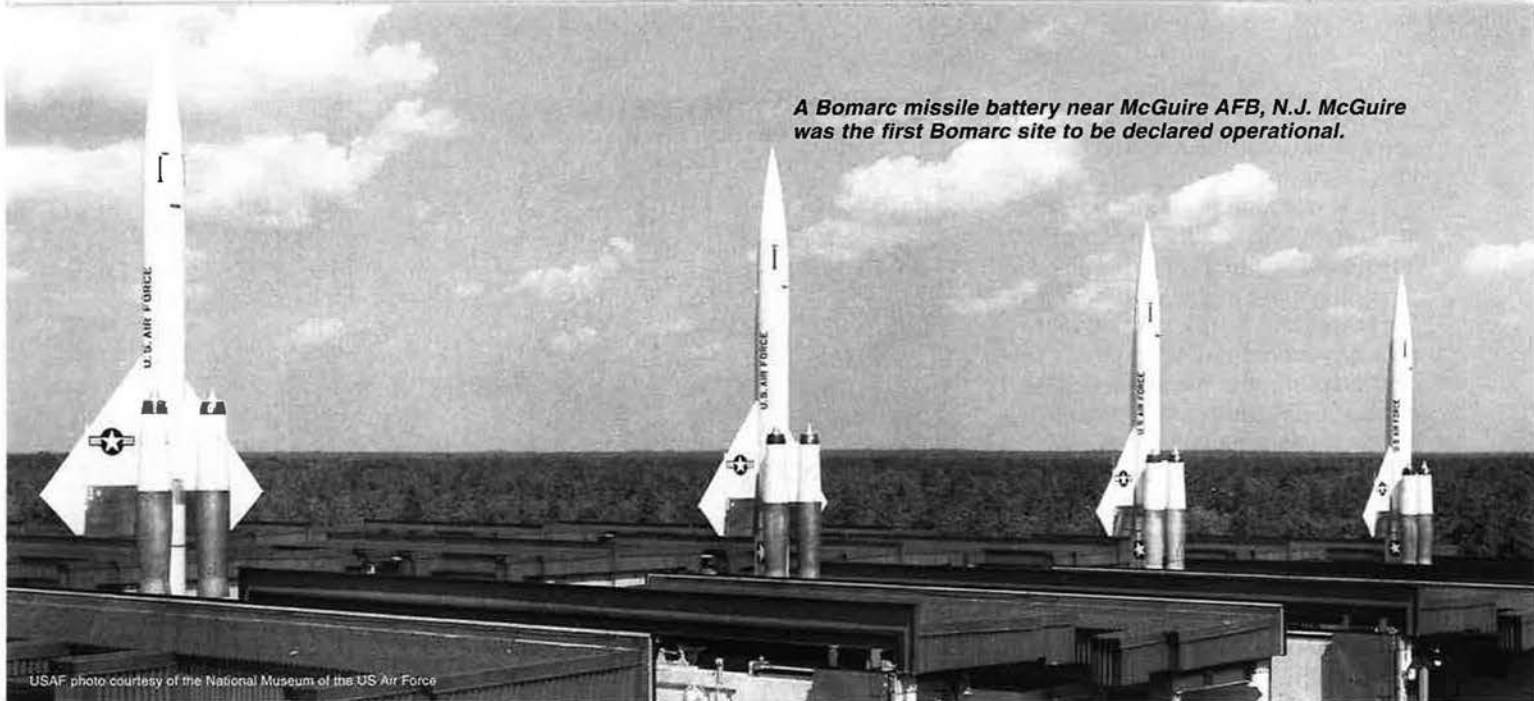
The Air Force was also eager to demonstrate that nuclear air defense arms would not endanger those on the ground because the weapons were of sufficiently small kilotonnage and would be used at high altitudes. Thus, the service arranged with the Atomic Energy Commission to test fire a weapon from a specially outfitted F-89 during a July 1957 nuclear test series at the Nevada Test Site.

Col. Arthur B. Oldfield, ADC's public information officer, recounted later that Partridge instructed him at the time to trumpet Genie's introduction. The general, he said, "wanted the weapons 'out in the open.'" Five ADC officers heard about this assignment and volunteered to stand beneath the Genie blast, dubbed "Shot John."

The Genie was detonated at a designated "air zero"—18,000 feet above the five volunteers and one Air Force photographer. The officers stood next to a hand-lettered "ground zero—population



*Five USAF officers in July 1957—all volunteers—react as a Genie nuclear missile is detonated above them in the skies over the Nevada Test Site as part of a USAF effort to get the deployment of nuclear weapons "out in the open."*



**A BOMARC missile battery near McGuire AFB, N.J. McGuire was the first BOMARC site to be declared operational.**

five" sign that Oldfield had fashioned from shirt cardboard.

Maj. Norman Bodinger radioed a narration to the operation's command center. He was interrupted temporarily by the shock wave. After the observers recoiled momentarily, they excitedly shook hands and extended congratulations all around.

This test, almost unimaginable today, garnered considerable favorable news coverage. "They said all they experienced was 'a sudden rush of air and a clap like thunder,'" reported the *New York Times* the next day. The volunteers "remained on the spot an hour after the detonation, with Geiger counters, and said radioactive fallout was almost undetectable." *Time* described a "fireball," which gave way to a "rosy, doughnut-shaped cloud."

Bodinger and his colleagues were feted at that year's Air Force Association National Convention, and their participation in Shot John sparked other speaking gigs where they and Oldfield touted the nation's nuclear air defenses.

By the next year, 268 F-89s had received the necessary wing pylon and fire-control system modifications the Genie required. After the F-101 and F-106 entered the inventory in 1957 and 1959, respectively, they, too, carried the AIR-2A.

Eventually, 31 compounds for about 3,150 of the weapons were constructed at Air Force installations in 20 states, near "alert barns," where interceptors were kept fueled, armed, and ready for takeoff.

With the exception of the Cuban Missile Crisis, when interceptors fer-

ried the arms to dispersal airfields, interceptors were not allowed to be airborne with the weapons. Protocol required that the first aircraft making contact with unknowns carry conventional arms. Follow-on interceptors would be equipped with nuclear arms.

Pilots and weaponeers trained on simulators and by firing training versions not carrying a nuclear warhead. Ground crews practiced retrieving the arms from storage and quickly loading them on large numbers of fighters. With the F-89, Genies could be relatively easily fastened underwing.

Arming some aircraft was an arduous task, however. The F-101 Voodoo and F-106 Delta Dart carried the MB-1 internally in the fuselage. Fitting the rocket into the tight space took peculiar physical contortions.

All this was done under the strict supervision, rigid training, and stringent standards for which the nuclear Air Force became known. Genie-equipped squadrons were routinely inspected, including during surprise "mass load" drills. Unsatisfactory evaluation could lead to discipline or suspension of a squadron's combat-ready status. Even an error involving an inert training rocket was considered evidence of a procedural breach. The presumption was that a nuclear Genie might receive the same handling.

In 1958, a year after Genie became operational, BOMARC's design problems were largely overcome. Workers began construction of the first missile launch sites near Bangor, Maine, and in New Jersey, Long Island, and Cape Cod. These BOMARC sites included above-ground concrete and steel garage-like

missile shelters built in evenly spaced clusters of seven on a 50-acre plot. Each shelter held one BOMARC, affixed to a horizontal launch arm. The shelter roof was to part, and the arm would lift the missile vertically if the time came to fire it.

Once BOMARC site construction was under way, the missile became embroiled in an interservice rivalry and subjected to funding cutbacks.

Newer intelligence estimates placed less emphasis on the prospect of a Soviet bomber attack. This, coupled with the fact the Army's Nike Hercules was further along on the verge of deployment, led some to suggest BOMARC's cancellation.

Supporters argued that Soviet bombers remained an existential threat, regardless of the number the USSR put into service. BOMARC advocates also believed a wide-scale deployment would provide defense in depth: Air Force interceptors and the BOMARC could engage attackers as they approached and entered the United States, while the Army's "point defenses" could handle those that got through.

Ultimately, a compromise was struck. Six additional BOMARC bases were built: in southeastern Virginia; outside of Duluth, Minn.; at Kincheloe Air Force Base on Michigan's Upper Peninsula; at the Niagara Falls Airport in New York; and two more in Canada.

### **The McGuire Fire**

At the peak of deployment, the US Air Force had about 409 missiles. This was a far cry from the 40 bases (and nearly 5,000 missiles) being contemplated as late as 1957.

In September 1959, the Air Force declared the first BOMARC site operational.

It was in New Jersey, six miles northeast of the facility's namesake, McGuire Air Force Base.

There was soon an accident that drew attention to the facility. In June 1960, a fuel tank ruptured, sparking an enormous fire in one of the missile shelters. Flames enveloped the missile, but its nuclear warhead did not explode. This was a testament to the exacting design standards of the nuclear components, but was still a frightening incident.

No one was injured, although there was a brief scare when an air policeman contacted the local New Jersey state police barracks for assistance.

The trooper taking the call understood the airman to report that "an atomic warhead exploded." The Air Force sergeant later disputed this characterization of his remarks but not before state police officials notified their Trenton headquarters. The Associated Press learned of the alleged nuclear explosion and distributed a news bulletin repeating that description before it quickly issued a second report correcting the earlier announcement.

As the fire was brought under control in the following hours, a specially trained seven-person nuclear response team arrived from New York's Griffiss Air Force Base.

The team joined state and federal public health officials already on-site. Some of the melted warhead's radioactive components had puddled on the shelter floor or were swept along by the runoff from the water airmen used to fight the blaze. Fortunately, spot checks across 66 square miles outside the facility's boundaries found no trace of dispersed radiation.

Once the fire was extinguished, the walls of the affected shelter were painted and a mixture of concrete and asphalt was spread on the floor and across the apron and adjacent soil where the radioactive matter had settled. One official history states that, while "uninformed rumor created considerable anxiety among the civilian population in the McGuire area," the accident "was in reality a minor one."

Nonetheless, it was, according to another history, "perhaps the worst" event involving any of ADC's nuclear weapons.

The McGuire site eventually resumed operations, although the destroyed shelter was fenced off and never rebuilt or rearmed. Environmental monitoring continued, and no dangers were identified.

In 1961, a year after the fire, the final Air Force nuclear air defense weapon entered the inventory. This was a version of the Hughes Falcon guided air-to-air

An Air Force F-101B Voodoo loaded with two non-nuclear Genie missiles on a training mission.



USAF photo courtesy of the National Museum of the US Air Force

missile (GAR-11), which carried a 50-pound one-half kiloton nuclear warhead. Only a few years earlier such small, lightweight weapons were impossible to design and field, but the technology was rapidly advancing.

Gen. Curtis E. LeMay, Air Force Chief of Staff, helped to spur the advent of the GAR-11. Originally, the F-102 was to remain in the inventory only briefly, to be replaced by greater numbers of F-101s and F-106s. When budgetary circumstances changed and it became clear the Delta Dagger would continue in service longer than intended, LeMay sought to give the F-102 its own nuclear weapon, because the aircraft could not carry the Genie.

### A Short Heyday

The new weapon for the Delta Dagger ensured the entire ADC fleet was nuclear capable. A guided weapon also offered the possibility of other interception techniques, including a head-on attack.

By early 1965, the Air Force had some 1,900 Falcons, but the heyday of the Genie, Falcon, and Bomarc proved short-lived. As ICBMs came to dominate the Soviet offensive inventory, US anti-aircraft forces began to be cut back. This air defense drawdown occurred during the Vietnam buildup and amidst modernization of the US ICBM force, which also taxed the Air Force's budgets.

The Bomarc was first on the chopping block. By July 1964, less than five years after it became operational, the A version of the missile was withdrawn.

The A models were liquid-fueled and had only a 250-mile range, compared to 500 miles for the B type. Two launching locations were closed.

By October 1972 the bases equipped with longer-range, solid-fueled B versions were shuttered as well, perhaps spurred by the Canadian decision to close their two IM-99B sites. The Canadian action would have left a portion of the US northern border without Bomarc defenses.

In this period, the F-102 was also withdrawn from service. American interceptor forces were being reduced, and since the F-106 was superior, it made sense to first retire the older fighter. The loss of the F-102s consequently lessened the need for the GAR-11. The Air Force removed the atomic air-to-air missile from the arsenal by April 1972.

With fewer nuclear anti-aircraft weapons and presumably less need to employ them, predelegated use authority is believed to have been rescinded about 1976.

The Genie soldiered on, albeit in reduced numbers, for a decade. The F-106 was the only airplane in the inventory that would carry it. As Delta Darts were withdrawn from service, so too were the AIR-2As.

By 1983, 200 Genie rockets remained in Air Force service. The last were phased out by 1986.

For nearly 30 years, the US had fielded one or more types of nuclear-armed anti-aircraft weapons. With the Genie gone, that effort came to a close. ■

*Christopher J. Bright is a historian. This article is adapted from his book, Continental Defense in the Eisenhower Era: Nuclear Anti-aircraft Arms and the Cold War, forthcoming in paperback from Palgrave Macmillan. A selection of related declassified documents and other materials can be found at [www.ChristopherJohnBright.com](http://www.ChristopherJohnBright.com).*

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# The Short, Strange Life of PSAB

By Rebecca Grant



An F-16 from PSAB gets into refueling position beneath a KC-135 during an Operation Southern Watch mission.

Photo by TSgt. John E. Laskey

**For seven years, Prince Sultan Air Base was USAF's indispensable Middle Eastern hub.**

**F**OR seven years, it was the Air Force's biggest expeditionary operating location and the epicenter of air wars in Afghanistan and Iraq. Then, like a mirage, it vanished from USAF operations.

This was the short, strange life of Prince Sultan Air Base, Saudi Arabia. The US Air Force first occupied the sprawling base in two frantic months from November 1990 to January 1991, then departed. Five years later, USAF and coalition forces moved back into the base. It quickly became a massive facility, home to a state-of-the-art air operations center and serving as the hub for air activity in the region.

Prince Sultan Air Base—known as PSAB—started out under another name. The half-finished base at Al Kharj first came to the attention of Air Force planners in the fall of 1990. Lt. Gen. Charles A.

Horner, commander of US and allied air operations for Operations Desert Shield and Desert Storm, was planning to bring in more aircraft to pummel Iraqi divisions, and he wanted to open up the site so he could base strike aircraft close to battle areas. Al Kharj was a natural fit. Some 50 miles southeast of Riyadh, the base was slated to grow into a major Saudi military installation. However, the Saudis had only built the runway, taxiway, and parking apron.

RED HORSE civil engineering airmen took over in mid-November 1990 with assistance from the 4th Civil Engineer Squadron. Shovel work began Nov. 25. Creating a working air base out of the desert sand was USAF's job, and according to the *Gulf War Airpower Survey*, this turned into one of the biggest challenges facing Air Force engineers during the war.

Step 1 was building a red clay pad 12 inches thick as foundation for the Tent City. A total of 630 temperature-controlled tents followed, along with four kitchens, 26 shower units, a gym, and a power plant with 17 750 kw generators. Aircraft touched down at Al Kharj in early January 1991 and the base had 4,900 USAF personnel deployed by Jan. 17, 1991.

"In less than two months," summed up the official airpower survey, "Al Kharj changed from a base with no buildings to one with tents, dining halls, hangar space, a hospital, electric power generators, and other services to support a population of almost 5,000 Air Force personnel."

Al Kharj became the combat home to the busiest Air Force warbirds: C-130s, F-16s, F-15Cs, and F-15Es.

Lt. Col. Kenneth M. DeCuir was one of the F-15E pilots from the 335th Fighter



USAF photo

**An aerial view of Maintenance City at Prince Sultan AB, Saudi Arabia, during Operation Southern Watch. The 363rd Air Expeditionary Wing was the primary unit responsible for Southern Watch during the last years of the operation.**

Squadron who went to Al Kharj. “Shortly before Christmas we deployed to Al Kharj and set up shop in Tent City,” he recalled. A sister squadron joined them on Dec. 27, “so we had both operational squadrons in the USAF, and all the LANTIRN targeting pods, too—24 [pods] total.”

The huge effort to prepare Al Kharj paid off in combat effectiveness. The two F-15E squadrons posted 2,172 sorties on missions from hunting mobile Scud missiles to destroying tanks with laser guided bombs.

### Digging In

After the 1991 Gulf War, the big base at Al Kharj saw no US activity for five years. Detachments chopped to the 4404th Provisional Wing at Dhahran shouldered the burden of patrolling the southern no-fly zone drawn under UN cease-fire terms.

Then came the terrorist attack at Khobar Towers on June 25, 1996, which killed 19 Air Force airmen.

The Gulf War itself had been notably free of terrorist activity. Base security was on the list of concerns, but host nation security was deemed effective. Indeed, only one minor terrorist incident occurred. Four Palestinians and two Yemenis opened fire on a bus transporting servicemen near Jeddah Air Base. The Saudi security forces whisked them away.

After Khobar, base security became paramount. “We’re looking at all of the forces which are involved in the operational mission—Operation Southern Watch—the deterrence mission that’s going on there,” said Secretary of Defense William J. Perry in a July 1996 briefing just days after the tragedy. “All of them are considered as possible candidates for this move, and that amounts to three or four thousand.”

No-fly zone operations moved to PSAB. “It’s sad, but we just weren’t safe in Dhahran. And it’s safe here,” said Brig. Gen.

Daniel M. Dick, commander of the 4404th Wing, in a *New York Times* interview.

Airmen at Prince Sultan swung into action to make it the hub for Operation Southern Watch. Conditions were harsh for the first arrivals. Concertina wire and an earthen berm encircled the base. Airmen slept in crowded conditions. It required a long walk to get to the latrine tents.

Of course, security was tight. Airmen were not allowed to leave the base—not that there was any place to go, except for the town of Al Kharj proper, several miles away.

“Welcome to Prince Sultan Air Base, which lacks a control tower, water, fuel, electricity, and a sewage system of its own, but now is home to 4,200 American personnel and 78 warplanes lured by its splendid isolation,” wrote a visiting *New York Times* reporter a few months after the move. Isolation was the first thing that struck most arriving at Prince Sultan.

“It sort of gives you the impression of a prison,” said Lt. Col. Joseph Worrell, the air wing’s chief civil engineer, in a *New York Times* interview in late 1997. Carving an operational base out of the desert was one matter, but what about making it the kind of base that could help airmen maintain top levels of professionalism in a desert half a world from home?

USAFREDHORSE teams quickly constructed a Tent City to house some 4,000 airmen, most rotating for 90 to 180 days. No trees or grass adorned the living area. It would be almost three years before the Saudi government completed construction on a new dormitory, the Friendly Forces Housing Complex, that offered improved living quarters and included a gymnasium, dining halls, base exchange, and a large in-ground pool surrounded by emerald AstroTurf.

“By the time the base complex was completed in 1999, it had cost the government of Saudi Arabia more than \$1 billion and covered well over a hundred square miles,” found Air Force historian Daniel L. Haulman.

Food was also a priority. Baskin-Robbins ice cream set up shop as did other popular vendors such as Pizza Inn and Burger King. In time, the exchange provided a small haven of food, shopping, and diversion. “It’s a little sliver of America in the middle of the Arabian Peninsula,” enthused CNN’s war correspondent Wolf Blitzer, who visited the base in December 2002 as forces there prepared for intensifying action against Iraq.

For all that, there was no mistaking that at PSAB the mission was the focus. The facilities were “modest but more than

USAF photo by S/A Richard M. Heileman



**A1C Chris Culross stands guard at a control point at PSAB. The base was well-guarded, remote, and huge.**

adequate,” said retired Gen. John D. W. Corley, who served at Prince Sultan as CAOC director in 2001 and 2002.

### Playing by New Rules

“No expense was spared in providing them with the amenities needed to keep the morale high, and the airmen knew that,” Col. James Moschgat, the last commander of the 363rd Air Expeditionary Wing, said in a 2003 *Airman Magazine* interview. “They had great quarters, good food, and great recreational facilities.”

PSAB was a front-line combat assignment for airmen conducting Operation Southern Watch. It became a rite of passage for many units deployed there on rotation. The base’s purpose was to host fighters, tankers, intelligence, surveillance, and reconnaissance aircraft, and airspace control assets flying continuous patrols of the no-fly zone over southern Iraq.

E-3 Sentry AWACS were of course a constant presence, with the 552nd Air Control Wing supporting frequent rotations. Also among the PSAB tenants was a U-2 detachment—calling themselves “Desert Dragons,” a twist on their moniker.

The delicate landing process for the U-2 was put to the test in PSAB’s intermittent wind and sandstorms. “U-2 pilots landing in Southwest Asia work their tails off to keep that airplane in position,” Capt. Spencer Thomas, a deployed U-2 pilot, told *Airman Magazine*.

U-2s landed at PSAB with wings cooled by high-altitude flight but covered also in gritty fine desert sand.

Fighters sometimes chased Iraqi jets flying too close to the no-fly line. The U-2 flights, for example, often provoked the Iraqi Air Force to attempt intercepts

of the high-altitude spyplane. Iraqi pilots drove their MiGs to high altitudes then lobbed missiles. In doing so, they often overstepped the no-fly zone bounds.

Southern Watch demanded full combat readiness. “I remember being impressed with the mission capable rates,” said retired Maj. Gen. Felix Dupre, who visited PSAB in the late 1990s as a wing commander of deployed forces. PSAB’s good morale made it possible. “You were flying combat and carrying weapons. The motivation was high.” That motivation also showed up in the care taken with flight line operations and maintenance back shops. Expeditionary it was, but airmen still took time to arrange bins and tools to make the workspace function as close to the home facility as possible.

It wasn’t only USAF airmen who got to know PSAB. Four-person US Navy and Marine Corps EA-6B crews provided electronic warfare support to coalition operations and regularly rotated through PSAB, although the Navy fliers at least were normally carrier-based. Marines made multiple deployments including one in May 2002 where they racked up 730 hours and 188 combat sorties in three months. Another Navy squadron deployed to PSAB in February 2002 for a Southern Watch mission.

Conducting combat operations from Saudi Arabia was not always smooth. The Saudi government had much to say about what the American tenants could and could not do at PSAB. Dupre recalled a rule against visiting wing commanders flying operational sorties—a practice perfectly routine at bases in Turkey supporting Operation Northern Watch, the other no-fly zone.

The years from 1999 through early 2003 were a blur of activity at PSAB, which became the heart of a mini air war over Iraq that intensified after Operation Desert Fox in December 1998. Bursts of belligerent Iraqi activity continued as Saddam Hussein refused admittance to UN inspectors.

“PSAB was a 24-hour, seven-day-a-week, 365-days-per-year operation,” said Corley.

Responses in the southern zone often fell to airmen from Prince Sultan. “This year alone, Operation Southern Watch coalition aircraft have been fired upon 206 times,” said USAF Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff, during a news briefing in September 2002.

Iraqi fighters increased their airspace incursions, too. “The most recent incident occurred on Sept. 24, when three Iraqi MiG-25s violated Operation Southern Watch airspace, flying deep into the no-fly zone area,” Myers reported.

By then, the desert base had grown a new state-of-the-art command and control center. Joint Task Force Southwest Asia shifted operations to PSAB in mid-2001 when a new combined air operations center, or CAOC, opened.

“The Prince Sultan Air Base CAOC was the most capable and sophisticated command and control system anywhere in the world when [Operation] Enduring Freedom kicked off,” wrote Benjamin S. Lambeth in his book *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*.

The facility was a gem. Spanning 70,000 square feet, the CAOC boasted 100 T-1 lines and feeds from ISR sensors in air and space. The CAOC set a new standard with a floor clustered with liaison officers huddled at computer monitors. Wall-size screens high above the darkened floor ran live feeds of the battlespace picture or drilled down to specific images piped from individual sensors such as those aboard Predator remotely piloted aircraft.

The improvements had come just in time. After Sept. 11, 2001, PSAB became the central command and control node for the Enduring Freedom air war.

Commanders gave the center high marks. “I think the CAOC is a new weapon system itself,” said Lt. Gen. Charles F. Wald, who led US and coalition forces at the start of Enduring Freedom. PSAB produced an air picture over Afghanistan within two days of 9th Air Force’s forward deployment. The CAOC allowed commanders to redirect the air war as needed. A prime example was the operations center’s ability to send new target coordinates to bombers



Terrorists detonated a truck bomb outside the fence of the Khobar Towers housing complex near Dhahran, Saudi Arabia, killing 19 US airmen in 1996. The attack led the Air Force to move to PSAB, which was desirable because of its isolation.



launching from Diego Garcia as they made their long flights from the Indian Ocean to Afghanistan.

Corley said Prince Sultan's CAOC "enabled us to work across coalition lines to plan command and control for the greatest effectiveness."

Lt. Gen. T. Michael Moseley, then commander of 9th Air Force and US Central Command Air Forces, also praised the CAOC, but the connections weren't perfect. Moseley recalled one occasion when he had to step outside the building so he could telephone Pakistan's Air Chief on his cell phone.

PSAB was more than ready for Operation Iraqi Freedom, launched in March 2003. "The troops here are very well-prepared. We have been here for about 10 years now and so everyone is very familiar with the environment and the theater," Lt. Col. Fritz Koennecke told CNN in late December 2002.

### Goodbye Abaya

Operation Iraqi Freedom was both crescendo and final curtain for PSAB. Plans called for combat aircraft such as F-15s and F-16s to operate from the mega-base, but the process of readying for war made it clear the Saudi hosts were uncomfortable with the presence of such a large, active base. The US worked hard not to aggravate Saudi sensitivities.

"Upon arrival in country everyone was briefed that one bad PR incident could jeopardize the entire mission," noted one service member who spent time at PSAB. For years, female service members leaving the base were required to don local garb and barred from driving.

Conditions at PSAB led one A-10 pilot to file a lawsuit protest. Lt. Col. Martha E. McSally challenged a Department of Defense policy ordering female service members deployed to Saudi Arabia to wear dark robes called abayas when off base. McSally challenged the policy as "ridiculous and unnecessary." Her contention was that women should be able to wear uniforms on official business and dress in long pants and long-sleeve shirts when off duty.

Shortly after McSally's lawsuit made international headlines, Army Gen. Tommy Franks, CENTCOM commander, altered the policy. It turned out the Saudi government had only asked the State Department to ensure embassy women dressed conservatively. Abayas were never formally required.

Other delicate negotiations came down to the wire just before the start of Operation Iraqi Freedom. "We've had very productive

USAF photo by TSgt. Jack Brandon



**Maj. Jonathon Guertin, a U-2 pilot, prepares to fly a Southern Watch mission from PSAB. The sandy, windy conditions of Saudi Arabia made landing the aircraft tricky business.**

meetings regarding military cooperation with Saudi Arabia in the event of military action against Iraq," State Department official Richard Boucher announced Feb. 26, 2003.

That day, newspapers reported that the Saudis granted formal permission for PSAB to be used in the war against Saddam Hussein's Iraq. Operation Iraqi Freedom began March 19.

Once again, PSAB pulled its weight in the air campaign. Fuel was a metric showing just how far PSAB had come since 1996. Prince Sultan Air Base operated at maximum rates during major combat operations in Operation Iraqi Freedom from March 19 to May 1, 2003. During that time, the 363rd Fuels Management Flight issued more than one million gallons per day. Officials had previously expanded the fuel storage capacity at Prince Sultan from two million to more than 15 million gallons.

As OIF pressed on, PSAB's days were numbered. Another base built up from sand was already waiting.

In 1996, the government of Qatar had begun laying out a mammoth airfield soon to be called Al Udeid. Like the early days at Al Kharj, when RED HORSE teams first arrived in the fall of 2001, the Qatar base initially "was nothing more than a runway and a field of sand covered by two-dozen tents and a few warehouses," according to military analyst John Pike.

"We had thought through an alternate location as a backup," Corley said of the Qatar site.

Command and control and operations remained at PSAB as Operation Iraqi Free-

dom began—but not for long. Airmen and other troops began removing equipment and relocating it to Qatar as quickly as possible. A handoff of C2 responsibilities occurred even before Iraqi Freedom's major combat operations phase ended.

In Saudi Arabia, Secretary of Defense Donald H. Rumsfeld and Saudi Defense Minister Prince Sultan bin Abdul Aziz stepped forward for a joint news conference on April 29, 2003.

"We agree that since the mission of these forces has come to an end, there is now no need whatsoever for their presence," the prince said. "But this does not mean that there is no friendship between our two countries."

"All air tasking orders began coming from Al Udeid yesterday," announced Navy Rear Adm. Dave C. Nichols Jr., coalition air component deputy commander.

"By transferring the command and control from Saudi Arabia to the air base in Qatar, [aviators] will not face the same difficulties they have had in Saudi Arabia in recent years in getting approval for specific operations," Richard W. Murphy, a former US ambassador to Saudi Arabia told CNN.

The CAOC move was followed by steady withdrawal of US aircraft.

Air Force spokesman Brig. Gen. Ronald Rand summed up the American presence by the end of summer 2003 thusly: "US airplanes zero."

After seven years as one of the most important Air Force operating locations in the world, the US presence at PSAB was no more. ■

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Throughout the Cold War, USAF crews took advantage of the air corridors to Berlin to spy on the Soviet forces in East Germany.

# The Berlin For Lunch Bunch

By Walter J. Boyne

*Below: A RB-17G flies a mission over West Germany in the mid-1950s. Right: Berlin's famed Brandenburg Gate, just inside the border of East Berlin, is seen in this 1954 surveillance photo taken from a B-17 photo recon aircraft.*



**T**hree air routes to West Berlin were established after the end of World War II to give the Western Allies air access to their garrisons in the former Nazi capital.

When the Soviet Union imposed its blockade in 1948, these air routes became famous as the vital corridors of the Berlin Airlift, which enabled the British and Americans to supply the beleaguered city. It is less well known that they were also, for 44 years, how the Allies collected intelligence on the densest concentration of Soviet military forces in the world.

The "Berlin for Lunch Bunch," as the aircrews called themselves, used three routes in operations for what was arguably the most important, longest lasting, and successful military reconnaissance program of the entire Cold War.

The air routes into Berlin came about as a result of the Potsdam Conference in July 1945. President Harry Truman, British Prime Minister Winston Churchill, and their entourages needed to fly in and thus required air access to the city.

The Soviets cooperated fully with the British and Americans, setting up temporary air facilities at Gatow Airfield in the British sector. Two ad-hoc air corridors, as

well as navigation and landing aids, were established. Air support to the conference went well, and the Western Allies assumed this would continue as they established their garrisons.

### An Intricate History

However, shortly after the conference ended, the Soviets began to complain that the Allies were flying outside the agreed corridors and this would not be tolerated. Much detailed discussion ensued, at the beginning of which the British recorded Marshal Georgy K. Zhukov, commander of Soviet forces in Germany, as stating that a corridor was necessary "to prevent your aircraft from observing Russian armies."

The four powers ultimately signed a written agreement in November 1945, establishing three corridors, a circular control zone, and the four-power Berlin Air Safety Center to coordinate air activity within the corridors and control zone. This was a written document, unlike the arrangements on land and water access to West Berlin. It may have been a major reason the Soviets did not try to shut the air corridors down during the Berlin blockade and helped avoid a violent East-West confrontation, ensuring the success of the Berlin Airlift.

The corridors also led to the successful covert reconnaissance that was about to begin.

The history of the reconnaissance squadrons destined to become corridor intelligence collectors is intricate. Although American recon activity may have begun earlier, the earliest hard evidence notes the establishment of a special secret Douglas A-26 Invader flight within the 45th Reconnaissance Squadron. Equipped with special cameras, the light bombers were supposedly modified for VIP transport, so they could fly to and from Berlin without suspicion.

Another separate, secret activity began with two shootdowns. On Aug. 9, 1946, a Douglas C-47, en route from Vienna, Austria, to Italy inadvertently entered Yugoslavian airspace and was shot down by Yak-3 fighters. All aboard survived but were interned, causing a furor in the State Department.

While talks were under way to free the internees, a second C-47 on a courier flight became lost in bad weather and was shot down by Yugoslav fighters in the same area. US Air Forces in Europe directed that two Boeing B-17s be quickly equipped as photo-mapping aircraft with electronic



Photos by Bob Brewer via the 749th Group Association



**A 7405th Operations Squadron C-130 returns to Rhein-Main AB, Germany, after flying the squadron's last covert reconnaissance mission in 1990.**

Photo via 7499th Group Association

the only viable Allied option for keeping West Berlin supplied. Given the enormous Soviet superiority in numbers, a ground battle to reopen land access was out of the question.

When the blockade went into effect, the Soviet Union had roughly 300,000 men surrounding Berlin, including massive numbers of tanks, artillery, and aircraft. In contrast, the three Allied nations—France, Great Britain, and the United States—had a total of just over 20,000 men in the city, almost all in noncombat positions.

Caught in the midst of its relentless policy of unilateral disarmament, the United States responded with a phantom threat of nuclear-armed B-29s and the establishment of the Berlin Airlift, during which the US accelerated its corridor intelligence operation. Douglas C-47s equipped with cameras under the floorboards flew the photo missions during the day, and Elint flights by B-17s occurred at night.

### **Pie, Creek, Flea**

The 7499th Support Group moved to Wiesbaden Air Base, near USAFE headquarters, in 1950 and received photo- and Elint-equipped Douglas C-54s to replace its B-17s. The C-54s, B-26 Invaders, and C-47s continued to fly the corridor routes disguised as transports, and the Soviet Union continued to identify them and their mission without protesting. The equipment was regularly upgraded.

Camera varieties included those with different focal lengths, from six-inch vertical to the huge 240-inch oblique camera of a Boeing C-97A Stratofreighter, first used in 1953. This aircraft, code-named Pie Face, usually operated along the borders of the Soviet Union's satellite nations, at altitudes up through 30,000 feet.

The 7499th C-54s also covered the borders. The C-54s and the C-97 flew many peripheral missions along the Iron Curtain from the Baltic Sea around to the Black Sea. But Pie Face would also occasionally fly into West Berlin's Tempelhof Airfield, snapping high-resolution photos all the way. The photo C-54s pioneered the operational use of infrared collection systems, and their Elint counterparts incorporated elaborate electronic suites. With these "newer" aircraft came the use of sliding panels to cover camera ports and

antennas and retractable radomes to hide their true mission.

While the trips into Berlin had become routine, the requirement for information had not, and the units, equipment, and mission profiles continued to evolve over time.

The group in 1959 acquired four Convair T-29s to replace RB-26s and C-47s. They had been reconfigured from their navigator training role to carry carefully concealed camera systems. They ostensibly flew daily courier flights between Wiesbaden and Tempelhof as a cover story, but of course, while carrying light cargo and unsuspecting passengers, they were photographing Soviet military targets throughout the corridors and control zone.

In the early 1960s the Pie Face C-97A departed and five Boeing C-97Gs arrived. Two were outfitted with improved photo and infrared gear and were a valuable addition on missions on the periphery as well as in the corridors. Two others, specialized Elint collectors, had too many visible antennas and ungainly protrusions to fly corridor missions, so they specialized in peripheral collection.

But the fifth C-97G, given the name Creek Flea, was dedicated to highly specialized collection against a long series of major Elint targets, the first being the radars of the Soviet SA-2 surface-to-air missile system. The Berlin corridors were uniquely important for this collection because by the mid-1960s there were four SA-2 sites directly under the corridors, allowing this special C-97 to fly over them, gathering detailed information on all the important radar electronic parameters. Photo equipment on board supplemented the Elint and enhanced its value.

This collection program became vital to US air forces coping with SA-2 sites in North Vietnam during the Vietnam War. Its information enabled aircrews to detect, evade, and deceive the missiles, and destroy their launch sites, dramatically reducing casualties.

Beginning in the late 1960s, the far more sophisticated Boeing RC-135 aircraft of Strategic Air Command gradually assumed the peripheral reconnaissance missions of the 7499th. Also, satellite photo and signals intelligence systems became more useful. By 1974 the mission concentrated almost exclusively on the corridor flights. This remained the most important area in the world to gather information on the Soviet military, and collection remained lucrative.

### **Electric Bird or Picture Bird?**

One of the group's three squadrons, the 7405th Support Squadron, moved in December 1975 to Rhein-Main AB, West

intelligence (Elint) collection gear. The B-17s soon discovered that the Yugoslavs had used captured German radar equipment to track and intercept the C-47s.

Intrigued by this discovery and also by intelligence that the Soviets were deploying radars in their zone of Germany, USAFE directed the formation of a secret Elint and photo B-17 unit.

In March 1947 the 45th Recon Squadron moved to Fürstenfeldbruck Air Base, near Munich, where it was later joined by the special B-17 photo-Elint detachment. Both elements began flying border, or "peripheral," recon missions and corridor flights. More than a year later, on Nov. 1, 1948, the B-17 element became the 7499th Air Force Squadron and later still the Invader element became the 7498th. The two merged into the 7499th Composite Squadron in 1950.

By June 1948, the Soviet Union wanted to have Berlin in its sole possession and decided to oust the Western Allies from their occupation sectors. The Soviets blockaded the roads, railways, and canals into Berlin, but allowed the air corridors to remain open. These air corridors were

Germany, and was redesignated the 7405th Operations Squadron. (The 7499th and its two other squadrons were inactivated in 1974.) Re-equipped with three Lockheed C-130Es featuring a wide variety of sensors and cameras, the unit soldiered on, and collection grew even more valuable. A classic example of this occurred on a mission in 1982 when a C-130 named Creek Fury, in a corridor over a Soviet training area, noted a new SA-8 highly mobile, low-altitude, short-range tactical surface-to-air missile vehicle. The technical Elint operators collected information on the Land Roll guidance radar, the infrared and photo operators imaged the transporter-erector-launcher, and the scanners confirmed the

## An Extraordinary Safety Record

One of the most remarkable aspects of the 44-year-long operation of the "Berlin for Lunch Bunch" corridor missions was its surprising safety record. The mission was characterized by a complete absence of crashes or aircraft being shot down. Consequently, for 44 years and spanning more than 10,000 missions, the airmen flying the Berlin missions never suffered any operational casualties.

In those same years, there were other continuous reconnaissance efforts being made by the United States elsewhere around the world, and these missions saw flights felled by mechanical failures, bad weather, and outright enemy opposition that resulted in many losses.

To illustrate the Berlin for Lunch Bunch's extraordinary safety record and highlight the inherent danger and sacrifice of the Cold War USAF reconnaissance aircrews, the 7499th Group Association historian, retired Lt. Col. John F. Bessette, aided by retired Lt. Col. Vance O. Mitchell, provided the following chart on how Cold War aerial reconnaissance was a deadly serious business.

### American Reconnaissance Aircraft Lost on Operational Missions, 1950-1969

Date	Type	Where Lost	Number on Board	Recovered Alive	Recovered Dead	Not Recovered
April 8, 1950	PB4Y	Baltic Sea	10			10
Nov. 6, 1951	P2V	Sea of Japan	10			10
June 13, 1952	RB-29	Sea of Japan	12			12
Oct. 7, 1952	RB-29	Kurile Islands	8		1	7
July 29, 1953	RB-50	Sea of Japan	17	1	2	14
Sept. 4, 1954	P2V	Siberian Coast	10	9		1
Nov. 7, 1954	RB-29	Sea of Japan	11	10	1	
April 17, 1955	RB-47	North Pacific	3			3
Aug. 22, 1956	P4M	Taiwan Strait	16		4	12
Sept. 10, 1956	RB-50	Sea of Japan	16			16
Sept. 2, 1958	C-130	Armenia	17		17	
May 1, 1960	U-2	USSR	1	1		
July 2, 1960	RB-47	Barents Sea	6	2	1	3
Oct. 26, 1962	U-2	Cuba	1		1	
Dec. 14, 1965	RB-57	Black Sea	2			2
April 15, 1969	EC-121	Sea of Japan	31		2	29
<b>TOTALS</b>			<b>171</b>	<b>23</b>	<b>29</b>	<b>119</b>

vehicle was moving about the training area. This was a collection "trifecta" virtually unique at the time.

It was often claimed that the Soviets knew what these corridor missions were doing, and this proved true, as the following anecdote indicates. In 1994 a former Soviet scientific research vessel had been reconfigured as a cruise ship and was taking on passengers for an Antarctic voyage. A former 7405th T-29 navigator and his wife were chatting with the Russian ship captain who asked the navigator whether he would like to meet a retired Soviet fighter pilot who was now a member of the ship's crew. The navigator immediately agreed.

The next evening the navigator was invited to the captain's cabin to meet the

pilot, who knew a bit of English. When the navigator said he had flown to and from West Berlin almost every day, the pilot's face lit up and he asked, "Which you fly, the electric bird or the picture bird?"

It developed that the Soviets knew exactly what was going on, monitored the flights closely, and had tasked their fighter units to shoot down any reconnaissance aircraft that strayed from the corridors.

The "Berlin for Lunch Bunch" continued its operations through the fall of the Berlin Wall in November 1989. From that point on, the 7405th covered the Soviet exodus from Germany, a C-130 flying its last collection mission on Sept. 27, 1990. The unit was formally inactivated in January 1991, after having flown more than 10,000 mis-

sions patrolling the Berlin corridors and siphoning vital information from the very heart of the Soviet presence in Europe.

The unit's Latin motto for years was "Veritatem Suppeditare" ("To Supply the Truth"). For 44 years it did exactly this. ■

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*US airmen at Kimpo AB, South Korea, hustled Lieutenant No's MiG-15bis into a base hangar to protect it from prying eyes.*

**I**T WAS midmorning, Sept. 21, 1953, and a few airmen were in the 4th Fighter-Interceptor Group's intelligence film library reviewing gun camera film. Suddenly, someone began shouting, "A MiG just landed! A MiG just landed! Pandemonium broke out as people ran for the doors to get a look at the famed enemy aircraft and its pilot.

A gaggle of airmen raced down the perimeter road toward the south end of the runway at Kimpo AB, South Korea, where the 4th Fighter-Interceptor Wing's air defense alert area was located.

And there it sat—nosed in amongst the 10 armed and ready F-86 Sabres.

North Korean Air Force Sr. Lt. No Kum-Sok had parked his silver MiG-15bis in an open spot on the Kimpo alert pad, vacated just minutes before by two Sabres from the 334th Fighter-Interceptor Squadron. They had been scrambled for a practice radar intercept mission.

Yet, until the moment he landed, the allied air defense network had been unaware of the MiG's presence.

As he stopcocked the fighter's jet engine, the 21-year-old North Korean pilot had set in motion the first stage of his boyhood dream: to become an American citizen.

This dream had been the primary reason for his volunteering first for the naval academy and then for training as a fighter pilot. He felt a ship or an airplane offered the best chance for escaping an unbearable life under Stalinist communism in North Korea.

#### **Don't Get Lost**

His escape was a dangerous but calculated undertaking. Throughout the flight he was vulnerable to attack by his own comrades, American anti-aircraft guns, and the numerous USAF fighters he spotted swarming around Kimpo like bees from a hive. He was fortunate, too, that the entire Korean peninsula was graced with clear weather.

At his newly assigned home airfield in North Korea, Sunan Air Base, Lieutenant No was the first pilot scheduled to fly one of 16 recently delivered MiG-15s. The aircraft had been smuggled in by rail

and hastily reassembled, in violation of the armistice agreement. Unlike aircraft for his wartime flights out of Antung AB, China, these late-model MiGs had not yet been fitted with external fuel tanks. This meant their range was quite limited. But having studied his map carefully in the preceding months, No knew the ship's internal fuel supply was adequate for the flight to Kimpo.

The newly reactivated Sunan runway was still badly scarred from constant bombing during the war. Located about five miles northwest of Pyongyang, the air base placed him some 95 miles north of the 38th parallel, with Kimpo just 10 miles farther south. It was the closest he had been yet to the Demilitarized Zone.

The young lieutenant's assigned mission that day was a proficiency flight—his first since arriving from China at war's end. While walking across the ramp to his assigned fighter, he encountered Gen. Whal Lee, vice commander of the North Korean Air Force. Lee was one of the few senior officers in their Air Force with any significant education—even some university training—and he was well-respected. On seeing No, the general greeted him by name, then patted him on the shoulder and

# Lt. No

**In 1953, Ken Rowe, then known as No Kum-Sok, used his North Korean MiG-15 to make a daring escape to freedom.**

Despite the hazardous head-on approach and landing, he pulled to a stop with a fully operational airplane.

His defection was a long time coming. No's resistance to communism had begun at age 13, when he began voicing his contrary opinion in school. He had been influenced by his English studies and Voice of America broadcasts. His English teacher and sports coach had influenced him, too. Educated in a Japanese university, as an Army officer, he had fought against the Chinese communist Army. But it was No's father who played the largest role in discouraging him from any pro-communist views.

## At the Academy

Despite his youth, No began sensing danger for his rebellious outbursts and decided to keep his mouth shut. In July 1949, he was accepted into the North Korean naval academy. No recognized the need for a college level education—and the Navy could offer the chance of escape.

Discipline at the academy was severe. Cadets had no days or weekends off, no chance to leave the base, no vacations, and no visitors until graduation. Beards and mustaches were forbidden, and cadets were instructed to shave daily—but not provided razors. Their solution was to pull out the whiskers with their fingernails.

Classes in calculus, physics, chemistry, meteorology, navigation, communist history, gymnastics, calisthenics, even infantry training and marching for military parades, were held seven hours a day, seven days a week. The cadets were allowed only two hours each day for study and about four hours per night to sleep.

Living conditions were barbaric. During the harsh cold of winter, both the barracks and classrooms were poorly heated. As for water, there were only three faucets

in each barracks and no hot water. "The food was insufficient, and everyone was always hungry," No recalled. He described the academy as being "like a penitentiary, much more so in practice than appearance."

One of Cadet No's classmates submitted his resignation; it was flatly rejected—with a warning that he would be imprisoned if he submitted it again. Academy officials didn't want anyone leaving and spreading stories about the extreme hardships the cadets were forced to endure.

Once the war started, their day-to-day life became even tougher. The 150 cadets in No's class were moved 60 miles north and housed in a newly constructed railroad tunnel that had not yet been equipped with



*No in his North Korean flight suit. He managed to land the MiG safely at Kimpo while navigating landing and departing air traffic—downwind.*

National Museum of the US Air Force photo

By John Lowery

advised him to take care because of the craters and ruts on the runway.

"Oh, yes, and don't get lost," he added.

Because his was the first aircraft scheduled to depart, No reasoned he would also be expected to land first, which meant he'd be missed too quickly. Consequently, he asked the No. 2 pilot to exchange slots with him and depart first, telling him, "I'll be up a little longer today. ... Don't land too soon, for as soon as you land, they'll tell me to land."

Then came some good luck. As if by providence, at about the time of his take-off the US air defense radar just north of Kimpo was shut down temporarily for routine maintenance. With this unique stroke of luck, No was able to reach Kimpo unchallenged.

As he approached the American base he could see F-86s departing and landing to the north. Apparently, pilots in the traffic pattern didn't recognize his swept-winged fighter as an enemy MiG-15, as their routine never changed. Still, to avoid being recognized by the base anti-aircraft unit, he chose to land downwind—into the landing and departing traffic. This had been routine procedure at Antung, where F-86s often attacked their landing aircraft.



Airmen rushed to the MiG, shown here at Kimpo.

rails. The floor was muddy and the air dank. There he and his classmates lived, taking infantry training and enduring endless political meetings that denounced American aggression.

Then one day, a dozen doctors arrived at their tunnel and randomly selected 100 cadets for extensive physical exams. While the project's mission was secret, No suspected it involved flight training. He recognized immediately the possibility of escaping by air to the south.

Although not among those initially selected for the physical, he noted that his Communist Party history instructor was recording student scores on spin tests being conducted in a swivel chair. Cadet No approached him and asked if he could take the test. The professor recognized him as having made an A in his history class three months earlier. After considering No's request for a moment, the professor nodded affirmatively and said yes.

Out of the 100 cadets who took the spin test and subsequent physical, only 50 were selected—with No being the only volunteer for what was described as "a special, unnamed assignment." Not until after they had been transported by train at night to a Chinese airfield did the base's vice commander inform the group they were to be trained as fighter pilots.

Lieutenant No and his classmates completed their MiG-15 training in September 1951. Life as a North Korean fighter pilot was severe. He and his classmates were never given a furlough or overnight pass—or even a full day off the air base. They were not allowed to drink alcohol in public. Although the young pilots were all single, dating women was forbidden. They were warned that many young Korean girls were South Korean agents.

#### Combat Ready?

The new graduates were assigned to the Second Air Regiment of the North Korean First Air Division. Meanwhile, the North Korean high command decided to deploy their new fighter regiment to Uiju Air Base, the only surviving airfield in North Korea.

The next day, Nov. 8, 1951, the newly minted 19-year-old fighter pilot flew his first combat mission. The procedure was to take off and immediately cross the border into the sanctuary of Chinese airspace; then recross into North Korea at an altitude higher than the early F-86As could reach. Fortunately, on his first few missions he encountered no F-86s. Only when he began to fly combat missions did he become aware of some of the MiG-15's limitations.

Amazingly, this supposedly combat ready fighter pilot had never fired the aircraft's guns. Upon firing them for the first time he was instantly alarmed by the heavy vibration from the slow-firing 37 mm and 23 mm cannons. He noted, too, that at 1,000 feet, "the tracer rounds dropped." Conversely he noted the Sabre had six fast-firing guns whose trajectory seemed to stay straight for up to 3,300 feet—nearly three times farther than the MiG cannon.

Fighter pilots were expected to shoot their guns on every mission; yet he had no concept of aerial gunnery—estimating distance and lead using the MiG's archaic World War II-era gunsight. "Consequently," he said, "like most MiG pilots, I never hit anything."

Canopy frosting was another major problem. The aircraft would typically frost up in the rear quadrants, preventing the pilot from seeing an aircraft attacking from behind. The space between the double layers of Plexiglas was supposed to contain dry air, but due to poor maintenance this was not often the case. Adding to the problem was the lack of a rearview mirror—a simple item that would have allowed the pilot to see an aircraft attacking from the vulnerable rear quadrants.



A reproduction of the check for \$100,000 that No received for delivering an intact MiG from North Korea. No insisted that neither he nor any other North Korean pilots knew of the bounty offer.



Worse yet was the MiG-15's T-tail configuration. With the horizontal stabilizer mounted halfway up the rudder, it not only blocked visibility to the rear, but posed a hazard to a pilot whose ejection seat failed to fire, thus forcing him to dive out.

The airplane's limited fuel supply was a significant constraint. Without external wing pylon fuel tanks, it could remain airborne for about 40 minutes. The engine was limited to 10 minutes at full power "to avoid an engine fire," but No reported that to maintain a high airspeed he and his fellow pilots typically flew at full throttle from takeoff to landing and never saw an engine fire. Still, in combat, even with the additional fuel provided by wing pylon tanks, their maximum flight time was usually limited to less than 35 minutes.

At Uiju, B-29 raids made life unbearable, leaving their runway with 20-foot bomb craters. This kept their aircraft grounded most of time. Mercifully, after yet another air raid, their commanders decided to abandon the airfield and move back to Antung.

There were three air divisions based at Antung: the Chinese Second Interceptor Division, the elite Russian 324th Fighter Air Division from the Moscow Air Defense District, and now the North Korean Air Division. Soon after landing, No learned the Russians were flying the more advanced MiG-15bis ("bis" is Russian for "revised"). Its VK-1 engine had 6,000 pounds of thrust and an improved rate of roll, thanks to hydraulically boosted ailerons.

In addition, the Russian aircraft had armor-plated seat backs to protect the pilot. A month after their arrival at Antung, anti-ballistic steel plates were installed in all the aircraft. Then, in November 1952, No's squadron finally received the improved MiG-15bis.

The North Korean loss rate in accidents and combat was horrendous, but there was political attrition as well. One pilot in No's outfit, with about 50 combat missions, was suddenly discharged in disgrace when the security officer learned his brother had gone with South Korean forces in 1950. Concurrently, the popular commander of the North Korean Eleventh Air Division, consisting of mostly Yak-18 and Il-10 propeller airplanes, was accused of planning to defect to the West and was executed by firing squad without a trial.

The political heat affected No, too. His uncle, You Ki-Un, a major in the supply corps and a dedicated communist, visited him in the spring of 1953. He told No that his mother had been killed in a bombing raid—but actually he knew she was safe

in the south. When the Chinese Army had begun retaking North Korea, she was evacuated with a broken leg by the US Navy from Hungnam to South Korea.

But You apparently told the First Air Force commander that No's mother was alive in South Korea. Compounding the problem was that during April, American leaflets had been distributed offering \$100,000 to a defecting MiG pilot. These factors combined to trigger a security investigation of the young pilot. Fortunately, his battalion vice commander and the commander of First Air Division had each given high praise to No as both a fighter pilot and dedicated communist. No continued flying combat missions.

In 1952, the North Korean government decreed family members of any defector would be executed. Fortunately, No's mother was safely settled in South Korea, and it was not until a 1970 visit to Seoul that he learned of the retribution resulting from his escape.

In discussing his case with a pilot who defected in 1955, No learned that several of his associates were executed. His best friend, who in fact did know of his plan, was the first to die. His execution was followed by those of the battalion commander, with whom he had spent his last day at Sunan; his vice battalion commander who had vouched for his loyalty during the earlier security investigation, along with the battalion's political officer; the air division's chief weapons officer who had sponsored No's Communist Party membership; his regimental commander; and the commander of the North Korean First Air Division.

In addition, he suspects his uncle was executed, too.

### MiG-15 Evaluation

No's defection came at a high cost, but since he was the first to bring in an intact MiG-15, it had great value as well.

Three USAF test pilots evaluated the MiG: Maj. Gen. Albert Boyd, Maj. Charles E. Yeager, and Capt. H. E. Collins. They found contemporary Sabres superior to the MiG in every respect. While the MiG-15 had a better thrust-to-weight ratio that allowed it to climb higher than the early model Sabres, the F-86F could also reach 55,000 feet (albeit not without exceeding the engine's exhaust gas temperature limit). Missions in the F model were routinely flown at 49,000 feet, with a cruise speed of 0.9 Mach.

*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, "Have Donut," appeared in the June 2010 issue.*



Photo by Steven Nolasca, at a photo, via John Lowery

**No Kum-Sok became a US citizen and took the name Kenneth Rowe. He worked as an aeronautical engineer for Boeing, General Dynamics, and Lockheed, among other defense companies.**

Among the predominant flight-test findings were that the aircraft had a strong nose-up pitch at .83 Mach. Its official speed limitation was .92 Mach, at which point a red warning light illuminated.

In addition, the MiG was found incapable of going supersonic. In one test, Yeager made a vertical dive at full power, to establish once and for all the airplane's maximum speed. The airplane never exceeded .98 Mach. At that speed, the shock-wave caused severe flight control vibrations—the aircraft became unresponsive above .93 Mach. Testing found problems with unexpected pitching, unrecoverable spins, lack of any stall warning, a very poor pressurization system, and a particularly dangerous emergency fuel pump.

No subsequently immigrated to the United States and learned English. Then, from the University of Delaware, he earned degrees in mechanical and electrical engineering. He married an émigré from Kaesong, Korea. They raised two sons and a daughter. The sons graduated from college as engineers and the daughter as a lawyer. After working in several defense-related industries, he ultimately retired as professor of aeronautical engineering from Embry-Riddle Aeronautical University in Daytona Beach, Fla.

In retirement—and despite advancing age—Kenneth Rowe (his anglicized name) is a sought after speaker. His story and book, *A MiG-15 to Freedom*, are riveting accounts of life under the North Korean government. ■

# The Moon Squadrons

**Under cover of darkness, British Lysanders flew Allied agents into and out of occupied France.**

**W**ithin weeks of the fall of France in 1940, the British began preparations to send secret agents into Nazi-occupied Europe. In July, Prime Minister Winston Churchill set up the Special Operations Executive with a charter that included sabotage, espionage, assistance to Resistance movements, and other clandestine activities.

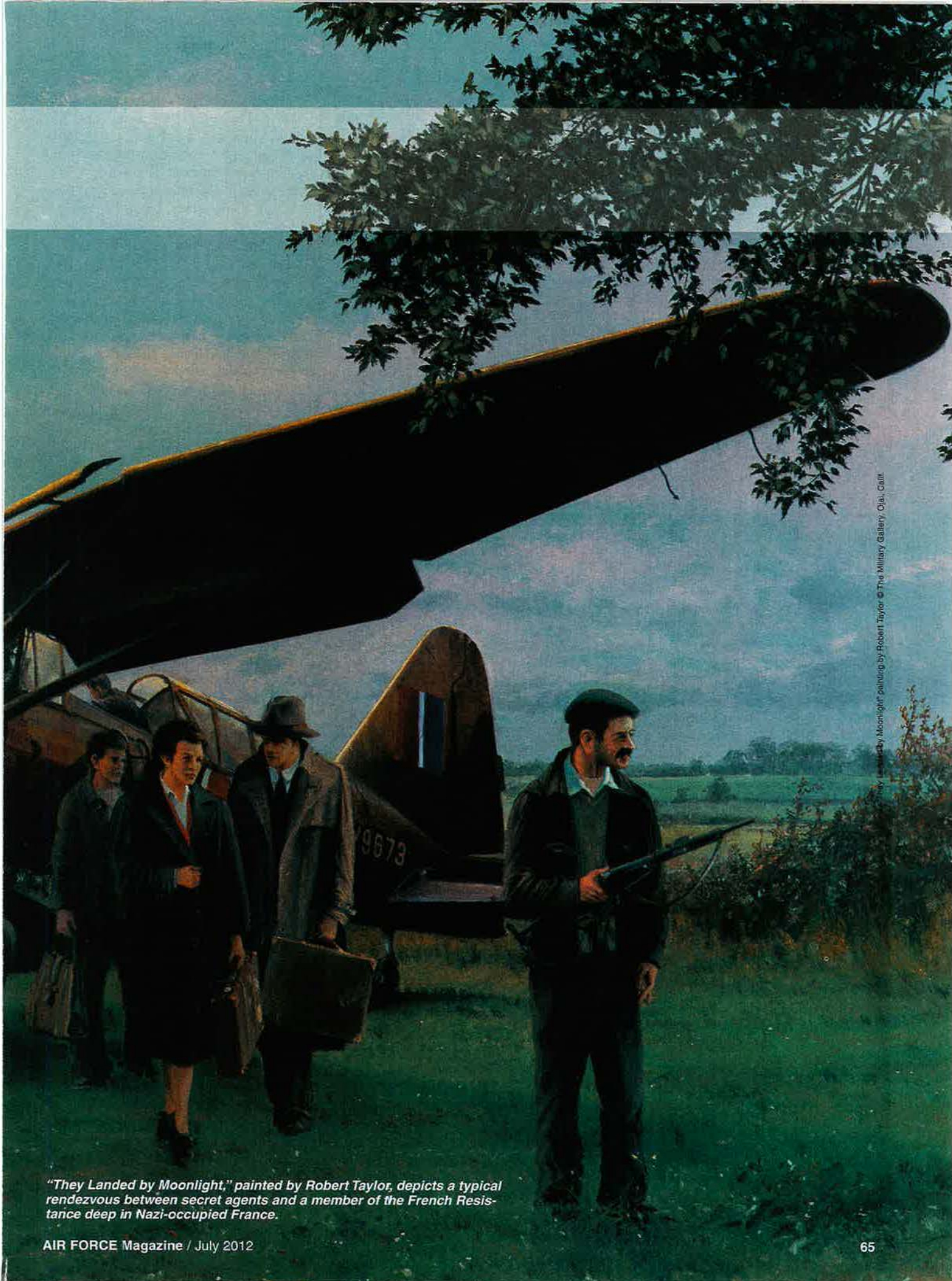
SOE was not part of the regular Secret Intelligence Service. It was a separate agency with its own minister. Its exploits are legendary today, but it was a tightly held secret during World War II. Its existence was not revealed to the public until the war was over.

On behalf of SOE, Foreign Office officials approached the Air Ministry in the summer of 1940 to ask if agents could be parachuted or flown into France and the Low Countries. They got a frosty reception: Air Vice Marshal (later Air Chief Marshal) Arthur Harris did not want to divert airplanes and pilots, needed elsewhere, "to carry ragamuffins to distant spots."

Others—notably Churchill—disagreed and SOE got its support. Over the next five years, RAF would drop, deliver, or pick up thousands of SOE agents in continental Europe.

For that purpose, two special duty squadrons were formed at RAF Tempsford, north of London. At first, both of them flew single-engine Westland





They Landed by Moonlight painting by Robert Taylor ©The Military Gallery, Ojai, Calif.

*"They Landed by Moonlight," painted by Robert Taylor, depicts a typical rendezvous between secret agents and a member of the French Resistance deep in Nazi-occupied France.*

Lysanders, but shortly thereafter, No. 138 Squadron switched to modified Halifax bombers and specialized in airdrops of agents and equipment.

No. 161 Squadron took over all of the Lysanders. On nights when the moon was full, they landed behind enemy lines without lights on grass fields and improvised airstrips as short as 150 yards. As agents arriving from England climbed down the fixed ladder from the rear cockpit, passengers waiting to be picked up ran onto the field, scrambled aboard, and minutes later were on their way. Both squadrons depended on moonlight for visibility over the landing zones and drop zones.

The operation got off to an awkward start the night of Oct. 19, 1940. SOE agent Philip Schneidau, having completed his assignment in France, was ready for pickup. The weather was bad, but Flight Lt. W. R. Farley took off hoping it would improve. The sliding roof was removed from the rear cockpit to make it easier for Schneidau to board, but the radio in back was inoperable after being soaked by rain.

Farley picked up Schneidau and took off. As he struggled to free a sticking elevator, he passed low over a nearby village where a lucky shot by a sentry hit the cockpit of the Lysander and destroyed the compass.

The weather en route had not abated, and Farley searched with increasing urgency for a gap in the clouds and an emergency landing field. He finally set down at Oban in western Scotland with his fuel gauge on empty. Unable to reveal the nature of the mission to the suspicious RAF station commander, Farley and Schneidau were held under guard until vouched for by higher headquarters.

### The Lysander

The Lysander was not the only kind of airplane No. 161 Squadron had, but it accounted for most of the insertions and extractions in France. It was light (just over two tons) and rugged, with a long 50-foot wingspan. It entered service in 1938 as an "army cooperation" airplane used for spotting and reconnaissance, but found its natural home with the Moon Squadrons.

Some accounts say the Lysander needed an airstrip of 500 yards or longer, but the Tempsford pilots could and usually did land in 150 yards from touchdown to turnaround, according to Group Capt. Hugh Verity, who made 30 such landings as a squadron leader during the war.

The three-bladed propeller was driven by big Bristol Mercury radial engine, generating a top speed of 230 mph. More significantly, it could fly as slow as 55 mph without stalling.

"The wings were equipped with automatic slats which lifted away from the leading edge as the speed decreased toward stalling speed," Verity said. "These slats controlled automatic flaps. Slow speed flight was therefore greatly simplified and it was possible to bring a Lysander down to land, if not like a lift, at least like an escalator."

Rough landing fields were seldom a problem for the strong undercarriage formed by an alloy beam in the shape of an inverted V. The fixed landing gear had streamlined fairings, called "spats," over the wheels to reduce turbulence. The high wings, which gave the pilot a good view downward on both sides, were braced with sturdy struts.

Every pound of nonessential equipment was stripped out to give the Lysander as much range as possible. With an auxiliary fuel tank underneath the fuselage, it could cover a round trip of 1,150 miles.

It was rated for two passengers but often carried three and, in several documented instances, squeezed in four. A fixed ladder helped passengers deplane and board quickly. The top rungs were painted yellow to make them easier to see.

"The whole aeroplane had been painted matte black all over, in the mistaken belief that this would help make it invisible at night," Verity said. "While this may have been true for searchlights, the night flyer's view from above on a moonlit night was a very different matter. We found that the silhouette against low cloud was far too positive. So I had the upper surfaces recamouflaged in dark green and pale gray."

When circumstances permitted, No. 161 Squadron used two-engine Lockheed Hudsons for pickups of larger parties. The Hudson carried a navigator and a radio operator-gunner and could accommodate eight to 10 passengers. It supposedly required a 1,000-yard airstrip to land but Moon Squadron pilots made do with 350 yards from touchdown to turnaround.

The Hudsons had enough range to fly their missions directly from Tempsford, but the Lysanders used a forward staging base at RAF Tangmere on the southern coast of England.

The Moon Squadron pilots called all of the SOE agents "Joes," men and

women alike. "When we parachuted agents into the field we never—or only rarely—knew who they were," said Air Chief Marshal Lewis Hodges, who flew both pickup and airdrop missions as a squadron leader at Tempsford. "We perhaps knew their code names but that was all." The agents "were brought to Tempsford at the last moment from a special holding unit, a country house in the vicinity, and they were brought onto the airfield with as much secrecy as possible."

That may have been the case for the multi-engine crews, but the Joes had considerable contact with the Lysander pilots, who trained them to assist in the moonlight landings. "We became very friendly with individual agents," Verity said.

In November 1943, Hodges flew a Hudson into France to pick up a party that included an agent called "Morland." As he learned later, Morland was François Mitterand, a future President of France. From Tempsford, Morland was taken to London to confer with Charles de Gaulle, leader of the Free French forces, and flown back into France in February 1944.

### The White Mouse

About 50 of the SOE agents in France were women. The most famous of them was Violette Szabo, who was of French-English descent and spoke fluent French. Her husband, a French Foreign Legion captain, had been killed by the Germans. She was flown into and out of France by a Moon Squadron Lysander in April 1944, then parachuted back in for her next mission. On June 10, Szabo was captured after a gun battle at a roadblock in which she killed at least one German. Interrogated and executed at Ravensbrück concentration camp, she was awarded the George Cross, the highest civil decoration of the United Kingdom, posthumously.

Almost as well known was Nancy Wake, called "the White Mouse" by the Gestapo, which placed a large bounty on her head. She evaded capture, helped downed fliers to escape, led guerilla fighters in armed operations, and sentenced a traitor to death by firing squad. Wake, always stylish, traveled nowhere without her Chanel lipstick and said she had not parachuted into France "to fry eggs and bacon for the men." She survived the war and at age 96 attended the gathering of SOE and Moon Squadron veterans and families at Tangmere in 2006.



A Lysander flies under the clouds on a Moon Squadron mission in this painting by Ivan Berryman.

Ivan Berryman

### Into and out of France

Aircraft	Passengers In	Passengers Out
Lysander	293	410
Anson	0	4
Hudson	137	218
Dakota	15	23
<b>Total</b>	<b>445</b>	<b>655</b>

The Lysanders flew most of the Moon Squadron landing missions. The Lockheed Hudson was used to pick up larger groups of passengers when circumstances permitted. Airdrops of agents and materiel were conducted by larger aircraft, chiefly the four-engine Halifax. (Source: Group Capt. Hugh Verity)

SOE's rival in clandestine operations, the Secret Intelligence Service, also sent agents into France via the Moon Squadrons. SIS and SOE used the same aircraft, but never together. American aircraft flew some of the airdrop missions as well.

#### Landing by Moonlight

The forward base at Tangmere was almost 100 miles south of Tempsford, which enabled the Lysanders to fly deeper into France. "We were normally there for about a week before and a week after each full moon," Verity said. "We walked across to the normal RAF officers' mess for meals at the usual times when we had no secret visitors.

Our ground crew were lodged in the main station."

The pilots were billeted at Tangmere Cottage, opposite the main gates of the RAF station and partially hidden by tall hedges. The cottage had a kitchen and two living rooms, an operations room, and a dining room on the ground floor and five or six bedrooms upstairs. Two flight sergeants, Steve Blaber and Bill Booker of the RAF service police, handled everything from cooking to security at the cottage. They served breakfast at any time of night.

The BBC broadcast coded messages to let agents and Resistance leaders know when their missions were on. A January 1943 message, "Le castor foulera

la neige deux fois" ("The beaver will tread the snow twice"), for example, was notification that two Lysanders rather than one would be coming for a delivery and pickup that night.

Navigation was necessarily by dead reckoning. The Lysander pilots flew a course plotted in detail ahead of time and estimated their position from the compass heading, time flown, and air-speed. They also watched for recognizable features on the ground.

"Water was the best landmark," Verity said. "Coast, rivers, or lakes, and after that, forests and railways." The Loire river was frequently a landmark, as was the town of Blois, just beyond.

The pilots made their own cockpit maps from larger "half-million" (scale of one-to-500,000) maps. From these, they cut a long strip with their route in the middle and covering 50 miles to either side. The strip map was then folded so the pilot could hold it in one hand and study two panels while flying. The last two panels used a closer scale (one-to-250,000) for more detail on final approach to the landing site.

Before the Joes left Tempsford, they were taught by the Lysander pilots how to stake out a flarepath with pocket flashlights or bicycle lamps to mark a



**Nancy Wake, aka "The White Mouse," survived her daring exploits as a secret agent.**

landing site in the moonlight. The flarepath was in the shape of an inverted L, about 150 yards long. As the Lysander approached, the agent flashed an agreed-upon letter in Morse code. When the pilot acknowledged the signal, the other lights were switched on.

"After the Lysander had landed and turned around ready to take off into the wind, the load had to be changed over in under three minutes," Verity said.

One night in April 1942 at Pont-de-Vaux, France, the agent in charge of the landing was drunk and laid the flarepath over a ditch. The landing broke the undercarriage, so Squadron Leader Guy Lockhart burned the airplane and made his way overland with the passengers to British-held Gibraltar.

### **Hazardous Work**

The landings would have been even more dangerous if the German air defenses had not been preoccupied with nightly attacks by Allied bombers. Even so, between 1940 and 1944, the Moon Squadrons lost 13 Lysanders on 279 sorties flown. Six pilots were killed on pickup operations. In addition to the losses, there were numerous close calls.

On Dec. 8, 1941, Flight Lt. A. M. Murphy approached Neufchâteau, Belgium, for a scheduled pickup. The Morse signal flashed from the ground was the wrong letter, but Murphy decided to land anyway. The Germans were waiting and opened up on Murphy, who took off under fire.

The agent, unable to warn Murphy, watched from a distance as Murphy was hit by the ground fire. The agent had been

surprised by the Germans when setting up the flarepath and was lucky to have gotten away. Murphy, lightheaded from loss of blood, landed at Tangmere with 30 bullet holes in his Lysander.

The enemy was not the only hazard. In April 1943, Flight Lt. John Bridger shredded a tire in a bad landing. Figuring the Lysander would be too difficult to control with only one good tire, he shot out the other one with his Smith & Wesson .38 service revolver. It took five shots to flatten it, but the rims rolled easily over the dry, hard ground and Bridger took off without incident.

Improvised solutions were more difficult when No. 161 Squadron's Hudsons, larger and heavier than the Lysanders, ran into trouble on landings. On Feb. 8, 1944, Flight Officer John Affleck set down near Bletterans in eastern France to pick up a senior Resistance leader and his family. The field had been frozen but was thawed when Affleck landed at 11:30 p.m.

The ground team and the passengers pushed the airplane to the takeoff point and turned it around, but the wheels promptly sank into the mud. Villagers with oxen and horses came to assist. Activity paused while a German airplane flew past overhead.

Affleck decided that if he could not get away by 3 a.m., he would destroy the airplane and make a run for the Spanish border. The workers dug two channels for the wheels and Affleck taxied forward with a minimum load and got the Hudson into the air. He arrived in England at 6:40 a.m., with both humans and airplane covered in mud.

No. 138 Squadron had the less glamorous side of the operation, flying more than 2,500 sorties to drop 40,000 packages and 995 Joes into occupied Europe. Nearly all of these missions were in Handley Page Halifax bombers, modified to provide a parachute hatch called the "Joe hole."

"We sometimes dropped agents in the dark period with no moon, and these were often what we call blind drops. There was no reception committee on the ground and this method had security advantages, but there was always the risk of injury in the parachute landings," said Hodges.

One of the Halifax missions remains clouded in mystery. The aircraft, flown by Wing Commander W. R. Farley—the same officer who flew the very first Moon Squadron mission back in 1940—crashed into a mountain in Bavaria on April 20,



**Violette Szabo was awarded the George Cross posthumously for her work as a "Joe."**

1942. Not much is known about the flight. It was part of secret Operation Pickaxe, in which the RAF dropped more than 20 Soviet agents into Western Europe by parachute.

### **The Front Moves Forward**

The peak year of activity was 1943, when the Moon Squadrons made 125 landings in France. The front moved forward after D-Day in 1944 as French territory was steadily liberated. Allied special forces "Jedburgh" teams parachuted in ahead of the invasion forces to reinforce the SOE agents and the irregulars. The requirement diminished for Lysander pickups and the aircraft were reassigned to nonoperational transport duties.

After the war, SOE was dissolved. Some of its assets were transferred to the Special Operations Branch of the Secret Intelligence Service, MI6.

No. 138 Squadron was assigned to other duties elsewhere and No. 161 Squadron was disbanded in June 1945.

Some of the heritage of the Moon Squadrons is preserved by the Tangmere Military Aviation Museum, established in 1982 on the site of the old airfield. Tangmere Cottage still stands, registered as a building of special historic interest.

The Lysanders were withdrawn from RAF service in 1946.

Among the Lysanders on exhibit in various museums today is one at the Udvar Hazy annex of the National Air and Space Museum in Chantilly, Va.

It is displayed with the paint scheme and markings of No. 138 Squadron at Tempsford in 1941. ■

*John T. Correll was editor in chief of Air Force Magazine for 18 years and is now a contributor. His most recent article, "They Called It Star Wars," appeared in the June issue.*

# TEAM OF THE YEAR

They represent the best in their field: airborne operations.



USAF photo by Jim Varhegyi



**T**HE Air Force Association established the Team of the Year program in 1979 and introduced the first group in Washington, D.C., the next year. Team of the Year originated as an incentive for the service's recruiters, who were striving to fill quotas because of the end of the military draft, but AFA soon broadened the program to recognize other specialties.

Each year, career field managers submit nominations, detailing the accomplishments of their fields. A board comprising the Chief Master Sergeant of the Air Force and command chief master sergeants from five major commands then make the final selection. The chiefs and career field managers select five airmen to accept the award on behalf of their peers. Team members come from different units across USAF's Total Force.

For 2012, the board chose airborne operations.

Airmen in airborne operations serve on AWACS, JSTARS, AC-130, and MC-12 aircraft. They operate sensors, electronic countermeasures, and communications systems to gather, interpret, and distribute mission information.

In 2009, **SrA. David M. Pederson II** volunteered for the MC-12 Liberty program and deployed to Balad AB, Iraq. Backed by this experience, training, and other deployments, he became a key to the smooth transition in 2011 of MC-12 training from Key Field, Miss., to Beale AFB, Calif. He is now an instructor sensor operator for the 489th Reconnaissance Squadron (ACC) at Beale. Pederson wrote and implemented training curricula, created training aids, and organized participation in joint training. Some 120 students a year receive mission qualification training from him, learning about the MC-12's sensors, radios, and computers.

**SrA. Kathleen I. Eliseo**, 4th Special Operations Squadron (AFSOC) at Hurlburt Field, Fla., deployed to Iraq and Afghanistan in 2011. As a gunship sensor operator, she took part in some 68 direct-action missions over the course of 160 days. Eliseo developed imagery and intel products, supported a multinational parachute mission involving tracking "friendlies" and clearing the landing zone, and edited 20 hours of classified sensor video. She also conducted AC-130 sensor familiarization training for coalition forces and civilian-contract engineers.

**SrA. Jared S. Kordos** deployed for Operation Odyssey Dawn in March 2011 and the follow-on Operation Unified Protector. The airborne surveillance technician with the 965th Airborne Air Control Squadron (ACC) at Tinker AFB, Okla., had been in the first crew on the ground in theater to support enforcement of the no-fly zone over Libya. He flew on 62 combat sorties, accumulating 550 airborne combat hours, helping kill a column of main battle tanks, targeting SAM systems, and assisting intercepts of unknown aircraft.

**TSgt. Scott C. May**, from Robins AFB, Ga., has deployed eight times in his eight-year career and has 2,500 flying hours in the JSTARS. He has put this experience to use as an evaluator airborne operations technician, overseeing and training JSTARS airmen for the 116th Air Control Wing. He serves as the commander's enlisted executive for the 129th Combat Training Squadron (ANG), the Air Guard's only JSTARS formal training unit, which stood up last October. In 2011, he also helped the wing on a short-notice USAFRICOM tasking, enabling its deployment in less than 72 hours.

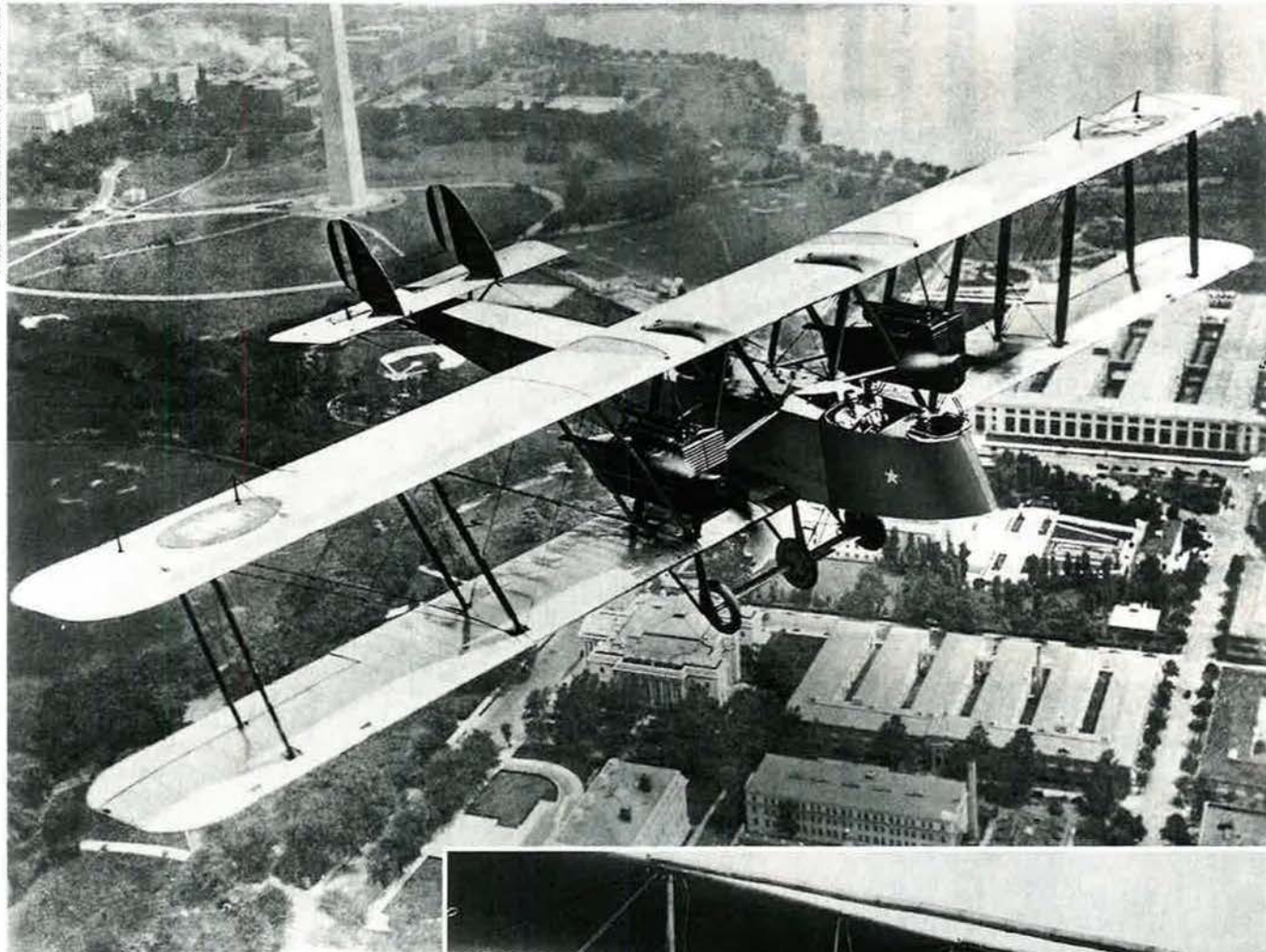
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Squadron Superintendent **MSgt. Michael Sailer**, 551st Special Operations Squadron (AFSOC), Cannon AFB, N.M., deployed in 2011 as an operations superintendent and as an instructor for AC-130H gunship sensor operations. He planned joint special operations forces infiltration-exfiltration missions and flew on missions that provided on-call close air support and ISR. Today he is senior enlisted advisor to the squadron commander on aircrew training for AC-130, MC-130W, Predator, and Reaper platforms. ■

*Team of the Year members (l-r) MSgt. Michael Sailer, TSgt. Scott May, SrA. Jared Kordos, SrA. Kathleen Eliseo, and SrA. David Pederson II spent four days in Washington, D.C. They visited the Pentagon, their congressmen on Capitol Hill, and attended meetings and receptions. This one took place at the home of CMSAF James Roy.*

## The First US Bombers

Photo via National Museum of the US Air Force



When America entered World War I in 1917, the US Army had no bombers. It had to make do with British Handley Pages and Italian Capronis. In January 1918, however, the Army contracted with the Glenn L. Martin Co. for the first true US bombers. These biplanes (an early version is shown above, over Washington, D.C., in 1919) were called the Glenn Martin Bombers and later renamed MB-1. Designed by the legendary Donald Douglas (founder of Douglas Aircraft), the GMB first flew on Aug. 15, 1918. It could carry a 1,040-pound bomb load for 390 miles at 105 mph. War's end in November 1918 truncated production at 10 aircraft, but the foundation had been laid.



Glenn Martin, circa 1911, prepares to take off in a pusher biplane on a newspaper delivery flight from Fresno, Calif., to Madera, Calif., made as a promotional ploy to raise money for his aircraft production plant.



# AFA National Report

natrep@afa.org

By Frances McKenney, Assistant Managing Editor

## A Double in Dallas

"This quarter's membership meeting ... is quite different from our routine get-togethers," wrote **Seidel-AFA Dallas Chapter** President Robert Gehbauer in his group's newsletter.

Indeed, the chapter in late April sponsored a particularly high-powered doubleheader: It led off with a morning symposium of military leaders including Lt. Gen. James M. Kowalski, commander of Air Force Global Strike Command. A luncheon followed, with USAF Chief of Staff Gen. Norton A. Schwartz as keynote speaker.

The symposium centered around the theme "Manned Aviation's Role Now and in the Future." Retired Lt. Gen. David A. Deptula, former deputy chief of staff for ISR, served as panel moderator and opened the conference with comments about the history of remotely piloted aircraft.

Retired Adm. Patrick M. Walsh, former commander, Pacific Fleet, provided a historical overview on the legitimacy of weapon systems usage. Kowalski addressed the strategic use of RPAs, and Vice Adm. Mark D. Harnitchek, Defense Logistics Agency director, spoke on the subject of funding, particularly manpower costs. Other speakers were Rear Adm. Chris Sadler, deputy commander of Naval Air Forces, and Coast Guard Capt. David Nichols, the staff judge advocate for the USCG 8th District.

Special guests included AFA Chairman of the Board S. Sanford Schlitt and a contingent of AFROTC cadets from Baylor University.

## The F-35 Briefly

In March, a Lockheed Martin F-35 representative delivered a presentation to the **San Jacinto Chapter** in Houston, Tex.

William Diehl, manager of F-35 Customer Engagement, based at Fort Worth, spoke about the strike fighter's capabilities.

Chapter member and event coordinator Tommy Thompson wrote that the more than 50 guests at the presentation included University of Houston Det. 003 AFROTC cadets—the very people who will soon fly, maintain, and support USAF's newest fighter.



*AFA Board Chairman Sandy Schlitt (l) and USAF Chief of Staff Gen. Norton Schwartz (c) attended a symposium in Dallas on manned aviation. The Seidel-AFA Dallas Chapter—whose president, Bob Gehbauer, stands at right—organized the event.*

Thompson—a former F-111 pilot—called on his fighter-pilot contacts to book Diehl as a speaker. He reported that Diehl certainly had the background for an authoritative presentation: He retired as an Air Force colonel with more than 5,000 hours of fighter aircraft flying time, including a MiG kill during the Vietnam War and experience as a mission commander on the first daylight raid over Baghdad during Gulf War I.

## Big Winners

Backed by generous sponsors, the **C. Farinha Gold Rush Chapter** in California awarded more than \$20,000 in scholarships to 11 students at its annual Awards Night in April.

Jared Fong and Derek Ainsworth, respective winners of \$5,000 and \$3,000 scholarships sponsored by SAFE Credit Union, couldn't break away from final exams to accept the awards in person in Sacramento. Neither could Monica Sing who won \$4,000 through a scholarship funded by the Dwelle Family Foundation.

Fong is a sophomore, majoring in biological science, at the University of California, Davis, some 220 miles away.

Ainsworth was across the state line, at the University of Nevada, Reno. And traveling to the Golden State's capital was out of the question for Sing, also a UC Davis student; she is studying epidemiology in Ecuador. Her parents, and Ainsworth's, accepted the scholarships at the banquet.

Eight local high school students received their scholarships that night: Kevin Love and Joshua Meuser from Del Oro High School; Joshua Jetter, Julia Lund, and Michael Tharratt from Oak Ridge High School; Kristen Hiatt and Christina Winters from Placer High School; and Raymond Chan from John F. Kennedy High School.

Chapter President Paul Bonnier also presented national-level AFA awards at the banquet to Ron Azarcon, Ray Coughlin, Dick Stultz, and Sandy Stultz.

## The Commissioner Says "Congrats"

Hosted by the **Chattanooga Chapter**, the Tennessee State Convention put cybersecurity in the spotlight through its keynote speaker and also with a presentation of CyberPatriot awards.

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



At the Tennessee State Convention, State President Jim Mungenast (right) presents guest speaker Reginald Hyde with a memento: a football autographed by Nick Saban, coach for the football team from Hyde's alma mater, University of Alabama.

Reginald D. Hyde, deputy undersecretary of defense for intelligence and security, delivered the keynote address at the convention's Friday night awards banquet.

Among those recognized with awards were: Recruiters of the Year TSgt.

Rachelle Johnson and TSgt. Thomas Sinkewicz; Outstanding ANG Airman of the Year TSgt. Tommy Allen; and the 241st Engineering Installation Squadron of Chattanooga, named Outstanding ANG unit. Frank Wood from Knoxville's L&N Academy, received the State

Teacher of the Year honor. Derick E. Seaton of the **Gen. Bruce K. Holloway Chapter** was named Tennessee AFA Volunteer of the Year.

New to the awards lineup this year were CyberPatriot's Tennessee winners, so the competition's commissioner, Bernard K. Skoch, traveled to the convention to talk to the audience about the high-school-level cyber defense program. He helped congratulate the CyberPatriot team from Farragut High School in Knoxville, winners of the state-level Open Division, against 20 other high schools. A Williamson County CAP team took first in the state-level All-Services Category.

The local *Times Free Press* newspaper interviewed Skoch, who pointed out that the Internet-dependent nature of US infrastructure presents vulnerabilities easily exploited with a few keystrokes.

The newspaper also quoted Tennessee State President James M. Mungenast as saying, "We'd love to have 100 schools" involved in the CyberPatriot competition.

**English Teacher-Cyber Coach**

A substitute English teacher who coaches a CyberPatriot team became the **General Doolittle Los Angeles Area Chapter's** Teacher of the Year

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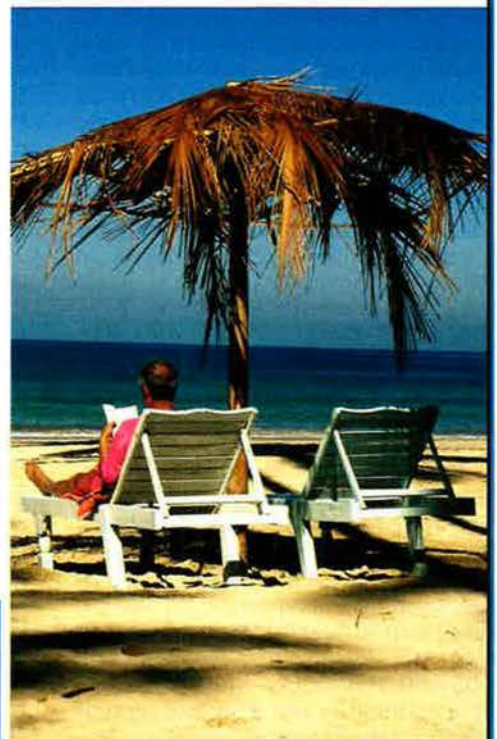
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**CONDO RESORT RENTALS**

Through an agreement with one of the largest timeshare companies, AFA Members can take advantage of vacant timeshares -- renting them for only \$349 per week! No matter the location or time of year, AFA Member price is \$349 per week. The Veterans Holidays inventory includes condo units that resort owners do not use, which generally means off-season or short-notice travel. Visit [www.veteransholidays.com](http://www.veteransholidays.com) and select Air Force Association from the list of "Installations" when making your reservation.

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and went on to receive the state title at the California State Convention.

Benjamin F. Fernandez, of Franklin High School in Highland Park, received the honor in May at the AFA Golden State gathering in Palm Springs.

Doolittle Chapter President Harry Talbot explained that Fernandez—who majored in journalism and normally teaches grammar, SAT vocabulary preparation, and the novels of George Orwell and J. D. Salinger—essentially is “self-taught” when it comes to computers, but he has been advising CyberPatriot teams for more than two years.

This year, his kids earned a trip to the competition’s National Finals at National Harbor, Md., in March. This feat got them feature-story coverage in the *Los Angeles Times*.

Talbot said that Fernandez actively seeks out potential cyber team members and last fall rounded up four girls for his six-person team.

#### White Suit

An AFA Educator Grant helped bring a presentation called “Living in Space” to fifth-graders—creating excitement with a bulky white space suit just like astronaut Neil Armstrong wore to walk on the Moon.

Sandra R. Vicksta, from Hunt Elementary School in Colorado Springs, Colo., received a \$250 grant from AFA and used it to bring in flight directors Jay Stutz and Deb Haase from the local Challenger Learning Center.

These educational centers came about after the 1986 space shuttle *Challenger* explosion that killed seven crew members. Their families decided that space-focused learning centers would serve as a living memorial to the crew and could inspire youngsters to study science, technology, engineering, and math. Nearly 50 Challenger Learning Centers have been established in schools, museums, and other locations.

Stutz and Haase brought a replica Apollo-mission space suit—technically called an extravehicular mobility unit—to the classroom. As a student-volunteer donned each piece, the flight directors explained its role in protecting and providing life support to the astronauts while they carry out tasks outside the space vehicle. Stutz said the helmet always creates a stir: “Students love being able to see the world from inside the helmet.”

Stutz and Haase described the Apollo program’s history and how astronauts adjust to zero gravity, exercising with resistance bands to prevent bone density loss, for example. They gave the students “astronaut ice cream,” illustrating how NASA prepares food for space missions.

## AFA Conventions

July 13-14	Oklahoma State Convention, Oklahoma City
July 20-22	Florida State Convention, Eglin AFB, Fla.
July 20-22	Texas State Convention, Greenville, Tex.
Sept. 15-16	AFA National Convention, National Harbor, Md.
Sept. 17-19	AFA Air & Space Conference, National Harbor, Md.

Vicksta said the presenters even left lesson plans with her, as well as ideas to “extend the learning experience.”

“Your grant made this wonderful experience possible,” she wrote, thanking AFA.

#### More Chapter News

■ **Swamp Fox Chapter** members in South Carolina manned a seven-person booth during Shaw Air Force Base’s AirExpo 2012, held the first weekend in May. USAF’s aerial demonstration team, the Thunderbirds, and the Army’s Golden Knights parachute team were the big attractions, and Chapter President Bush Hanson said, “There was constant airborne activity from 11 a.m. to 4:30 [p.m.] each day.” The Swamp Fox booth sold souvenirs and raised \$1,600 for its scholarships, CyberPatriot outreach efforts, and Visions of Exploration classrooms. Visions of Exploration is a joint program of AFA and *USA Today* that promotes STEM education by providing newspapers to students and lesson plans for teachers.

■ In New Mexico, **Fran Parker Chapter** members helped the local Experimental Aircraft Association carry out its Young Eagles program in May. The EAA initiative encourages an interest in

aviation by offering kids free incentive flights on civil aircraft. Parker Chapter members flew youngsters in their private aircraft, reported Chapter President Lt. Col. Matthew J. Martin. Chapter members also helped out on the flight line, escorting kids and getting them registered for the airplane rides.

■ The **Thomas W. Anthony Chapter** of Maryland presented \$1,500 in May to Lt. Col. Scott Grundahl, director of the Joint Service Open House air show that took place at Joint Base Andrews in mid-May. The donation specifically supported safety briefings. Chapter VP Shedrick Roberts and Chapter Treasurer James Warren made the presentation.

■ An instructor first selected by the **Thomas W. Anthony Chapter** as its Teacher of the Year became the state winner, also, in June. Erin Nauman teaches math and science to kindergartners at Imagine Andrews Public Charter School at JB Andrews, Md., and has seven years of experience in classrooms ranging up to the fourth grade.

#### Louis A. Emond, 1944-2012

Retired Maj. Louis A. Emond, AFA North Carolina state president, died May 23 of a heart attack. He was



**Paul Revere Chapter** members—including Chapter President Keith Taylor (on the ground, at far right)—donated \$1,000 to fuel this P-51 for a flyover celebrating the centennial of Boston’s baseball stadium, Fenway Park. The Mustang also visited Hanscom AFB, Mass., for two days, so airmen could tour the warbird.



With Arkansas State President Jerry Reichenbach at the wheel, this truck pulled a Vietnam War-era UH-1 in a Welcome Home Vietnam Veterans parade in March in Jacksonville, Ark. David D. Terry Jr. Chapter members participated in this event.

67 years old and a resident of Morrisville, N.C.

A native of Worcester, Mass., he served in USAF from 1968 to 1988 in assignments ranging from air weapons controller to NATO liaison to the French

Air Force. He had a bachelor's degree in French from Fordham University and a master's degree from the University of Southern California. In his civilian career, he was an executive coach and marketing executive. ■

## SPOTLIGHT ON ...

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## Reunions

reunions@afa.org

**8th Tactical Fighter Wg.** Oct. 10-14 in Fort Worth, TX. **Contact:** Pete Nash (480-223-2351) (8thtffwreunion@cox.net).

**19th AREFS,** SAC, Homestead AFB and Otis AFB. Sept. 2-5 in Sacramento, CA. **Contact:** Ron Hines (919-728-2914) (rohines96@comcast.net).

**29th Fighter-Interceptor Sq.** Oct. 3-6 in Branson, MO. **Contacts:** Harold Philips (405-341-0621) or Grace Springer (785-889-4396).

**39th Fighter Sq Assn,** including 35th Fighter-Interceptor Wg, 39th, 40th, 41st FS, 39th Fighter/Flying Tng Sq, USAF/Army Air Corps. Oct. 10-14 in Colorado Springs, CO. **Contacts:** L. Haddock (719-687-6425) (comm63@mac.com) or Maj. Brian Haines (210-787-0102) (brian.haines@us.af.mil).

**48th Sq Assn,** 48th FS, 48th FIS, 48th FTS. Sept. 19-23 at JB Langley-Eustis, VA. **Contact:** John Classen, 15100 Southwest 145th St., Miami, FL 33196 (305-259-0864) (jclal97709@aol.com).

**316th Tactical Airlift Wg,** all personnel at Langley AFB, VA (1965-75). Sept. 18-23 at the Crowne Plaza Hampton-Marina, in Hampton, VA. **Contact:** Rex Riley (757-294-3253) (130rr08@gmail.com).

**376th Air Refueling Sq.** Sept. 25-27 in Bossier City, LA. **Contact:** Bill Bryan (360-692-3609) (376bill897@gmail.com).

**623rd Aircraft Control & Warning Sq Assn,** 624th Sq, 851st Sq, 529th Gp, 305th Fighter Control Sq, 313th ADIV, 2152nd Comm Sq, and 51st FIW and anyone engaged in air defense of Okinawa. Oct. 17-21. **Contact:** Jack Hinton, 1313 Wilcox Ln., Yukon, OK 73099 (405-350-1158) (johinton1@hotmail.com).

**815th Troop Carrier Sq.** Sept. 20-23 in Fairborn, OH. **Contact:** Bob Tweedie, 2783 Double Eagle Dr., Beaver Creek, OH 45431 (937-426-7947) (ineztwbird@aol.com).

**Bitburg AB, Germany, K-9 Section.** Sept. 6-8 at the Holiday Inn, 400 Arch St., Philadelphia, PA 19106. **Contact:** Dick Reitz (507-327-5996) (rar1426@comcast.net).

**Nuclear Weapons Technician Assoc.** Oct. 18-20 in Albuquerque, NM. **Contact:** Robert Welz, P.O. Box 156, Connellsville, PA 15425 (502-645-3181) (rwelz@aye.net).

**Society of Wild Weasels.** Sept. 28-29 at the Crowne Plaza and Virginia Air & Space Center, Hampton, VA. **Contacts:** Bill Miller (757-880-3599) (mildbill.miller@gmail.com) or Ed Ballanco (757-810-1751) (edward.ballanco@gmail.com).

**Vietnam Security Police Assn.,** including those stationed in Thailand. Oct. 3-7 near Eglin AFB, FL. **Contact:** Dennis Evans (866-672-6533) (denniseevans@aol.com). ■

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Reunions," Air Force Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.



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## Yak-3



The Soviet Yak-3 was an exceptional fighter that earned great respect in the final years of World War II. Revered by its pilots and feared by enemies, the Yakovlev aircraft was the scourge of the Luftwaffe on the Eastern Front, generally sweeping the sky in dogfights below 16,000 feet altitude. It was light, maneuverable, tough, easy to maintain—perfectly suited to low-altitude combat from forward bases.

Design work began in 1940, but Germany's invasion of Russia in June 1941 caused an interruption, delaying the Yak-3's appearance until 1944. The aircraft was of mixed construction that included plywood covered wing surfaces with an all-metal stressed skin fuselage.

The Yak-3 was the smallest and lightest fighter on the Eastern Front. Its speed and maneuver-

ability more than compensated for its light armor and armament. It boasted a clean, high-visibility canopy. Some who flew it preferred the Yak-3 to either the US P-51 Mustang or British Spitfire.

The Yak-3 had a short but distinguished combat record. Used mostly as a tactical fighter, it would fly low over battlefields and force dogfights, almost inevitably besting German aircraft. Soon, the Luftwaffe pulled back in the face of the threat. German fighters usually would try to attack from above, realizing that surprise was their best chance to survive. In skilled Soviet hands, the Yak-3 was a deadly weapon, and German pilots rightly feared it.

—Walter J. Boyne

**This aircraft:** USSR Air Force Yak-3—No. 34—as it looked in May 1945 when deployed with 2nd Air Squadron in occupied Germany.



### In Brief

Designed, built by Yakovlev ★ first flight April 12, 1941 (prototype)  
★ crew of one ★ number built 4,848 ★ **Specific to Yak-3 (main variant):** one Klimov M-105 piston engine ★ max speed 407 mph  
★ cruise speed 290 mph ★ max range 560 mi ★ armament one 20 mm cannon, two 12.7 mm machine guns ★ weight (max) 5,864 lb  
★ span 30 ft 2 in ★ length 27 ft 10 in ★ height 7 ft 11 in.

### Famous Fliers

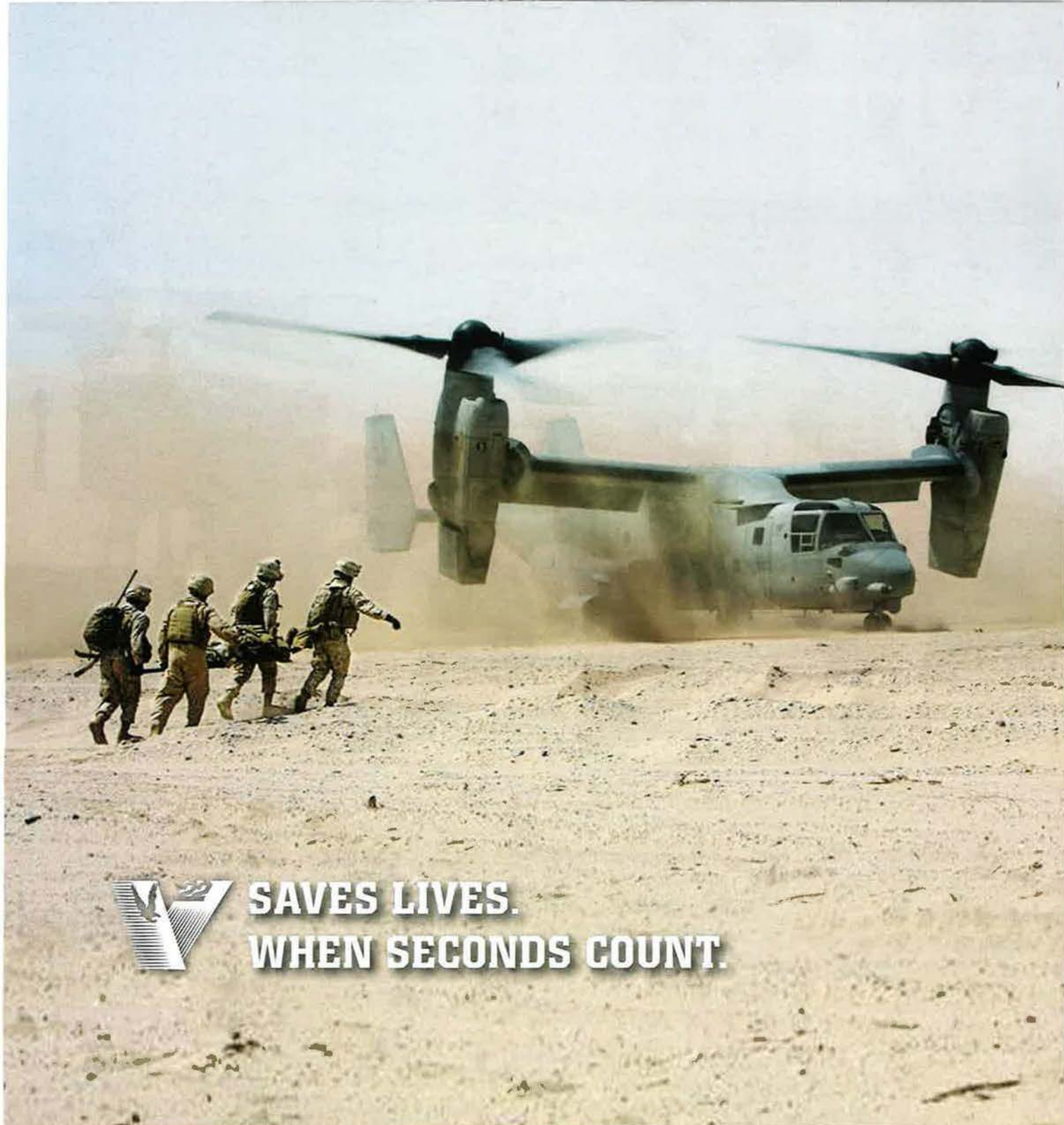
**Combat (Soviet):** B. N. Eryomin, S. D. Lugansky, S. V. Nosov, G. N. Zakharov. **Combat (French):** Marcel Albert, Jacques André, Roland de la Poype, Louis Delfino, Marcel Lefèvre. **Test pilots:** S. N. Anokhin, V. ... Rastorguev, P. M. Stefanovski, A. B. Yumashev.

### Interesting Facts

Nicknamed "Ubiytza"—"Killer,"—and "Ostronosyi"—"Sharp Nose" ★ caused German pilots to avoid combat below 16,000 feet ★ climbed at 498 mph when fitted with rocket engine (Yak-3RD) ★ flown by postwar air forces of Poland, Yugoslavia ★ built in 12 variants ★ recreated (replicas) by Yakovlev since 1991 ★ had smaller wing area than even superlight Japanese A6M Zero ★ lost rear plywood surfaces in high-speed dives.



Yak-3 was one of the most maneuverable fighters of World War II.



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