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October 2007, Vol. 90, No. 10

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**About the cover:** An F-15 banks hard over the English countryside. See "The One-Deep Air Force," p. 24. Photo by Peter R. Foster.

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# Editorial

**By Robert S. Dudney,** Editor in Chief

# On Fighting Irregular War

"AIRPOWER is usually the last thing that most military professionals think of when the topic of counterinsurgency is raised." So states an important new Air Force doctrine paper, quoting the words of a recent RAND report.

The RAND study said planners have "undervalued" USAF's potential contribution in low-grade irregular wars, of which Iraq and Afghanistan are examples. The capability has been "downplayed, taken for granted, or simply ignored," said RAND.

This doesn't necessarily mean planners see no use for airpower, just that different capabilities—infantry and special operations forces, mostly—are accorded much higher priority.

If the United States continues to indulge this habit, we will steadily lose ground in the Global War on Terror.

Victory over our deadly and determined foes will require effective use of all our capabilities, but especially the air and space weapon. Airpower has proven to be a—maybe even *the*—crucial US edge in the fight against insurgents and terrorists.

In Iraq and Afghanistan, Air Force targeting data, intelligence, communications, and airlift greatly magnify the strength of ground troops. More important, small groups of enemy fighters and even individuals are highly vulnerable to precision air attack.

The reality is clear enough: USAF is about more—much more—than "traditional" combat.

At long last, USAF has begun raising airpower's "small war" profile. Air Force Doctrine Document 2-3, "Irregular Warfare," is out, released on Aug. 1. This 103-page paper offers a glimpse of what airmen are saying to each other and to the world on the topic.

It is a strong presentation, showing that USAF's thinking has deepened and matured. It delivers a sharp punch to the view that the US needs only ground forces —small, simple, and mostly suited to commando raids. Indeed, airpower is portrayed as pivotal.

This claim does not sit well with everyone. The Army and Marine Corps concept of irregular war ascribes far more value to, well, themselves. That is, to say no more, a debatable proposition.

Without question, certain valuable capabilities are unique to airpower. The doctrine paper cites three advantages that, while not always obvious, may prove vital to US success.

**Minimal intrusiveness.** Introduction of a large US ground force is a highly visible act, often breeding political resentment, especially in Muslim lands. US troops quickly become targets for attack by insurgent bullets, bombs, and broadcasts. This amounts to a grave weakness for a force engaged in irregular warfare, in which support of "the people" is of paramount importance.

**USAF is about more—much more—than "traditional" combat.**

Air Force units, notes the doctrine paper, have a far smaller "footprint." A joint commander can "mobilize, deploy, employ, and redeploy" airpower without "highlighting" the role of the United States. In addition, these kinds of operations can be sustained for a long period with scant risk of US casualties. Both factors weigh heavily in a long, irregular campaign.

**Swift response.** The speed and range of aircraft and cyber weapons dramatically compress the "kill chain" and give the joint commander his best—in some cases only—way to attack fleeting, high-value targets.

This was made evident in the 2006 air strike on Abu Musab al-Zarqawi in Iraq. In another vein, rapid air transport of small teams over great distances can produce a vital result—tactical surprise. Air- and space-borne sensors likewise can be rapidly refocused on a specific target. The combination of range and responsiveness, unique to airpower, shapes up as "an enormous force multiplier," says the paper.

**Sharp awareness.** When fighting cagey insurgents, the gold standard is "actionable intelligence," information precise enough to permit effective strikes and avoid civilian casualties. Getting such information takes time, requiring patient and persistent overwatch.

Among the services, the Air Force is uniquely able to monitor, map, and survey vast areas quickly and for long periods. Equipped with its "staring" Global Hawk and Predator UAVs, not to mention spacecraft and other systems, it can spot "safe havens, assembly points, and potential avenues of attack," said the document. It can detect trouble lurking in the path of land forces.

These three characteristics, properly exploited, offer the joint commander enormous benefits available from no other source.

Maj. Gen. Allen G. Peck, commander of the Air Force Doctrine Center at Maxwell AFB, Ala., and overseer of the doctrine paper, summed up matters in these words: "Airpower, in all its forms, brings a vast array of direct-effect weapons and joint-force enablers to the fray, a fact not always clearly recognized."

The Air Force's new assertiveness comes none too soon. The services are embarked on what is sure to be a contentious effort to write, for the first time, joint doctrine for irregular warfare. The effort appears likely to affect service budgets, programs, and more.

The timing of the paper is no accident. USAF leaders are more or less openly sending the message that they will not be ignored in these deliberations.

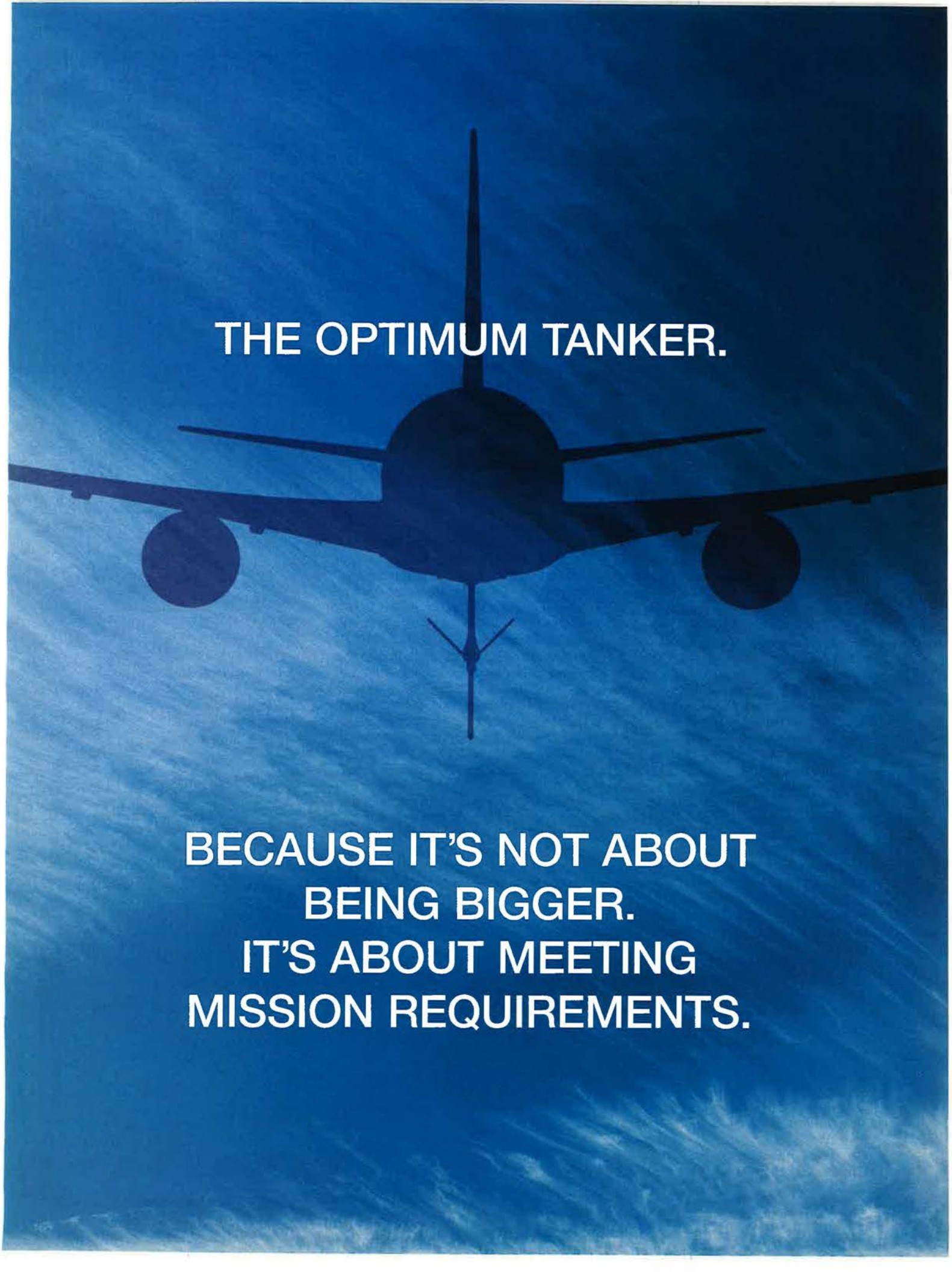
The main challenge comes from the Army, backed by the Marine Corps. They argue that boots on the ground, not airpower, matters most in the irregular fight. The Army, moreover, has been given the lead in writing the joint doctrine.

We should anticipate a long struggle—with no assurance of success.

There are reasons for caution here. USAF officers, for example, are at pains to say there will be no "counterinsurgency air force." The doctrine paper states flatly: "Traditional warfare and [irregular warfare] are not mutually exclusive." The nation, in short, needs an Air Force able to do both, not one or the other.

Yet to be seen is whether the other military services will be able to dispense with long-standing views and accept airpower as a co-equal in the field of irregular conflict.

"We've proven airpower can effectively support other agencies combating counterinsurgency but can also operate in a supported component role," Peck noted at the start of the doctrine-writing process. "It doesn't always have to be about having lots of 'boots on the ground.'" ■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# Letters

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### War Budgets and Sacrifice

I just finished reading your article about the war budgets *["Editorial: War Budgets, Then and Now," August, p. 2].* I am not an economist nor do I have all the know-how when it comes to supporting our military. I am 85 years of age, a veteran of 12 years. I wish so very often that our Senate, etc., would be shown what the lack of military spending cost our country in World War II.

Our [Army Air Forces] back in 1940 had some Martin B-10s, a few B-18s, and the beginning of the [B-17] Fortress bombers. Our fighters consisted of P-39s, P-40s, to mention a few. The Germans and Japanese already had their Me-109s, FW-190s, Zeros, etc. The Navy had old Brewster Buffalos, F4Fs, etc. None were a match for the Zero. The only edge we had was the quality of our pilots. They gave so much with so little.

Our Air Force lost well over 40,000 men bombing Germany. I feel much of the losses were attributed to the lack of a fighter capable of escorting our heavies in and out of target [areas] in Germany. Not until the P-51 appeared was this reversed.

The German tanks were far superior to ours until late in the war. We lost over 500 tanks early in the war. Some of our tanks did not have a revolving turret. The early Sherman packed a 75 mm gun without the power to penetrate the German armor. In 1941, we were so ill-equipped [that] we used pipes in place of mortars. I carried a 1914 rifle with a surplus 1914 mess kit and helmet.

I was then assigned to an anti-tank company. We were given new 37 mm anti-tank cannons and told we could stop anything the Germans had. My unit was part of the 9th Infantry Division. I lost too many friends because that 37 mm gun could not stop a German tank. They had to dump it for a British 57 mm gun.

I am aware that there was a depression in our country. I lived through it. However, I know that people like Charles Lindbergh, Gen. [Claire L.] Chennault, and others warned our country that we were not prepared. It fell on deaf ears.

We went into Iraq without enough body armor, with vehicles that cannot withstand high explosives, etc. Here we are, the greatest country on Earth, and we let our young men and women die and have their young bodies torn asunder.

I love my wife and family, but next to them, the Air Force is and always has been my first love.

Irving Distenfeld
Baltimore

### China Assumptions

Any critical reading of Richard Halloran's provocative views on the Chinese military buildup ("China Stands Up," August, p. 24), should raise yellow cautionary flags given the article's unstated, but underlying, assumption: capabilities equal intentions. The US must always be mindful of striking the right balance between having sufficient ability to handle worst case scenarios given another's capacity, yet not project our worst fears onto presumptions of another nation's intentions. Otherwise, we dangerously risk turning scenarios into self-fulfilling prophecies.

There is no doubt China is building its military capacity. China is a big country that is growing wealthier and can now afford more substantial military investment. Its economy has grown by nearly double digits annually for over a decade with more to come and has a population nearly four times that of the US. If substantial military growth is

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occurring now, one reason is because former President Deng Xiaoping told the military in the 1980s that China would spend very little tc not sacrifice economic growth for military might until it had sufficient resources.

As for China's intentions, what the Chinese would consider "defensive," especially in light of China's suffering at Japanese hands during World War II, might appear "offensive" to other countries like the US. From a Chinese vantage point, when the US Navy can project "blue water" power over 8,000 miles, while China is getting to the point where it can project power regionally 800 miles, it doesn't resonate to say they are getting overly aggressive. Through an apolitical lens, the Chinese view Taiwan as a local, internal affair that does not presuppose wider regional intentions. Conversely, conceptualize how the Chinese might view US global deployments and capabilities, and more specifically the US Air Force.

The obvious point should also be made that China is not the Soviet Union, nor is Beijing like Moscow circa 1970. On a drive from the airport to Tiananmen Square—and for that matter, in most any major Chinese city—a visitor will see the logo of almost any recognizable US and Western firm doing business in China. It is global commerce and business that fuels China's prosperity and ever-growing economy. As it is, China holds more than $400 billion in US treasury notes. It is not in China's interest to be in a military conflict with the US. China needs to be able to create economic vitality to be able to deal with a significant population, many of whom live in rural China. A well-placed and knowledgeable US diplomat may be closest to the point in observing that "when President Hu Jintao wakes up in the morning, he does not think about how China will conquer the world. What he worries about is how to keep his country (China) together."

Today's global environment—particularly considering the complex links between the Chinese and US economies—demands that we conduct our discussion of China's military capabilities and intentions with a higher degree of discernment than the aggressive tenor of Halloran's article. China is unquestionably our competitor, but it is not our adversary. There is a difference.

Col. Chris J. Krisinger, USAF
Burke, Va.

In Richard Halloran's alarmist piece, "China Stands Up," the author claims that China is a military danger to the

US. To bolster his claim, he cites numerous statistics, but fails to place them in a meaningful context. For example, he cites Defense Intelligence Agency estimates of China's defense budget ranging from around $90 billion to $130 billion. The critical, and missing, information is that the US defense budget is five times that! When confronted with that sort of disparity, what would any prudent Chinese leader do? Besides, a fair reading of foreign policy actions from the past several decades reveals that the US has engaged in many more military adventures beyond its borders than China has. It seems clear that the US is actually the nation posing a military danger to peace in the East by forcing an arms race.

Also missing from Mr. Halloran's analysis was any mention of the economics of the US-Chinese relationship. The fact that China owns an immense amount of the US debt severely limits our ability to project power militarily. In fact, we're paying the Chinese (in the form of interest) to maintain their most potent weapon. If the US wants to counter a Chinese military buildup, maybe we should consider paying down the national debt.

Lt. Col. Dennis W. Butler,
USAFR
Oakland, Calif.

**War on the Rails**

Regarding "The War on the Rails" *[August, p. 52]:* It wasn't a simple argument of "the Transportation Plan" against "the Oil Plan." It was, in Spaatz's mind, the most efficient use of airpower. While all the bombing of V-1 sites and hardened structures was going on, BDA pictures were being shown to General Spaatz. He saw the heavy bombing mission as a terrible waste of heavy bombers. I've looked at thousands of these BDA photos. It wasn't unusual that in attempting to strike a single V-1 launch rail or the control box, hundreds of bombs would be scattered over the countryside. Spaatz felt strongly that the bombing of the V-1 sites, and later the V-2 sites, should be taken over by 9th Air Force, using medium bombers and fighter-bombers that had better pinpoint accuracy.

In his mind he had two important missions. One was to cripple German fuel production and storage facilities and the second was to support the invasion of Normandy. He felt that he couldn't complete these missions when over 40 percent of the entire Allied air forces were being directed against Cross Bow targets. The diversion of bombers from fuel bombardment missions rankled Spaatz since the bombing of the synthetic fuel plants was beginning to show positive results. He sent a strongly worded message to Eisenhower asking for immediate concurrence of a new bombing policy using medium bombers [and] fighter-bombers on the missile sites. Eisenhower rejected the proposal and indicated that attacks on V-1 and V-2 sites "would continue to receive high priority."

Dino A. Brugioni
Hartwood, Va.

**Everything That Rises**

There is a slight error in your article, "Everything That Rises Must Get Down," on p. 70 of your August 2007 edition. The F-15 is easy to fly and land, but not because of the "multiple computer inputs that are constantly moving the controls." The F-15's primary flight control system is hydromechanical (rods and cables) which is supplemented by CAS (computer aided system). If you are flying "hands off" then there are no computer inputs trying to move the controls. The F-15 is easy to land because McDonnell Douglas designed a stable airplane, and with its large wing area (608 square feet) and low wing loading (73 pounds per square foot) it handles superbly in ground effect.

Lt. Col. Larry Brown,
USAF Academy
Colorado Springs, Colo.

In my 8,000+ hours' pilot time I've seen some pretty lousy landings (including some stinkers of my very own), but the one that takes the absolute, hilarious cake is the Russian turboprop landing nose wheel first on p. 72. If ever a picture didn't need a caption, it's this one. I can pretty well visualize what happened next, but if this pic is one of a series, I'd sure like to know where to find the rest of them!

Col. Robert J. Powers,
USAF (Ret.)
Shreveport, La.

**Where's the X-15?**

During the late 1990s, *Air Force* Magazine's "Space Almanac" issue began to carry the X-15 spacecraft in the historical columns [and] even ran a photo in one issue. This was historically correct since the experimental craft flew 13 suborbital missions under the

control of eight pilots who received astronaut badges/ratings during the 1960s—one who even died (Maj. Mike Adams, the US's first spaceflight fatality on Nov. 15, 1967, according to the Congressional Record). The winged X-15 was the predecessor to the space shuttle. Unfortunately, the 2007 Almanac *[August, p. 74]* doesn't portray the X-15 anywhere—"The Golden Age of NASA," "US Manned Spaceflights" (which doesn't reflect any X-15 spaceflights including the four spaceflights of the X-15 in 1963, when only the one Mercury flight "flew"), nor "Milestones in Military Space" (Bob White's historic suborbital mission on July 17, 1962).

Most of this is in Tom Wolfe's novel *The Right Stuff,* which you recommended. Let's keep our space history accurate!

Col. Joe Reich,
USAF (Ret.)
Covington, La.



**Troop Cuts and BRAC**

I can't believe we are trying to keep bases without missions open while trying to cut 40,000 positions *["Aerospace World: Troop Cut Limit: 40,000," August, p. 12].* When the BRAC decided to move Cannon Air Force Base's F-16s, I'm sure it envisioned the base closing. Now I read that it is being considered as a special operations base. Why can't those special ops aircraft be stationed at Kirtland Air Force Base where there is already an AETC special operations wing? Not only would there be maintenance and operations synergy with the existing SOW, it would provide more stability and better QOL for special ops personnel. Whatever airspace and training ranges that are used by Cannon-based aircraft can easily be reached from Kirtland. It is a lot cheaper to build a few more hangars and extra ramp space, than to keep a whole base open just to appease local politicians. Same thing goes for Grand Forks Air Force Base. The bombers and missiles are gone and the tankers are leaving. Trying to keep it open as a UAV base does not make sense when just down I-29 you have an ANG unit already flying UAVs, and doing it with a lot less [base operating support ] footprint than maintaining an entire base. Let's demonstrate AFSO 21 concepts and help close these bases.

Lt. Col. Rich Doyle
Randolph AFB, Tex.

**Thinking Like Air America**

The idea of reducing US troop casualties from IEDs by transporting more supplies by aircraft is right on *["Aerospace World: Getting Troops Off the Roads," August, p. 16].* Where USAF is missing the boat is that it is not replacing truck and Humvee resupply on the short dangerous hauls. USAF has an excellent array of cargo aircraft that land at airports: C-17, C-130. USAF needs to complement this array with smaller aircraft such as the DH-7 Caribou and even smaller aircraft such as a UAV Fieseler Storch. Obviously parachuting in supplies with [Joint Precision Air-Drop system] airdrops may also be appropriate. What USAF can do in resupply is something the Army can't. It can do the resupply mission with zero or nearly zero US military deaths.

First of all, let's ask the question whether USAF can resupply 150,000 US troops, even in small forward bases, by air. Of course, it can. USAF supplied the two million people of Berlin by air for a year. Critics will, of course, counter that it costs about 20 to 100 times more to resupply troops by air rather than by truck. But the critics are giving an incomplete answer. Certainly, the price

of fuel required for aerial resupply is far more expensive than truck gas or diesel, but the other half of the cost is the loss of US military lives due to IEDs. Let's try to quantify that. Let's assume that 1,000 US troops are killed each year; half of these are due to roadside IEDs, and half the IED deaths are on resupply missions. This would give us 250 US troop deaths, and the US pays a death benefit of $100,000 each. That's a cost of $25 million per year. I estimate that 50,000 troops in forward bases could be resupplied by aerial UAV for a fuel cost of approximately $7 million per year.

The cost of the Iraqi war that concerns the US public is not the dollars but the US military lives lost. USAF can significantly lower the number of US military deaths by doing more, or all, of the resupply mission. We have the aerodynamics, engines, and UAV capability to do the resupply mission at night. USAF needs to get out of the mode of thinking high tech is always the answer. Sometimes it is low and slow tech. USAF needs to think like Air America—flying the Pilatus Porters in Laos—low, slow, and postage-stamp-size landing strips.

William Thayer
San Diego

In spite of world-class close ground support and overwhelming air strikes with surgical precision, none of these tools seems likely to stop the constant barrage of IED, ESP, EFP devices. The problem is that we cannot figure out when or where the enemy and his bombs are located. Maybe it is time to search for other technologies and re-examine older weapons systems that have been effective in the past for answers to the surveillance puzzle.

Remember the World War II magnetic airborne detection gear? These airborne systems were very effective. A ground version of that device pinpoints location of any ordnance with a magnetic signature. It turns out every roadside device has a well defined and an easily detectable signature. A robotic vehicle would be an optimum platform to mount a magnetic detection device.

We can recall the tremendous difficulty in reconnaissance of the Ho Chi Minh Trail. That effort spun off an array of "new" technical machinery including sound signal analysis. Camouflaged sensors were air-dropped along the Ho Chi Minh Trail. Sound tracks were sent back to a central computer. There, algorithms could distinguish between heavy military traffic, commercial (supply) traffic, foot traffic, and bicycles. Why not use this proven system for locating excavation activities and bomb burial operations?

Airborne multisensor, multichannel surveillance is in widespread use in spy satellite geotechnical and agricultural research operations. This system can accurately identify very small, subtle changes in emissivity signature patterns indicating digging operations for burial of roadside ordnance.

Ground penetrating radar has also been in use for some years. This can detect fine-scale anomalies in soil stratification and composition. It will easily detect buried roadside bombs.

Focused electromagnetic pulse technology has demonstrated its ability to destroy or neutralize electric, electronic, radio, and command-control equipment even in a semihardened environment. Patrol and convoy routes can be "sterilized" using a robotic mounted focused EMP device.

Analog and digital Sigint is very important. The range of radio and digital coded pulses used to detonate roadside bombs is reasonably narrow; we could jam all garage door, cell phone, and analog equipment signals on a massive 24/7 basis.

Another possible option is to develop an additive or aerosol or radiological system that reacts with C4 and other explosives or explosive packaging material. The resulting gases given off can then be easily detected by airborne sampling or robotic sampling techniques.

Most of these techniques worked amazingly well in earlier battlespace situations. There are numerous other commercial or industrial equipment technologies which should be tapped for a solution to IED, ESP, EFP identification and detection problems. It seems that current and future problems of urban warfare, house-to-house combat, and asymmetrical attacks by insurgencies will not go away anytime soon. We need a weapons development program which is reliably funded, well directed, and determined.

Maj. Sam Hanna,
USAF (Ret.)
San Francisco

**Robin Olds**

We didn't fly with him but we wish we had *["Aerospace World: Robin Olds, 'MIG Sweep' Fighter Pilot," August, p. 18].*

As his chief administrative officer

when Robin Olds, as colonel, commanded the 81st Tactical Fighter Wing in Merrie Ole [England] in 1964, I saw a side of him no wing man ever could. He scarcely noticed me as a ground pounder. For one thing, he never walked; he strode like a wind through my office into the conference room beyond that my people had just time to set up for him. We never knew how many were coming. This great magneto of a man blew in, got things off his chest, and was ready for the next act: playing dead at one of our innumerable exercises where he sprawled half out of a staff car on an [RAF] Bentwaters street. Must have taken some coaching from his good wife, a former movie star, but DeMille would have hired him in a minute.

Then there was the perennial wee hours alert which was the signal for the cooks to get out the kettles and stir up a batch of stuff affectionately known as SOS but a nauseating ordeal for some of the rest of us.

Who could forget the excited captain who burst into the command post during the height of the excitement and announced that the latrine was without that basic ingredient no airman should have to go to war without. Sent by Olds to do or die, the good captain returned after a bit, smiling, and Olds promptly knighted him "toilet paper officer of the 81st Tac Fighter Wing."

The taxpayers really got their money's worth from this man of all seasons who proved he could fly a desk as well as an F-4.

Maj. Roy L. Goodale, USAF (Ret.)
Prescott, Ariz.

I very much enjoyed your obituary of Brig. Gen. Robin Olds on p. 18 of the August issue. He is one of my heroes and was without a doubt one of America's greatest fighter pilots ever.

In the obit it is stated that "on only his second mission, [Olds] became an ace." Although he had many amazing accomplishments, that wasn't one of them. I think the writer meant to say that then-Captain Olds shot down his first five enemy aircraft on only two missions.

Olds was one of the original flight leaders of the 479th Fighter Group,

which began flying bomber escort missions from England with P-38s in May 1944. By the time he scored his first two air victories on Aug. 14, he had flown many missions. He attained ace status 11 days later by shooting down three more German fighters, thereby becoming one of only a handful of Eighth Air Force P-38 pilots to score five or more confirmed air victories.

Shortly thereafter, the 479th switched to P-51s, with which Olds shot down eight more German fighters (he was credited with destroying another 11 enemy aircraft on the ground). He assumed command of his 434th Fighter Squadron in March 1945 as a 22-year-old major.

Despite not, in fact, having made ace on his first two missions, Robin Olds was one hell of a fighter pilot!

Steve Blake
Mission Viejo, Calif.

**Classics**

Great summary by Walter Boyne of the B-47 Stratojet in the August issue *[p. 104],* and Zaur Eylanbekov's artwork was very well done. The B-47E was indeed a handful to fly, particularly when trying to leap off the ground on a hot Tucson morning, or landing in a brisk crosswind on an icy Elmendorf runway in the early '60s. I believe that the 303rd Bomb Wing was the first SAC bomb wing to receive the B-47E, and the wing operated out of Davis-Monthan from April 1953 until June 1964, when it was deactivated.

We had quite a few "Famous Fliers" in the 303rd, and you mention Gen. John Shaud, who flew with us as a copilot and aircraft commander. A distinguished officer missing from your list was my first squadron commander in the 303rd, Gen. Russ Dougherty, who commanded the 358th Bomb Squadron (The Black Eagles). We considered our wing to be SAC's best, but I'm sure one or two others might disagree.

Col. Don Bott,
USAF (Ret.)
Tucson, Ariz.

**August Recap**

I have read the August edition of *Air Force* Magazine. I would like to compliment you on a job well done. Articles such as "The First of the Force" and "The War on the Rails" serve to remind us of our proud heritage. So often, these events are not known to us. The United States Air Force (and its predecessors) has a very long history of proud accomplishments and it is good to remind ourselves of it. John T. Correll and Rebecca Grant continue to author superb articles. Also, the "Airpower Classics" page is a favorite, and very well thought out. Walter Boyne should be considered a national treasure.

I do have a question. I had read somewhere in the past that the 0- on a tail number meant that the aircraft had been modified to the point that it could not be returned to its original configuration—e.g., NB-52s 003 and 008 used at Edwards Air Force Base to launch the X-15 and others. I read now that the 0- means an aircraft that is 10 years old. What is the answer? Thanks in advance.

MSgt. Johnny L. Lawson,
USAF (Ret.)
Tucson, Ariz.

Your August 2007 issue was very interesting. I especially enjoyed "The War on the Rails," by Rebecca Grant. [It was] concise but very well done. I would like to see her write about some of the nasty things the Germans did to try and protect their rolling stock—for example, hiding deadly things under tarpaulin and metal siding that retracted swiftly. Deadly to untutored Allied pilots. We paid a price.

I liked the article "China Stands Up," by Richard Halloran. I would like to see much more detailed information on Chinese indigenous fighter types.

Finally, the article "Everything That Rises Must Get Down," by Walter J. Boyne, was very amusing to me. As a very young Army private first class, I found young Air Force pilot types very wary of my Cub! They could not wait to get back on the ground. Even in 1959 the myth was firmly established in them that the Cub was difficult. I did everything humanly possible to dispel this notion from their minds, with little luck. They especially hated high wind with severe crosswinds. Prolonged spins, spirals, loops, both forward and side slips, etc. I had a few returns from the Air Force. I also showed them a 180 with a dead Cub was not an impossibility on takeoff if you were light and had altitude. This was heresy to them. The Cub takes no skill to fly. (The Bf-109 shared the same myth with the Cub, namely, that it was difficult to fly.) I had a German tech sergeant friend who had years flying 109s and never even dented it. He had several B-24s and B-17s to his credit during World War II.

TSgt. Gerald Gardner,
USAF (Ret.)
Albuquerque, N.M.

# Washington Watch

**By John A. Tirpak,** Executive Editor

## Out of Russia's mothballs; Putin sets a course; Thwarting ASATs ....

### The Bear in the Air

Russia is again flexing its aviation muscles, resuming Cold War-like global operations in ways that create new complications for the United States Air Force.

On Aug. 17, Russian bombers flying long-range missions fanned out from the North Pole over the Atlantic and Pacific Oceans, inaugurating what Russian President Vladimir V. Putin called a permanent return to strategic aviation operations.

The bomber flights were carried out mostly by old but serviceable Tu-95 Bears, but also by younger Tu-22M Backfires and Tu-160 Blackjacks. Russian strategic aviation numbers about 70 aircraft.

Putin made the announcement at the close of multinational exercises conducted by Russia, China, and Central Asian nations. These were the first such exercises ever conducted on Russian soil. The US was denied permission to observe them.

The events of mid-August drew a public statement from Gen. T. Michael Moseley, Air Force Chief of Staff. In it, the nation's top airman said the Russian bomber flights serve as a reminder that "the international security environment is complex, dynamic, and uncertain." The Air Force, he said, has to balance the needs of "today's war with the need to keep an eye on emerging and re-emerging peer competitors."

The official White House position on the resumption of Russian bomber missions was a loud "ho-hum." Both the Defense and State Departments offered statements to the effect that the missions are within Russia's sovereign rights and that ties between Washington and Moscow are cordial.

The State Department announced it had no objection if the Kremlin wished to "take some of these old aircraft out of mothballs and get them flying again."

However, Air Force officials privately said the flights are a worrisome development, given Russia's recent truculence toward the United States and NATO.

"We might have to put some more money into Noble Eagle," the air sovereignty missions flown by USAF since September 2001, said one official. He noted that the service might have to revise some plans, including a plan to cut USAF flying hours in Fiscal Year 2009 and beyond by more than 10 percent.

As of last year, Noble Eagle flights are paid for out of the basic Air Force budget, not from war supplementals, as they had been previously.

Russia's rhetoric toward the US has turned harsh in recent months. Putin has asserted that NATO expansion, Washington's push for a US-sponsored anti-missile system in Eastern Europe, and wars in Iraq and Afghanistan have all amounted to jabs at Russian security.

The Soviet Union collapsed in late 1991 and its biggest component—the Russian Federation—picked up most of its military forces and obligations. Moscow ended the strategic flights in 1992. Starved for funds, the Russian Air Force languished for most of the ensuing 15 years. In some years, Russian Air Force pilots only received 10 hours of flying time.

However, oil and gas revenues have poured into Russia during the past decade, and its air force's budget has once again begun to build. "Our pilots have been grounded for too long," Putin remarked.


*RAF Typhoon shadows a Russian Bear.*

Pentagon officials said USAF aircraft intercepted and escorted some of the Russian bombers over international waters in the vicinity of Alaska. NATO partners also ran intercepts. British Typhoon fighters over the North Sea escorted a 1960s-era Bear bomber, and Norwegian fighters photographed A-50 Mainstay AWACS aircraft and two MiG-31 interceptors being refueled by a Russian tanker in the vicinity of the North Pole.

A Pentagon spokeswoman confirmed that the strategic flights continued in the weeks following the announcement, at a rate of every day or two. This is a substantially higher operating tempo than in the previous years, when such flights were mounted only every few months.

She said that the flights were not provocative; unlike in Cold War years, the bombers made no dash toward US airspace, only to turn away at the last minute. Russian aviation authorities had been "completely transparent" about the

activity, filing flight plans and issuing notices about where the airplanes would be going and when.

"There have been no incursions" into US airspace, she said.

## Russia's Bold Talk

Mere days after restarting Russian strategic bomber flights, President Vladimir V. Putin announced that the country is putting some of its new petroleum wealth into a quest for "supremacy" in aerospace technology. He promised aggressive development of new aircraft to modernize

Photo by Andrey Fomin

***Skat makes the scene.***

Russian air forces and achieve parity with the West in commercial aviation.

Putin announced the initiative at the MAKS-2007 aviation and space trade show outside Moscow in August. With a format similar to the biennial Paris and Farnborough air shows, MAKS drew more than 800 companies. The biggest delegations came from China, South America, and the Middle East.

Mikoyan-Gurevich (MiG) unveiled a mockup of a stealth unmanned aerial vehicle, called "Skat," which in Russian means "Stingray." The Skat was displayed with a number of air-to-surface missiles. Russia's Novosti news service said the 20,000-pound aircraft would carry 4,000 pounds of munitions and have a combat range of about 2,100 miles. There was no announcement about when the aircraft might see operational service.

The aircraft is the first true "stealth" design to be publicly acknowledged by Russia, and is reminiscent of the Boeing X-45C and Northrop Grumman X-47. Similar craft are being developed by Britain, France, and Germany.

Sukhoi officials said they would unveil within two years a prototype of the T-50, a "fifth generation" fighter which would be Russia's answer to the Lockheed Martin F-22 Raptor. Artists' concepts show a twin-engine, twin-tail configuration similar to the F-22. Russia is in negotiations with both India and China on possible collaboration.

Russian plans call for acquiring 250 new air force aircraft and upgrading 800 more "legacy" airframes by 2015. It would do so on an air force procurement budget of between $8 billion and $10 billion per year. Strategic bombers will be fitted with new cruise missiles to make them a more credible nuclear force. Modernization of sea- and land-based strategic nuclear missiles is under way.

Putin pledged to spend about $250 billion on developing civil airliners to equip Russia's domestic carriers with 4,500 aircraft within 18 years.

On flight display were variants of Russia's Su-27 and MiG-29 families. The aircraft are being offered in a variety of configurations and price ranges, the most sophisticated of which have thrust vectoring and active electronically steered array antennas, as well as updated versions of air-to-air and air-to-ground weapons.

## Now: Space Protection Summits

China's successful test of an anti-satellite weapon earlier this year has been getting top-level attention from pretty much everyone with a dependence on satellites, according to Ronald M. Sega, the recently departed undersecretary of the Air Force.

Sega, on the eve of his August departure from the post, said the "large community" of space officials met in July and August—and planned a third meeting in September—to discuss the options for protecting key satellites and capabilities against a growing ASAT threat.

The Air Force said these first two "Space Protection Summits" featured meetings of three- and four-star Air Force space leaders and "senior representatives from the broader national security space community," including the National Reconnaissance Office, NASA, and the office of the Director of National Intelligence.

The meetings focused on what is currently being done to protect the nation's satellites and, more broadly, the range of intelligence-surveillance-reconnaissance products that they provide. The gathering also delved into discussions of possible new steps that should be taken.

The first and most obvious step would be to create a comprehensive space situational awareness (or SSA) capability, said Sega. The object would be to know just what's up there, whether something with a nefarious purpose had been launched, or whether a dormant space vehicle had suddenly awakened and started to behave in a suspicious fashion.

The Air Force has consistently funded SSA over the last few years. Projects range from software programs that analyze satellite behavior to telescopes and radars able to keep tabs on everything in orbit out to the geo-synchronous zone.

Second is to study the feasibility of protecting satellites themselves against attack. Sega said that they are already "hardened against radiation." Other options already in use, such as anti-jam gear, were discussed as well. However, armoring satellites is a costly proposition, with launch

Photo via www.sinodefence.com

***China used Fengyun for target practice.***

costs still well over $10,000 a pound. Moreover, kinetic or electromagnetic attack is not the sole means of destruction; spraying paint over key optics would disable a satellite just as effectively.

The attendees discussed the idea of distributing US orbital capabilities over many smaller, easily replaceable satellites, to make the whole constellation "more robust," Sega observed. The smallsat concept would mean that the loss of a few satellites would be bearable and their capability easily replaced. Not only would this require greater miniaturization, but there would have to be some advances in the field of "operationally responsive space," he said—namely, the ability to be able to take something off the shelf and put it on orbit in hours or days, not months.

Part of making the ISR system more "robust" included discussions of whether some functions now performed by satellites could be moved to the ground, sea, air, or "near-space," where high-flying unmanned aerial vehicles will soon be able to maintain station over targets of interest for more than a week at a time. The group looked at "where it makes sense" to perform some of the ISR mission now done on orbit, Sega allowed.

Despite the tactical nature of such discussions, Sega said he nevertheless anticipates greater integration of "white world" and "black world"—open and secret—space projects, due to the need to ensure that ISR data is distributed in a timely way to those who need it most. He also suggested that satellites could become more multifunctional, serving many agency masters at once and performing both overt and covert missions.

## COIN Operated Lift

The Air Force doesn't have to overhaul its whole airlift fleet to handle counterinsurgency operations, said a new study by the RAND Corp. Moreover, the report claimed, USAF is probably taking the right approach in buying the Joint Cargo Aircraft, because it needs an airplane to fill the COIN "niche."

In the July report, "Airlift Capabilities for Future US Counterinsurgency Operations," RAND authors Robert C. Owen and Karl P. Mueller assert that the majority of the COIN support mission can be carried out perfectly well with the airlift fleet on hand: C-5 and C-17 strategic airlifters and C-130 tactical airlifters.

The authors note that in the last big US counterinsurgency effort—Vietnam—the Air Force had good success with the C-7 Caribou, a small aircraft able to carry only a few pallets of cargo but able to fly in and out of very short, rough airstrips, often carved out of a jungle hillside.

Today, the authors point out, the US is supporting many special operations teams throughout Southwest Asia and elsewhere in the world, sometimes in places too small for even the C-130 to be able to land and take off. USAF needs "an assault airlifter," the authors said.

In a statement accompanying the report's release, Owen said that "we found conventional and unconventional conflicts involve the same types of airlift missions, but the balance of missions is usually different." Counterinsurgencies, he said, "generally involve a lot of small loads going into rough fields, while big wars involve big aircraft going to big airfields in big numbers." The existing airlift fleet mix is fine for most scenarios, they said.

However, despite the fact that the Air Force and Army have already selected an airframe to fulfill the mission—the C-27J was picked as the Joint Cargo Aircraft over the summer—the report does not mention this or the requirement.

In fact, the JCA was envisioned very much as a modern day version of the C-7, as then USAF Chief of Staff Gen. John P. Jumper explained it when he first began discussions with the Army about cooperating on the project several years ago. Jumper himself was a C-7 pilot in Vietnam.

C-27J Team photo

*The C-27J Spartan could fill the COIN bill.*

The RAND authors specifically ruled out performing the COIN mission mainly with helicopters, noting that they are "slower and more vulnerable than fixed-wing aircraft," a serious problem now that most insurgents have access to a variety of shoulder-fired anti-aircraft weapons. Helicopters take a long time to traverse an area of operations, increasing their exposure time. They also "give enemy gunners far more opportunities to achieve single-hit catastrophic 'kills' than they would have against fixed-wing aircraft of similar size and weight."

There are some unique aspects to the COIN mission other than short field capability that would support buying a limited number of such airplanes, RAND said. The aircraft must be small and agile enough—both physically and in their scheduling—to frequently change "route selection, approach procedures" and be ready to handle pop-up tasks. Such aircraft also would need "high quality self-defense systems."

Air Force Chief of Staff Gen. T. Michael Moseley has touted the JCA as also being an ideal platform with which to engage smaller, poorer nations whose resources are limited and for whom airlift is a priority. Moseley has said the JCA is just the right way to build coalitions in the new US Africa Command.

The RAND statement noted that the "core airlifters" in the Air Force fleet, such as the C-17 and C-130, "are too complex and expensive to meet the needs of many smaller or less-wealthy countries. The report recommends that the US Air Force consider acquiring some substantially smaller and less technologically sophisticated transports that can more easily be used by such nations."

Having such an airplane would enhance USAF's own COIN capabilities while also "improving its ongoing efforts to help allies develop useful and sustainable airlift forces," according to the RAND statement. Such an airplane would make the small partner countries better able to defend themselves and offer a way they could participate in larger coalition operations.

L-3 Communications, offering the C-27J Spartan, was picked by USAF and the Army to be the JCA supplier, but protests have been filed by losers in the competition, and the Government Accountability Office is looking into them. The Air Force plans to acquire 24 aircraft initially, beginning in 2011, and may buy more if the aircraft proves useful. ■

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# Aerospace World

**By Marc V. Schanz,** Associate Editor

### Airman Dies in Basic Training

A 19-year-old boot camp trainee at Lackland AFB, Tex., died Aug. 7, after apparently contracting a respiratory virus.

Amn. Paige Renee Villers of Norton, Ohio, died at Wilford Hall Medical Center in San Antonio. A recruit had not died in basic training since 2002.

Citing family privacy, the Air Force declined to provide an official statement about Villers' death. Villers was initially admitted to Wilford Hall in the spring.

Confined to a wheelchair and on a ventilator, Villers nevertheless graduated from basic training in July. Although she experienced a short period of recovery, she soon relapsed, according to Air Education and Training Command officials. A memorial service at Lackland took place on Aug. 9 and was attended by Air Force leadership, including CMSAF Rodney J. McKinley.

USAF photo

***An F-15 takes off from Nellis AFB, Nev., in September during Joint Forces Command's Bold Quest exercise. The two-week exercise assessed combat identification technologies, with the aim of improving combat effectiveness and reducing fratricide.***

### USAF To Cut 5,400 This Year

The Air Force plans to reduce to an end strength of 328,500 airmen in Fiscal 2008, down 5,400 from this year, the service said in announcing its latest round of "force shaping" in August.

The goal is to get down to 316,000 active duty personnel by the end of Fiscal 2009.

The effort will begin with offers of voluntary separation pay to about 200 officers, with 12 to 15 years of service, in career fields where there is a surplus of people. Those approved for VSP will get a lump sum equal to three times the standard involuntary separation pay rate, but must depart before June 30, 2008. The Air Force doesn't plan to hold selective early retirement boards as it did in January or order a reduction in force.

However, in March of next year, a force shaping board will meet to consider cutting 130 officers from the 2005 year group. The majority of the reductions will come from normal attrition and retirements, said Col. Chuck Armentrout, the chief of military force management policy.

The ultimate end strength goal of 316,000 could be raised by about 1,000 people, depending on how the Army and Marine Corps increase their ranks.

### Vietnam MIA Airmen Identified

Three airmen missing in action since the Vietnam War were identified in August by the Pentagon's POW/Missing Personnel Office.

The remains of Lt. Col. James H. Ayres of Pampa, Tex.; Lt. Col. Charles W. Stratton of Dallas; and Lt. Col. Alton C. Rockett Jr. of Birmingham, Ala., were identified through DNA analysis of remains collected in Southeast Asia between 1989 and 2005. The remains were returned to the airmen's families.

Ayres was buried Aug. 10 in Pampa and Rockett was buried Aug. 20 in Arlington National Cemetery. Stratton is to be buried in October at Dallas Fort Worth National Cemetery.

Ayres and Stratton were lost in 1971, when the men were flying a night mission over Laos in their F-4E Phantom II. Investigation of the area around the suspected crash site turned up remains during recovery expeditions between 2001 and 2005.

Rockett was lost in 1967, while flying an F-4C on an armed reconnaissance mission over North Vietnam. Unidentified remains that had been repatriated by Vietnam in 1989 were tested and found to be those of Rockett.

### Last 60 F-22s on Contract

The Air Force awarded Lockheed Martin $5 billion in late July for three lots of F-22 Raptors. The award brings the total multiyear contract value to $7.3 billion and means the production line will operate through 2011.

The Pentagon previously awarded $2.3 billion of the contract to buy long-lead parts and to maintain manufacturing flow. After a protracted debate with Congress over the proposed multiyear funding, the plan was approved after a RAND report concluded that the Air Force would save at least $50 million on the deal.

Lockheed Martin had completed final assembly on 105 Raptors and formally delivered the 100th aircraft by late August.

The first of the MYP aircraft will come off the Marietta, Ga., production line in 2008. Thereafter, the last three F-22 lots now under contract will be built at a rate of 20 per year.

### Raptor Flies at Elmendorf

F-22s began operating from Elmendorf AFB, Alaska, on Aug. 8, making the far north installation the first of two Pacific bases that will eventually host the advanced fighter.

The F-22 went operational with the 3rd

Wing at Elmendorf. Later this year, the 477th Fighter Group will stand up at the base as a Reserve associate to the 3rd Wing, becoming the first Reserve unit to operate and maintain the fighter.

By the end of 2009, Elmendorf will have 40 F-22s.

Prior to the Raptor's arrival in Alaska, F-22 pilots and crew chiefs trained at the 1st Fighter Wing at Langley AFB, Va., to develop their skills under a program called "Ready Elmendorf." The F-22 has been operational at Langley since 2005. A designated F-22 maintenance trainer aircraft was also deployed to Elmendorf to get technicians up to speed.

At a ceremony marking the stand-up of the F-22 at Elmendorf, Pacific Air Forces chief Gen. Paul V. Hester said the aircraft will provide unrivaled air supremacy in the Pacific and the most "lopsided and unfair advantages ever seen in the airpower age."

USAF photo by TSgt. Shane A. Cuomo

***During a medical evacuation from Antarctica in August, a patient is helped aboard a C-17. The airlifter was from the 304th Expeditionary Airlift Squadron, McChord AFB, Wash.***

### CSAR-X Delays Mount

The Air Force's new combat search and rescue helicopter program likely won't get under way by the end of 2007, mostly because of an unfavorable late August ruling by the Government Accountability Office.

The GAO upheld a second protest by Lockheed Martin and Sikorsky regarding the $10 billion CSAR-X contract to Boeing, dashing USAF hopes of resolving the protests promptly and leaving the service unsure of how to proceed.

The protest, lodged in June, is the second sustained by the GAO since the Air Force selected Boeing's HH-47 Chinook variant in November 2006 as the best value solution. The GAO agreed with Lockheed Martin and Sikorsky that they could offer updated information on the support costs of their entries, the US101 and HH-92, respectively. The Air Force had rejected updated bids because both companies offered data developed after the initial award date.

The decision raised the possibility that the Air Force might scrap the results outright and begin a new competition. GAO said the service should terminate its contract with Boeing if further evaluation shows the HH-47 is not the best value after all.

Sue C. Payton, USAF acquisition chief, said USAF is reviewing the decision and developing a plan to address the findings.

### All Airmen To Get SERE

Survival training used to be reserved for pilots and special operators who might find themselves cut off from support and awaiting rescue in some hostile environment. That's going to change, however.

The Air Force leadership decided in August to broaden the focus of survival, evasion, resistance, and escape training and incorporate it at all levels of the service.

"We need to inject these skills across the entire force," said Chief of Staff Gen. T. Michael Moseley. Speaking to service leaders at a meeting in August, he said all airmen now face threats, overseas or even in the US, and must have the knowledge to deal with and survive such situations.

SERE training is currently conducted on three levels: All airmen get entry-level training, while a second level is provided to those with a moderate risk of capture, and a third is reserved for those with a high risk of capture.

Second and third level training is normally provided to aircrew members and those in high-risk fields such as battlefield airmen, combat control, pararescue, combat weather, and tactical air control.

### Maintainers Back to Squadrons?

Flying squadrons could get their maintainers back if no problems are found with the idea, said Chief of Staff Gen. T. Michael Moseley in August.

Moseley wants to undo a five-year-old shift that took maintainers out of flying squadrons and segregated them into their own maintenance units—a move that put more distance between crew chiefs and pilots who work with the same aircraft.

He believes that squadrons of all types should mirror the structure of deployed flying units as much as possible. Most of the work of the Air Force is done at the squadron level, and Moseley wants commanders to have the most complete capabilities at that level as possible.

Moseley is evaluating feedback on the proposal from noncommissioned officers and squadron, group, and wing commanders. He added that he has not decided if the shift should apply to

## John C. Stetson, 1920-2007

John C. Stetson, the 12th Secretary of the Air Force, died Aug. 2 at his home in Lake Forest, Ill. He served from 1977 to 1979 under President Jimmy Carter.

During Stetson's tenure as civilian leader of the Air Force, the service began fielding the F-15 in large numbers and introduced the F-16 in squadron service. The Air Force also began developing modern stealth technology during his term in the office.

Stetson was born in Chicago and graduated from the Massachusetts Institute of Technology in 1943, later studying at the Northwestern University Business School in the late 1940s.

He worked as an engineer for Douglas Aircraft before being commissioned in the Navy as a communications officer in World War II. Following the war, he worked as an engineer for various companies in the Chicago area, then joined Booz Allen Hamilton in 1951 where he eventually became a partner. He handled a number of assignments with aircraft companies dealing with military and commercial aircraft and the firm's work for oil companies in Iran and Kuwait.

Before becoming Secretary, Stetson was a president and director of A.B. Dick Co., a manufacturer of office business machines. He was a director of the Houston Post Co., Kemper Corp., Belden Corp., and Powers Regulator Co.

## New and Improved Warthog Takes to the Field

The A-10C, the version of the Warthog with the first major upgrade of the 30-year-old attack aircraft, went operational in August.

Gen. Ronald E. Keys, then chief of Air Combat Command, said the "precision engagement" version is "ready to go to war." It was scheduled to do just that by deploying to Afghanistan by the end of September. Keys spoke at a ceremony at ACC headquarters at Langley AFB, Va.

The first unit equipped with the upgraded Warthog is the Maryland Air National Guard's 104th Fighter Squadron.

The A-10C can use precision weapons such as Joint Direct Attack Munitions and laser guided bombs. Other improvements include an all-new digital "glass cockpit," a new data link, new communications equipment, and the integration of advanced targeting pods such as the Litening II and the Sniper. The modified Warthog can strike at targets from higher altitudes, while the pilot spends less time working dials and switches.

The Michigan Air National Guard will be second to get the improved airplanes, and the entire fleet will be so upgraded by 2011.

Separate from the enhancement package, which was once called the "Hog Up" program, the Air Force will rewing the A-10 fleet as a permanent fix to structural cracks that began appearing about two years ago. Boeing won the contract for the wing replacement.

A long-desired improvement to the A-10 is a re-engining program, which has been considered for several years, but has been dropped from each budget due to other priorities. New engines would allow the A-10 to climb faster, fly at higher altitudes, carry more weapons, and spend less time in maintenance. The Air Force still hopes to fund the upgrade at some point.

"This is not the 'Super Hog' we envisioned," Keys said at the Langley ceremony, "but this is a better-than-average Hog."

Lt. Col. Ralph Hansen—ACC's director of A-10 requirements—told reporters that the Air Force has requested funds in its FY 2008 supplemental to test upgraded A-10 engines. He added that if the tests are successful, USAF could begin an engine retrofit as soon as 2010 or 2011—which could extend the life of the aircraft beyond its planned 2028 retirement.

unmanned aerial vehicle squadrons, airlifters, tankers, or special operations squadrons, but it is "absolutely the right thing to do" for fighter squadrons.

Lt. Gen. Gary L. North, head of US Central Command Air Forces, said he supports the initiative since it would create a cohesive unity of command and give the flying squadron commander the ability to take control of all aspects of the flying mission.

### B-52s Cleared for New Gas

Air Force engineers have cleared the B-52 to fly routine operational missions with a new experimental fuel blend, Air Force Secretary Michael W. Wynne said in August.

Wynne made the announcement at Edwards AFB, Calif., where testing using a blend of JP-8 jet fuel and synthetic Fischer-Tropsch fuel was completed earlier this year. The B-52H was selected because of its eight engines, which allowed isolated testing of the synthetic while still having plenty of other engines to power the bomber if something went wrong.

Recently, the Air Force ordered 281,000 gallons of synthetic fuel for further testing on the C-17 and B-1B in the coming year.

The Air Force plans to certify the C-17 for FT fuel next and hopes to certify every airframe in the fleet to run on a synthetic blend by 2011.

### USAF Wants Maverick Restart

The AGM-65 Maverick missile, which the Air Force has been phasing out, could go back into production, since the weapon has been useful in Afghanistan.

In August, the Air Force asked Raytheon for information about reopening the production line for the laser guided version of the Maverick, which has hit moving targets without causing undue collateral damage. The missile has been used by the A-10 Warthog close air support aircraft, and has been in USAF's inventory in various iterations for more than 30 years.

The Maverick is one of the few precision weapons the A-10 can use in its legacy configuration.

The Maverick can also be carried by the F-15E Strike Eagle and the F-16.

### US Spurns Pacific "Spheres"

The US has no interest in a Chinese proposal that China and the United States divvy up the Pacific Ocean according to each country's "sphere of influence."

Gen. Paul V. Hester, commander of Pacific Air Forces, told reporters during an August conference call that there are no plans to cede any regions of the Pacific to Chinese control.

The Chinese government proposed the idea to Adm. Timothy J. Keating, commander of US Pacific Command, during his recent visit to China. It suggested that the US should stick to the Eastern Pacific and that China could be the hegemon in the Western Pacific region.

Hester, who made his own trip to China in July, said the US "needs to be" in the Western Pacific, where it has numerous security and trade interests.

During Hester's visit, he was allowed to tour a base that flies the Su-27 fighter. He said that military-to-military relations with China are progressing and that China fulfilled the itinerary to which it agreed when his visit was planned. However, Beijing declined his request to fly China's new J-10 fighter, and Hester came away from the trip

USAF photo by TSgt. Cecilio M. Ricardo

*An aircrew member boards an E-3 AWACS in August for a counterdrug mission over the eastern Pacific Ocean. Five possible targets were found during the flight.*

## Gen. Russell E. Dougherty, 1920-2007

Retired Air Force Gen. Russell E. Dougherty—strategic thinker, former head of Strategic Air Command, and former Air Force Association Executive Director—passed away on Sept. 7 at his home in Potomac Falls, Va. He was 86.

Dougherty commanded SAC in the period 1974-77. During this time, he helped steer US nuclear strategy away from a counter-city, assured destruction stance and toward one of counter-force—the targeting of adversary military capabilities rather than cities. Much of his career was focused on the issues of the Cold War, as he worked to bring into service more precise strategic weapons for both ICBMs and the bomber force.

In retirement, Dougherty was a "senior statesman" who was often called upon for counsel on international security matters, and he served on a variety of advisory boards. He received numerous honors and awards for his work, both during and after his Air Force career.

He was known as an unfailingly considerate and compassionate leader and was famous for a phrase he used often in speeches and posted in his offices: "There is nothing in your job description that requires you to be an SOB."

Robert E. Largent, AFA Chairman of the Board, said, "Airmen everywhere have lost a great friend," calling Dougherty "an incomparable leader—a true icon for the United States Air Force and the Air Force Association."

Born in Glasgow, Ky., in 1920, Dougherty began his military career at age 15, when he joined the 123rd Cavalry of the Kentucky National Guard as a bugler. He put himself through Western Kentucky University, playing trumpet and managing a dance band in his off hours, and took a job with the FBI upon his graduation in 1941. He planned to obtain a degree in law.

However, at the start of World War II, Dougherty entered the aviation cadet program, receiving both his wings and a commission in the Army Air Corps in 1943. He began his flying duties as an instructor, then switched to piloting B-17 bombers and, later, B-29s. During the war, he married Geralee Shaaber, his wife until her death in 1978.

After the war, Dougherty was in the inactive Reserve while he studied law at the University of Louisville. However, he missed flying the big bombers and, in 1946, accepted a regular commission in the Army Air Forces, with the proviso that he be allowed to finish the degree and take the Kentucky bar exam. The AAF agreed.

Back in uniform, he was given additional duties as an Air Force Reserve instructor. He commanded a small flying unit, requalifying pilots who wanted to return to active duty, and built a reserve air transport wing.

Dougherty received his law degree in 1948 and was assigned to Guam, where he served as a pilot in the 19th Bombardment Wing and as a judge advocate. From there, he served at Air Force Materiel Command, working in procurement and contracts, but in 1952, he gave up his JAG duties to be a full-time pilot.

In the period 1953-59, Dougherty had various assignments with Strategic Air Command. He went back to flying the B-29, and then qualified in the B-47—USAF's first all-jet bomber—in 1954. He commanded a bomb squadron and worked up to being director of operations at 15th Air Force.

Through the mid-1960s, Dougherty served four tours at the Pentagon and was an eyewitness to the 1962 Cuban Missile Crisis and other famous events. He also served in Europe, doing stints in policy and planning with US European Command.

Promoted to three stars in 1970, he served in the key job of deputy chief of staff for plans and operations. In 1971, he commanded 2nd Air Force at Barksdale AFB, La., where he was in charge of the bulk of SAC's bombers and tankers.

He became a four-star general in 1972, first serving in Europe as chief of staff of NATO Allied Command. Two years later, he assumed command of SAC, headquartered at Offutt AFB, Neb.

During his tenure at SAC, Dougherty oversaw the initial deployment of the Short-Range Attack Missile carried aboard B-52s.

In 1977, Dougherty retired from the Air Force, after 35 years of service on active duty. During those years, he amassed flying time in more than 70 types of aircraft, ranging from the piston-engined bombers of World War II to the triple-sonic SR-71 Blackbird of Cold War vintage.

A year after retirement, Dougherty was married for the second time, to Barbara Brooks of Birmingham, Ala.

Within two years, Dougherty signed on as Executive Director of the Air Force Association. He ran the organization for six years, during which membership soared.

After AFA, he joined the law firm of McGuire Woods LLP, remaining with them until yet another retirement in 1999.

During his second career as a lawyer, he served on the Defense Science Board as well as other advisory panels, such as the board of visitors at Air University and National Defense University. He also pursued philanthropic pursuits, and was named Man of the Year by two charitable foundations.

In "The Strategic World of Russell E. Dougherty" (February 2005), his one-time military aide, Tom Domingues, quoted to this magazine Dougherty's oft-repeated farewell to his office staff: "Good night, good people. I couldn't do it without you."

Dougherty is survived by his wife Barbara, son Mark, and daughter Diane (DeDe) Ralston. His son Bryant died in 1990.

with no fresh insights into China's military "vision."

### AFSOC Takes Over Cannon

The last hurdle in making Cannon AFB, N.M., an Air Force Special Operations Command base was cleared in August, when the environmental impact statement was signed, allowing the shift. Transition of the base to the AFSOC mission will begin almost immediately, and the base officially becomes an AFSOC installation the first of this month.

William C. Anderson, assistant secretary of the Air Force for installations, environment, and logistics, approved the change. Cannon had been an Air Combat Command base.

Col. Tim Leahy will be the first commander of the base's 27th Special Operations Wing. AFSOC announced in late August that the first airmen and aircraft are expected to arrive at Cannon by November, and that the transition will take three years to complete.

Support personnel for the 27th Fighter Wing, which lost its F-16s in the 2005 BRAC round, are expected to remain at the base under the new command.

The first aircraft to arrive at Cannon as part of the shift will be MC-130W Combat Spear aircraft, which will come from Hurlburt Field, Fla. The MC-130W gets special ops troops in and out of combat and also provides aerial refueling for SOF helicopters and CV-22 tilt-rotors.

Cannon is to host about 100 aircraft and 5,000 people.

### Futuristic Airlifter Flies

Boeing's X-48B Blended Wing Body

experimental aircraft flew for the first time in July.

The flying wing-type aircraft, which is a subscale demonstrator, flew for about 30 minutes at NASA's Dryden Flight Research Center at Edwards AFB, Calif., climbing to an altitude of 7,500 feet.

The 21-foot composite-skinned unmanned aerial vehicle is slated to make about 25 test flights at low speed. The Air Force Research Laboratory and NASA are aiding Boeing with its research.

Boeing's head of advanced systems, George K. Muellner, said he believes that a full scale blended wing body aircraft could be ready for service as a cargo or tanker platform in the next 20 years.

Two X-48B aircraft were built for Boeing by Cranfield Aerospace Ltd. of Britain. Ship one was used for wind tunnel testing and is available for flight test if there is a problem with ship two, which flew in July. The aircraft's three turbojet engines will allow flights up to 10,000 feet and 138 mph. The test program next will evaluate its low-noise characteristics and handling in the transonic range.

### Space Loses Air Staff Slot

The Air Staff consolidated in August, and the operations directorate for space was eliminated.

The decision to close the shop came from Air Force Space Command and the deputy chief of staff for operations, and puts space operations on the same footing as combat operations, mobility, and special operations.

Maj. Gen. Roger W. Burg, who was in charge of what was known as A3S, will now command 20th Air Force at F.E. Warren AFB, Wyo.

The elimination of the A3S office led to some concerns that there would be no space "voice" on the Air Staff, but Burg and other senior leaders said the Air Staff will continue to benefit from having officers with space backgrounds; they will be interspersed with other shops.

## Senior Staff Changes

**RETIREMENTS:** Maj. Gen. Paul W. **Essex,** Maj. Gen. Robert L. **Smolen,** Maj. Gen. Joseph P. **Stein,** Brig. Gen. David M. **Snyder.**

**PROMOTIONS: To General:** Arthur J. **Lichte. To Major General:** Maurice H. **Forsyth,** Patrick D. **Gillett Jr.,** James P. **Hunt,** Larry D. **James,** Larry O. **Spencer,** Bobby J. **Wilkes,** Robert M. **Worley II.**

**NOMINATIONS: To be General:** Claude R. **Kehler. To be Lieutenant General:** Donald C. **Wurster. To be Major General:** Robert R. **Allardice,** Herbert J. **Carlisle,** William A. **Chambers,** Kathleen D. **Close,** Charles R. **Davis,** Jack B. **Egginton,** David W. **Eidsaune,** Alfred K. **Flowers,** Marke F. **Gibson,** Frank **Gorenc,** William N. **McCasland,** K.C. **McClain,** Robert H. **McMahon,** William J. **Rew,** Kip L. **Self,** Robert P. **Steel,** James A. **Whitmore. To be Brigadier General:** Lyn D. **Sherlock.**

**CHANGES:** Brig. Gen. Gregory A. **Biscone,** from Cmdr., 509th BW, ACC, Whiteman AFB, Mo., to Dep. Dir., Ops., CENTCOM, MacDill AFB, Fla. ... Gen. John D.W. **Corley,** from Vice C/S, USAF, Pentagon, to Cmdr., ACC, Langley AFB, Va. ... Lt. Gen. (sel.) Daniel J. **Darnell,** from Dir., LL, OSAF, Pentagon, to DCS, Air, Space, & Info. Ops., P&R, USAF, Pentagon ... Brig. Gen. (sel.) Garrett **Harencak,** from Dep. Dir., Rqmts., ACC, Langley AFB, Va., to Cmdr., 509th BW, ACC, Whiteman AFB, Mo. ... Lt. Gen. Frank G. **Klotz,** from Vice Cmdr., AFSPC, Peterson AFB, Colo., to Asst. Vice C/S, Air Staff, USAF, Pentagon ... Gen. Arthur J. **Lichte,** from Asst. Vice C/S, USAF, Pentagon, to Cmdr., AMC, Scott AFB, Ill. ... Brig Gen. Michael A. **Longoria,** from Spec. Asst. to the Dir., P&P for AF Cyber Command Issues, ACC, Langley AFB, Va., to Cmdr., Det. 5, 9th AF, ACC, Moody AFB, Ga. ... Brig. Gen. (sel.) Wendy M. **Masiello,** from Assoc. Dep. Asst. Secy., Contracting, OSAF for Acq., Pentagon, to PEO for Combat & Mission Spt. Prgms., Office of the Asst. Secy. of the AF for Acq., Pentagon ... Maj. Gen. Robert H. **McMahon,** from Dir., Log., AMC, Scott AFB, Ill., to Dir., Maintenance, DCS for Log., Instl., & Mission Spt., USAF, Pentagon ... Gen. Duncan J. **McNabb,** from Cmdr., AMC, Scott AFB, Ill., to Vice C/S, USAF, Pentagon ... Brig. Gen. Kenneth D. **Merchant,** from Vice Cmdr., Ogden ALC, AFMC, Hill AFB, Utah, to Dir., Log., AMC, Scott AFB, Ill. ... Brig. Gen. David B. **Warner,** from Dir., C2 Prgms., DISA, Arlington, Va., to Dir., Log. & Warfighting Integration, & CIO, AFSPC, Peterson AFB, Colo. ... Maj. Gen. Robert M. **Worley II,** from Dep. Dir., Prgms., DCS, Strat. P&P, USAF, Pentagon, to Dir., Prgms., DCS, Strat. P&P, USAF, Pentagon ... Lt. Gen. (sel.) Donald C. **Wurster,** from Vice Cmdr., AFSOC, Hurlburt AFB, Fla., to Cmdr., AFSOC, Hurlburt AFB, Fla.

**SENIOR EXECUTIVE STAFF RETIREMENT:** Fredolin W. **Kuhn.**

**SES CHANGES:** Robert J. **Osborn II,** to Dep. Dir., Distribution Portfolio Mgmt., TRANSCOM, Scott AFB, Ill. ... D. Mark **Peterson,** to Associate Dir., AF QDR Office of the Air Force Vice C/S, USAF, Pentagon. ■

### JSF Overcharges To Be Refunded

Lockheed Martin disclosed in August that it had inadvertently overbilled the government $265 million on the Joint Strike Fighter program over the last five years. It notified the Pentagon and will refund the money, with interest, the company said.

The overcharges relate to invoices for work performed by Northrop Grumman and BAE Systems—both subcontractors on the JSF program. Northrop is involved in assembling part of the airplane's center fuselage as well as avionics components, while BAE makes the aft fuselage and tail surfaces as well as electronics.

The error will not affect the F-35 program's schedule or budget, Lockheed said.

### Gen. Lance Smith To Retire

Air Force Gen. Lance L. Smith, who has served since November 2005 as commander of US Joint Forces Command and as NATO Supreme Allied Commander for Transformation—both based in Norfolk, Va.—announced in August his intention to retire.

Smith will depart his command in November and retire in January, according to a Pentagon announcement. He will have served in the Air Force for 38 years. His replacement was not immediately announced.

### Nellis Center Continues To Grow

The Air Force continues to make

### New, Larger Balad Hospital

The hospital at Balad AB, Iraq—one of the busiest in US Central Command's area of responsibility—is in a new, larger facility.

The 332nd Expeditionary Medical Group at Balad closed up the old Air Force Theater Hospital on Aug. 3 and opened the new 97,000-square-foot facility.

About 150 base volunteers and 380 airmen helped move patients and equipment to the new facility, where airmen had been setting up equipment and supplies since late June.

Balad had averaged about 2,000 surgical procedures per month. The new structure features up to 20 intensive care units, 40 beds, and eight operating tables. It offers better environmental controls, power distribution, and plumbing as well.

## The War on Terrorism

### Operation Iraqi Freedom—Iraq

#### Casualties

By Sept. 11 a total of 3,762 Americans had died in Operation Iraqi Freedom. The total includes 3,755 troops and seven Department of Defense civilians. Of these deaths, 3,082 were killed in action with the enemy while 680 died in noncombat incidents.

There have been 27,848 troops wounded in action during OIF. This number includes 15,336 who were wounded and returned to duty within 72 hours and 12,512 who were unable to return to duty quickly.

#### Mosque Bomber Killed by Air Strike

A senior al Qaeda terrorist believed to be the mastermind behind two massive bombings of the Golden Mosque in Samarra, Iraq—events that touched off deadly sectarian violence in February 2006 and earlier this year—was killed in a coalition air strike in August, according to US and Iraqi officials.

During the operation, coalition forces raided a series of four buildings that were linked to Haitham Sabah al Badri—a senior leader of an Iraq-based al Qaeda cell. As forces approached, several armed men moved from the buildings into outdoor ambush positions waiting for forces to approach. The team called in close air support.

The strike killed al Badri and three other terrorists, one of whom was a foreign national. Ground forces also discovered weapons on the site and detained seven other suspects.

### Operation Enduring Freedom—Afghanistan

#### Casualties

By Sept. 8 a total of 437 Americans had died in Operation Enduring Freedom. The total includes 436 troops and one Department of Defense civilian. Of these deaths, 251 were killed in action with the enemy while 186 died in noncombat incidents.

There have been 1,567 troops wounded in action during OEF. This number includes 615 who were wounded and returned to duty within 72 hours and 952 who were unable to return to duty quickly.

#### Kandahar Airfield Transferred to NATO

For the first time in Operation Enduring Freedom, NATO took full control of a large airfield and operational staging base when it assumed command of Kandahar Airfield from the US Army in July.

The airfield is under the supervision of four nations: the US, Britain, Canada, and the Netherlands. The nations share responsibility for providing troop support and maintenance of facilities and structures on the base. Until now, the US military has run the airfield, which houses about 10,000 US military, coalition, and civilian personnel.

The field hosts Air Force fighters, unmanned aerial vehicles, and combat search and rescue aircraft, among other assets.

progress in consolidating various warfare centers into a single entity at Nellis AFB, Nev., the service said in August.

USAF formerly had several warfare centers around the country. In 2005, it began merging elements of the centers into the US Air Force Warfare Center at Nellis.

During a senior leadership summit at the Pentagon in August, Chief of Staff Gen. T. Michael Moseley said USAF needs to keep streamlining its warfare center operations because the service's various contributions to operations are part of a seamless whole, and should be practiced that way.

The Air Force leadership also discussed resource allocation, responsibilities, and how the center can better integrate with other services and other armed forces pursuing similar goals.

#### Joint "Valiant Shield" Ends

The largest Pacific joint exercise of the year concluded in August, after eight days of testing interoperability between Air Force, Navy, Marine Corps, and Coast Guard assets.

Valiant Shield 2007—formerly known as Joint Air and Sea Exercise (JASEX)—was conducted around Guam, and saw more than 2,900 sorties flown by about 280 aircraft. It involved land, air, and maritime scenarios. The air operations center at Hickam AFB, Hawaii, orchestrated the wargames. The first Valiant Shield took place last year.

Missions practiced included defensive counterair, electronic attack, suppression of enemy air defenses, intelligence-surveillance-reconnaissance, air refueling, interdiction, and anti-surface warfare.

Air Force bombers timed their arrival over targets to coincide with aircraft launched from aircraft carriers; the two services then prosecuted coordinated simulated attacks.

Air Force B-52, F-15C, F-16CJ, KC-135, and E-3 AWACS aircraft flew in the exercise.

Hawker Hunter and Lear jets, provided by contractors, flew as simulated enemy aircraft using electronic warfare pods, according to Pacific Air Forces officials.

#### Misawa Hosts F-15s

While some of the F-16s based at Misawa AB, Japan, were deployed to Iraq in July, the base hosted F-15s from Kadena AB, Japan, for an exercise called "Seikan War," with Japan Air Self-Defense Force F-15s.

The exercise is one result of the improved cooperation and realignment agreement discussed in May by the US and Japan. About 80 people traveled

USAF photo by TSgt. Parker Gyokeres

***The first of a planned complement of about 50 A-10Cs arrives at Moody AFB, Ga., Aug. 7. Air Force Reserve Command is establishing two A-10 associate units at the base this month.***

## Index to Advertisers



to Misawa to participate in the four-day exercise.

The training included small scale engagements as well as large scale tactics with 10 or more aircraft. Maintainers and pilots were also trained to be able to move a combat capable force to another location for operations.

**Assignment System Updated**

The Pentagon has announced details of its joint qualification system, toward getting a more comprehensive picture of the qualifications of officers for joint assignments and promotions.

The new four-level system is an enhancement of the first tenets of "jointness" set out in the Goldwater-Nichols legislation of 1986 and is in effect as of Oct. 1.

While officers may still earn designation as a joint qualified officer—formerly a joint specialty officer—by finishing the requisite joint professional military education and a standard joint duty assignment, they may also earn qualification by accumulating equivalent experience, education, and training.

The system awards points through successive qualification levels, while accounting for the intensity, environment, and duration of each activity. The new system encourages officers' career-long development of joint expertise, since it recognizes experiences earned from commissioning to retirement.

The new system also incorporates a Total Force approach to joint assignments that allows active and reserve component officers to earn the same joint qualifications.

**NPOESS Is Restructured**

The Air Force restructured the National Polar-orbiting Operational Environmental Satellite System in July, along with its partners NASA and the Department of Commerce and the prime contractor Northrop Grumman.

The troubled environmental satellite program was recertified as a needed capability by the Office of the Secretary of Defense last year, and new cost and management controls were put in place on the modified $4.2 billion contract. The new schedule delivers sensors to the NPOESS preparatory project to support a 2009 launch, and calls for the launch of the first NPOESS satellite in 2013.

The re-baselined system consists of two spacecraft, nine sensors and associated equipment, 15 receptor sites, the command, communication, and control system, ground stations, and operations through 2016.

The sensors encompass a host of weather and environmental technologies that will replace legacy weather satellites.

# News Notes

■ Rolls Royce and General Electric received Air Force contracts in August to develop technology for the next generation of combat aircraft engines. Both companies will test certain components as part of the Adaptive Versatile Engine Technology program. Air Force Research Laboratory in 2009 will pick one design. The contract would run through 2012, and would be worth up to $296 million to Rolls Royce or $231 million to GE.

■ The "marginal" category has been purged from USAF physical fitness evaluations, which will now be somewhat harder and graded as pass or fail. Previously, airmen who scored below 70 on the fitness test failed, those who scored 75 or higher passed, and scores in between were rated "marginal." Now, a score below 75 is considered a failing grade, and airmen will have to retest within 90 days. The change supports new fitness standards, and was made a few weeks after the new performance reports were developed.

■ A new name—the 83rd Network Operations Squadron—has been bestowed upon the old 83rd Communications Squadron, Langley AFB, Va. The unit, which will now support the Air Force's cyberspace mission, is part of the 26th Network Operations Group located at Lackland AFB, Tex. Responsibilities include intrusion detection, Web proxy services, and firewall management.

■ Humvees used by the 820th Security Forces Group at Moody AFB, Ga., have heftier armor. The unit has received about 18 upgraded-armor Humvees to use in both training and deployments to the US Central Command theater of operations. The vehicles are outfitted with the thickest armor modifications, known as frag 5, featuring a 600-pound door and additional plating at key points on the vehicle.

■ An F-15 from the 44th Fighter Squadron, Kadena AB, Japan, slid off the runway and into the grass at A.B. Won Pat Airport on Guam in August. The aircraft was not damaged and the pilot was not injured. The aircraft was forced to land at the civilian airport due to poor visibility at Andersen Air Force Base some 12 miles to the north. The fighter was participating in the Valiant Shield exercise.

■ The Alaska Air National Guard helped save a climber who broke a leg on Pioneer Peak, south of Palmer, Alaska, in August. A partner wrapped the man in warm clothes and then hiked out to notify Alaska state troopers. The police called the ANG for assistance. Pararescuemen with the Guard's 210th and 212th Rescue Squadrons hoisted the man to safety the next day and flew him to a regional hospital.

■ About 1,300 victims of a massive earthquake near Lima, Peru, received medical assistance from Air Force and Army specialists in August. About 30 airmen and soldiers flew to the stricken area aboard a C-130J flying out of Soto Cano AB, Honduras. The task force comprised a mobile surgery team, communications specialists, and a small security detail. The aircraft belonged to the Maryland Air National Guard's 135th Airlift Group.

■ USAF and NATO in August staged its first exercise in Iceland since the closure of Naval Air Station Keflavik in

## The New Imperatives of Unmanned Vehicles

Two of the top priorities in the ongoing development of unmanned aerial vehicles are greater autonomy and the ability to operate safely in unrestricted airspace, the Air Force's top uniformed acquisition officer said in August.

Lt. Gen. Donald J. Hoffman, speaking to the Association for Unmanned Vehicle Systems International, said USAF is experimenting with a system that makes it possible for a single Predator UAV operator to manage three or four aircraft at once. He also asked for industry's assistance in developing more autonomous vehicles and said that operating in civilian airspace will propel the use of UAVs to a new level.

Hoffman said that the multi-Predator console is being tested at Creech AFB, Nev. For many missions, he said, sensor operators—rather than a pilot—can handle simple tasks such as monitoring a site once a vehicle is on station. However, if a mission calls for a strike, the pilot can take over. The capability has great implications for the future, both in reducing the number of pilots needed and in extracting value from multiple UAVs working together to assess and prosecute targets.

Hoffman asked industry to develop better means of providing UAV pilots and sensor operators with sensory information about the aircraft and its surroundings, saying this will vastly improve the acceptance of UAVs transiting or working in civil airspace. Specifically, he asked for improvements in collision avoidance, especially for smaller aircraft.

The new capability is urgently needed now that an increasing number of Air National Guard units are operating UAVs, and they will need to train in airspace near or over populated areas. Today, large swaths of airspace must be set aside to accommodate UAV practice.

### CAP Chief Suspended

The Civil Air Patrol suspended its national commander in August as it investigated allegations that another member of the CAP took Air Force exams for him.

CAP Maj. Gen. Antonio J. Pineda was suspended after a special board meeting in Montgomery, Ala., where members received an inspector general's report on the allegations. The suspension is for up to six months while the board mulls its final decision on the matter, said Maj. Gen. Richard Bowling, chairman of CAP's board of governors.

CAP Vice Commander Brig. Gen. Amy S. Courter assumed Pineda's post.

CAP is an Air Force auxiliary that operates aviation programs and flies civil defense and search and rescue missions. The organization has 55,000 volunteers across the country.

The CAP inspector general announced last December that an investigation had begun into the allegations that another CAP member took Pineda's exams in 2002 and 2003 to allow him to complete courses at the Air Command and Staff College at Maxwell AFB, Ala.

### Stamp Honors Jimmy Stewart

Hollywood icon and World War II bomber pilot Jimmy Stewart, who was also one of the 12 founders of the Air Force Association, has been honored on a commemorative US postage stamp, issued in August.

Stewart had just received his first Oscar in 1941 for "The Philadelphia Story" when he joined the Army Air Forces. He went on to fly the B-24 Liberator on 20 combat missions in Europe and was twice awarded the Distinguished Flying Cross. He went on to serve in the Air Force Reserve for 27 years and retired from the service as a brigadier general in 1968.

Also in August, a technology center at Bolling AFB, D.C., was named the Brig. Gen. James Stewart Theater in honor of his service and his efforts to promote Air Force heritage and morale programs. ■

2006. Exercise Northern Viking 2007 brought in E-3A AWACS aircraft from Germany, F-15s and KC-135s from RAF Lakenheath and RAF Mildenhall, Britain, F-16s and a P-3 from Norway, and rescue helicopters from Denmark. The goal was to demonstrate the ongoing NATO military commitment to Iceland.

■ The 76th Helicopter Squadron was formally deactivated at Vandenberg AFB, Calif., on Aug. 2. Squadron airmen will transfer to new units. Its four helicopters went to units at Minot AFB, N.D., Malmstrom AFB, Mont., and F.E. Warren AFB, Wyo. The 76th had accumulated more than 35,000 accident-free flying hours in its 34-year history. It supported surveillance and security for the base's space launch and test range.

■ Boeing received an $18 million contract from the Navy in August to design, develop, and produce the Undergraduate Military Flight Officer ground-based training system for Training Wing 6 at NAS Pensacola, Fla. Air Force weapons systems officers assigned to the F-15E Strike Eagle will receive the training along with Navy counterparts who go on to the F/A-18 Super Hornet, EA-6B Prowler, EA-18G Growler, or E-2C Hawkeye.

■ US Northern Command helped monitor and respond to Hurricane Dean, a Category 5 storm that passed through the Caribbean and lashed the Yucatan Peninsula in August. While the storm did not hit the US mainland, NORTHCOM dispatched teams to Texas and Louisiana to coordinate efforts with the Federal Emergency Management Agency. An eight-person Joint Patient Movement Team from Scott AFB, Ill., deployed to Austin, Tex.

■ The 37th Airlift Squadron, Ramstein AB, Germany, supported a high-altitude, low-opening airdrop training exercise in Bosnia in August. The unit's C-130s dropped 13 US jumpers from Ramstein, Stuttgart, and RAF Lakenheath, Britain, along with three Bosnian jumpers near Banja Luka. HALO operations feature a long free fall followed by a low-altitude parachute opening.

■ The first Afghan pilot to be trained by the US Air Force was selected in August. Faiz Mohd Ramaki, a translator, was referred to the program by Air Force officers who worked with him while deployed to Afghanistan and said he was a go-getter. Ramaki scored highly on his aptitude tests. He will attend USAF's Aviation Leadership Program at Laughlin AFB, Tex.

■ The largest single US assistance project for Kyrgyzstan since its independence was performed by the 376th Expeditionary Medical Group in August. The team provided training and medical equipment to three local hospitals in Bishkek, Kyrgyzstan, as part of the US State Department's Operation Provide Hope. Over the past three years, the program has disbursed about $42 million in humanitarian assistance.

■ Pacific Airlift Rally 2007, a US and Indonesian-hosted airlift symposium and exercise, took place at Halim AB, Indonesia, from Aug. 20 to 24. The rally comprised seminars, a command post exercise, and a field training exercise for airlift forces from numerous countries across the Pacific and some out-of-area allies. Participants carried out a humanitarian airlift mission in the wake of a simulated major earthquake. ■

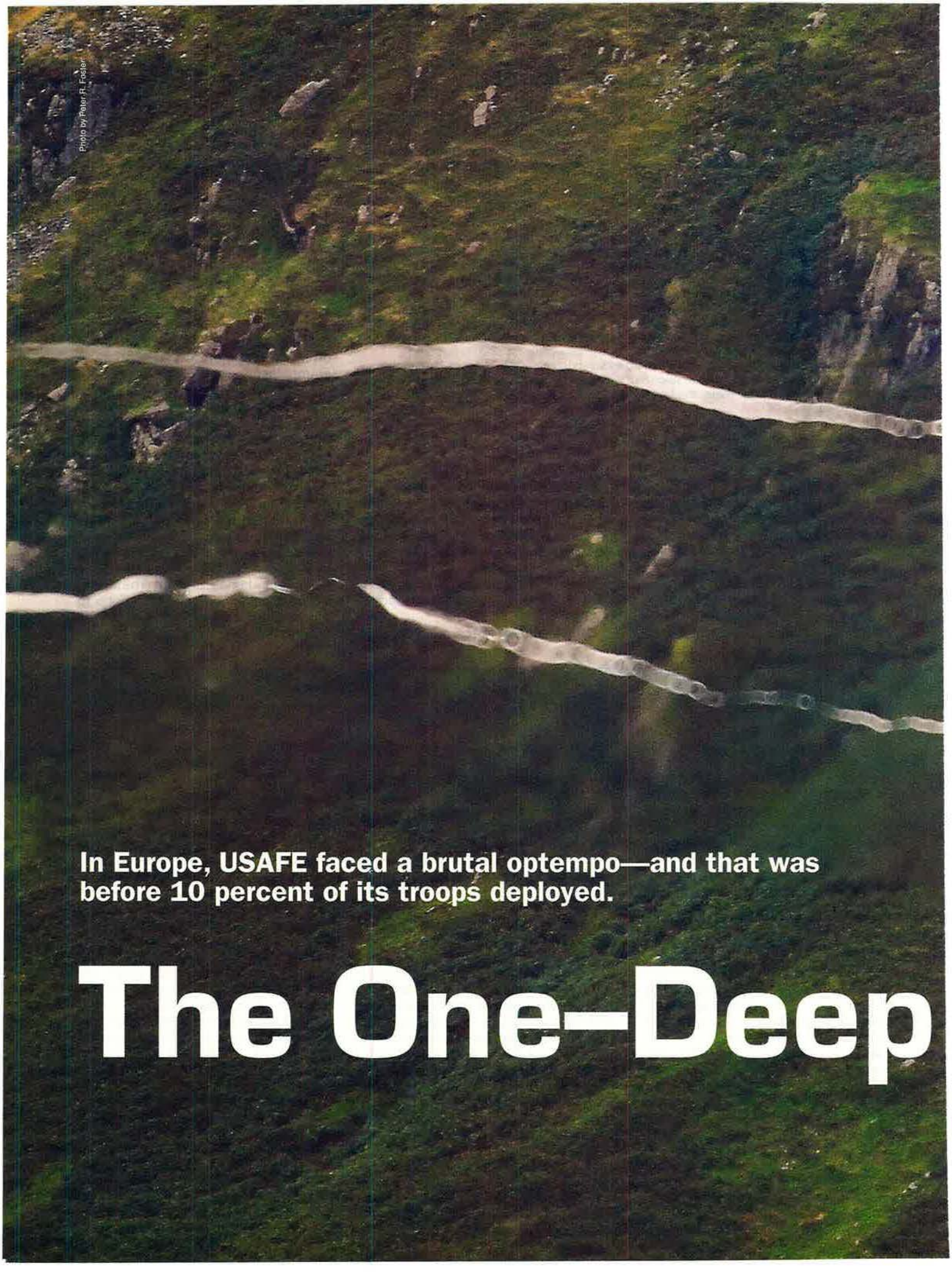
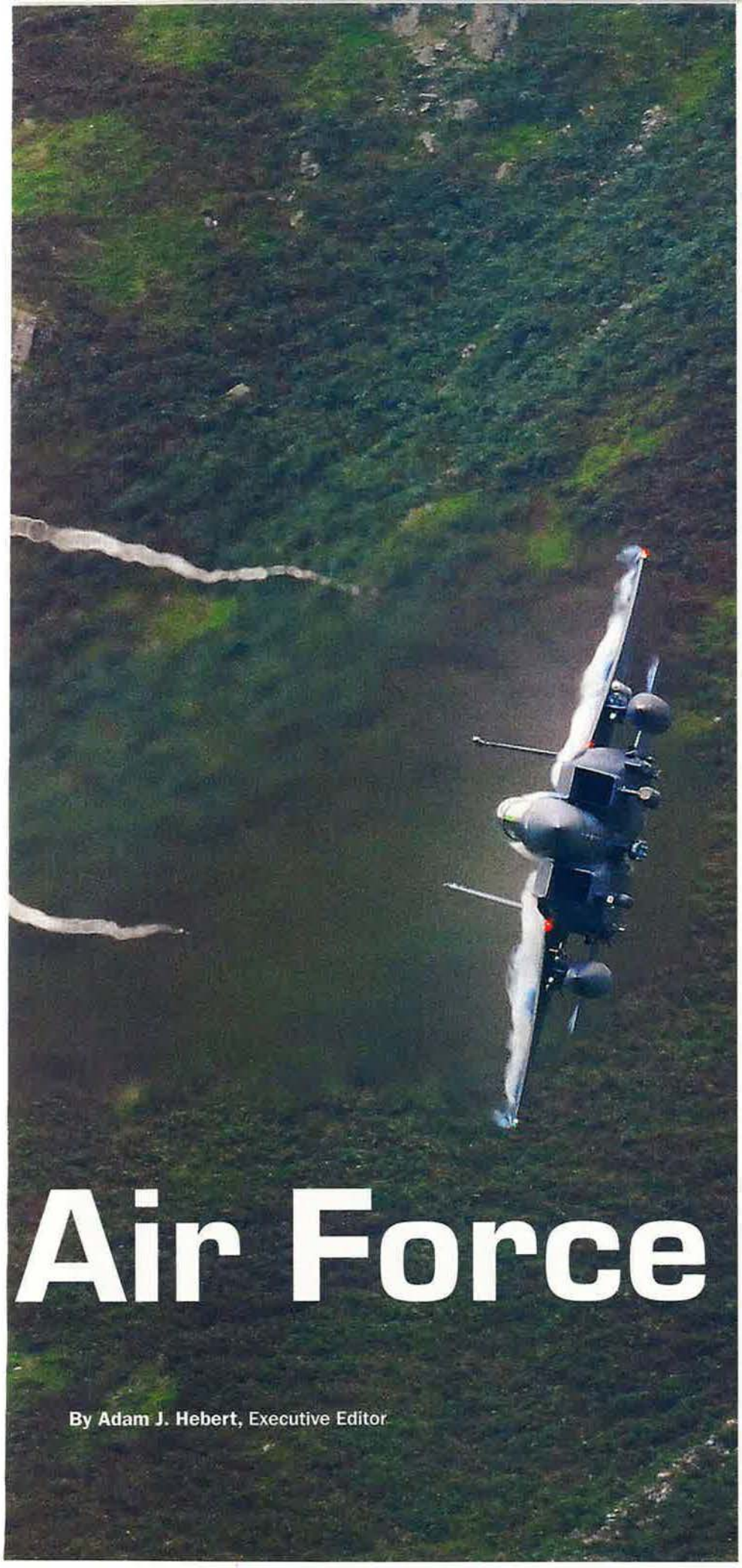


Photo by Peter R. Foster

**In Europe, USAFE faced a brutal optempo—and that was before 10 percent of its troops deployed.**

# The One-Deep



# Air Force

By Adam J. Hebert, Executive Editor

The airmen of US Air Forces in Europe find themselves scrambling quite a bit these days. The service's oldest major command has little to no excess capacity, so these troops are in constant motion. Moreover, its aircraft are old and require constant care and maintenance. USAFE is just like the rest of the Air Force, only more so.

The command's forward-based airmen are full participants in Air Force operations worldwide, meaning the operating tempo is consistently high. This summer, nearly 2,500 USAFE airmen—almost 10 percent of the force—were deployed in support of the Global War on Terror, noted Lt. Gen. Robert D. Bishop Jr., commander of 3rd Air Force at Ramstein AB, Germany. The 3rd oversees USAFE's daily operations in a 92-country area stretching from Iceland to South Africa.

With so many airmen gone, the other 90 percent of USAFE's force have had to carry out 100 percent of the already challenging "peacetime" mission—training for upcoming deployments, running a network of bases and operating locations, and maintaining an aged and cantankerous fleet of equipment.

"We are one deep in many areas," said Brig. Gen. Michael A. Snodgrass, USAFE's plans director at Ramstein. "That was a conscious decision the Air Force made after the [Berlin] Wall fell."

USAFE has one air superiority squadron, at RAF Lakenheath, England, one air refueling wing, at RAF Mildenhall, England, and one squadron of close air support A-10s. "We have one base, Spangdahlem [Germany], that does suppression of enemy air defenses. We have two bases that give us precision guided munitions capability," Snodgrass continued. "That's not a lot, but it's right-sized to the overall mission set here."

Snodgrass said he would like to see another air superiority squadron in Europe and "a little more close air support capability," but USAFE must make its case and compete for resources just like the rest of the Air Force. The tight fiscal environment throughout the Air Force means new assets are hard to come by.

The command is forced to lean heavily on its airmen. Roughly 3,500 USAFE positions are being cut to meet USAF's downsizing requirements. Many of the personnel visited this summer expressed reservations about how this would affect USAFE's long-term health.

USAF photo by Capt. Elizabeth Culbertson

***USAFE commander Gen. William Hobbins (l) meets at Fetesti Air Base with Lt. Gen. Gheorghe Catrina, then Romanian Air Force Chief of Staff (r), and Air Flotilla Gen. Simonescu Laurentiu.***

The operating tempo is already causing some problems. "We are absolutely worried about it," said CMSgt. Gary G. Coleman, USAFE's command chief master sergeant. The brutal tempo "is starting to manifest itself in security forces," he said, adding that "re-enlistment rates have plummeted."

The command is very closely watching its high-stress career fields. These also include transporters, civil engineers, explosive ordnance disposal technicians, tactical air control parties, forward air controllers, and combat weathermen. All of these groups are "running hard and stressed," Coleman said.

The command is embracing Air Force Smart Operations 21 process improvements to help offset personnel shortages, but there is clearly a turbulent period ahead, as the command is asked to do more with less.

The idea behind AFSO 21 is to "reduce the workweek down to a reasonable level by doing things smarter," Coleman said. "We can only maintain this pace for so long, because we clearly are surging."

For an example of how the scrambling plays out, consider the case of the Carpathian Summer exercise in Romania.

Maj. Michael Sheldon didn't like the news he was getting from Germany on June 27. Working a mobile phone from a makeshift office at Mihail Kogalniceanu AB, Romania, Sheldon had gotten word that the C-130E weapons training deployment he was coordinating might be falling apart.

The original plan called for up to six C-130s from Ramstein to deploy to the base on the Black Sea for realistic combat training.

## The Real World

The real world was intruding, however. The demands of Operation Iraqi Freedom and the geriatric condition of participating C-130s had already caused planners to scale Carpathian Summer back to a two-ship deployment.

Now, Sheldon was learning, even that was in question. There might only be one Hercules available, with all the others needed in Southwest Asia or due for repairs.

Worse, the one available C-130 might be on "restricted" status—meaning it was so fragile it could not carry a full load, fly at low-levels, perform assault landings, or operate at night.

If this were the case, there would be little point in making the deployment other than to "fly around the flagpole" for public relations purposes.

Ultimately, it never came to that. Airmen scraped together two C-130s—one regular and one restricted. This allowed aircrews to perform a full range of missions—low-level flying, airdrops, night vision goggle operations, limited assault landings, "all the sorts of training you can't get here in Germany," said Sheldon. With some 120 airmen taking part, Carpathian Summer unfolded more or less successfully over two weeks in mid-July.

The health of USAFE's aircraft is an everyday concern: Modernization timelines in Europe often lag behind those in other theaters. There are currently no plans for USAFE to base the F-22 or C-17 in Europe, and even the C-130J is coming later than needed.

It is also hard to get high-quality training on a densely populated continent with a massive amount of commercial air traffic, a wide range of flight and noise restrictions, limited range space, and frequently murky weather. During eight midsummer days recently spent in Germany, for

USAF photo by A1C Kelly L. LeGullion

***Airmen go over an F-16CJ outside its hardened aircraft shelter at Spangdahlem AB, Germany. USAFE is "one deep" in many categories, including suppression of enemy air defenses capability, which resides only in the 22nd Fighter Squadron.***

example, all but one day was hit by downpours.

"The traditional European civilian aircraft environment has drastically constrained our ability to train" in Western Europe, said Gen. William T. Hobbins, USAFE commander. Noise restrictions also limit flights, and sometimes prohibit the Air Force from flying at low levels over ground forces.

USAFE has only five main operating bases, down from a Cold War peak of 25, and only 27,000 airmen, down from the 65,600 that were in place at the end of the Cold War. Hobbins envisions additional small consolidations to bring isolated units together with stable facilities. For example, there are still stand-alone hospitals, schools, and housing units near Ramstein and Spangdahlem air bases that could be integrated with those recently expanded facilities.

Additional large-scale closures are unlikely, however, because the Air Force still desires a "presence" in important nations such as Germany and Britain. These are strong allies of long standing, and they offer enormous support to the bases located on their soil.

Officials say USAFE's "center of gravity" will remain solidly in Western Europe, even as attention shifts south and east.

The training situation in what former Secretary of Defense Donald H. Rumsfeld once derisively referred to as "old Europe" is not expected to improve. The airspace constriction problem will "only get worse," said Hobbins, as commercial air traffic on the Continent continues to expand.

USAFE must monitor and live with some 5,000 airspace regulations in Europe, some of them severe, said Lt. Col. Jim Burton. Europe has the same air traffic as the United States crammed into one-third the area, added Burton, who is with the 603rd Air Operations Center's Air Mobility Division at Ramstein.

"As we migrate our training locations eastward, we can strengthen our coalition interoperability," Hobbins noted. This reduces USAFE's reliance on "expensive deployments to Stateside locations" which is "not optimal nor is it cost-effective." Consequently, the US recently signed long-term agreements with both Romania and Bulgaria to allow deployments into the former Warsaw Pact nations.

"We really need training airspace," said Snodgrass. "We need to deploy."

Meeting part of the need in recent years, Turkey has hosted a series of Anatolian Eagle exercises modeled after USAF's Red Flag. The Air Force has been a regular participant, but needs additional options. This brought USAFE to Mihail Kogalniceanu, 1,000 miles east of Ramstein.

USAF photo by A1C John Easterling

***Airmen with the 48th Logistics Readiness Squadron perform a hot-pit refueling on an F-15 Eagle at RAF Lakenheath, Britain.***

MK is local by European standards and allows training with a nation that flies different aircraft—Romanian MiG-21s. More importantly, the airspace range around MK is excellent, equivalent to the Nevada Test and Training Range (Nellis Range). It boasts plains, mountains, over-water areas, landing and drop zones, and ground maneuver space that allows aircraft to train with ground units.

"There are not many places [where USAFE] can do joint and combined training with a lot of airspace," said Snodgrass.

The "vision looking forward is for large force-package exercises" to take place in the Romanian airspace, added Lt. Col. Stephen P. Ritter, head of USAFE's MK Integration Branch. "This airspace is world-class, and when countries hear about it, they'll want to come," Ritter said. "They'll be lining up."

## Fresh Air

Romanian Air Force officials cited numerous benefits of having the Americans visit MK. These range from the mundane (an opportunity to use English) to the sophisticated (a chance to leverage US wartime experiences to develop realistic common training scenarios).

The expanding opportunities to fly and train in Romania are "like a breath of fresh air" compared to the tight restrictions in Western Europe, said Maj.

USAF photo by MSgt. Ron Prysucha

***Two ground-attack A-10s from Spangdahlem's 81st Fighter Squadron come in for a landing at Montreal AB, Portugal.***

USAF photo by MSgt. Charles Tubbs

***Next to a Romanian Air Force MiG-21, ROAF Warrant Officer Marian Micheten (l) and SMSgt. Santos Rodriguez (r) discuss maintenance at Mihail Kogalniceanu Air Base.***

Michael J. Dean, F-16 functional area manager at USAFE headquarters.

In June, USAFE planners were in Bucharest coordinating the Carpathian Summer C-130 deployment and August's Common Quest special operations exercise. Common Quest was scheduled to feature MC-130 Combat Talon and MH-53 Pave Low aircraft from RAF Mildenhall performing rescue and recovery operations.

The 352nd Special Operations Group's deployment was to be at the same time that US European Command has a 1,000-man "proof of principle" deployment going on at the base.

EUCOM's new Joint Task Force-East is based at MK, to coordinate training operations in the Black Sea nations. In June, US Army Europe was well on its way toward finishing new barracks buildings to house deploying soldiers. The areas of the base being used by the Army were readily identifiable by their generous use of concertina wire.

Ritter said the Army's presence and the ground maneuver ranges below the MK airspace offer the potential for urban close air support training, exercises with joint terminal air controllers, and other joint air-land operations hard to achieve in Western Europe.

USAFE has sponsored its own construction at the base, although the Air Force is thinking of permanently basing only about 10 airmen at MK. New storage buildings near the flight line house 19 pieces of "low maintenance" aerospace ground equipment such as tow bars, jack stands, and the aircraft maintenance stands typically needed by deployed flying units.

USAFE doesn't want to "flood" the base with equipment yet, because the long-term mission there is still undetermined, said MSgt. Mark A. Fleenor, logistics action officer for the MK team.

Some equipment needs are obvious, however, and in an adjacent building an Air Force fire truck, runway sweeper, and fuel truck sat in storage after being flown in for an F-15 deployment. Fleenor said keeping these vehicles at MK for the summer saves $20,000 to $80,000 per exercise.

USAFE would like to operate from the base on "approximately a half the year basis—what we call a .5 presence," said Snodgrass. "The game plan after the next year or two is to have an AEF [air and space expeditionary force deployment] into MK for training and presence."

It is important to build a program of "focused" theater security cooperation, said Bishop. There are 10 new NATO members for USAFE to build partnerships and interdependence with, but the command must keep at it.

"We don't want to, nor do we have a need to, engage with all 92 countries" in the AOR, Bishop said. "If you really want to make progress, you need to engage, and then you need to re-engage."

That's what the long-term agreements with Romania and Bulgaria offer. Bishop said that after a recent C-130 deployment to Bulgaria, the pilots were "beside themselves," saying, " 'This is the best flying we ever had—300 feet above the ground, in and out of mountainous terrain.' "

Yet the Ramstein C-130s participating in these deployments are a prime example of USAFE's old airplane problem. A case can be made that the 86th Airlift Wing's 42-year-old C-130Es are the Air Force's most decrepit fleet.

The wing is keeping four of its healthy, "unrestricted" airlifters forward deployed for US Central Command, but even there things don't always go as planned.

"We just discovered another doggone crack" in one of the nominally healthy, forward-based C-130s, said Brig. Gen. Richard C. Johnston, commander of the 86th AW. "That grounded that airplane"—out in the desert. The 86th was sending another airplane out the same

USAF photo by SrA. Eydie Sakura

***F-16s from Spangdahlem line the ramp at MK Air Base, where USAFE is setting up a small detachment to help coordinate regular training deployments.***

USAF photos by SSgt. Justin D. Pyle

***C-130Es of Ramstein's 86th Airlift Wing require constant attention. At top, airmen perform a prop service check on a Hercules. At right, SrA. Jeff Risko of the 86th Maintenance Squadron replaces a bleed air manifold duct on the flight line at Ramstein.***

day to replace it, because combat requirements come first, and four "healthy" C-130s from Ramstein are needed in the sandbox.

This particular airlifter had just been through depot last year. CMSgt. Reginald Glover said that crews were scheduling C-130s for the next day's missions while the airlifters were "still in the air," on the hope that no mission-critical components would return broken. When surprises such as the one in the forward-based C-130 occur, the crews must do whatever is necessary to get the aircraft ready to fly, but sometimes it is simply not safe to do so.

## No Hyperbole

The damaged Hercules—which developed a crack never before seen in the C-130 fleet—will need a waiver to fly back to Ramstein. Glover said the deployed aircraft typically fly four times as much as home station C-130s, and the "tactical landings" used downrange stress the airframes and brakes.

Once back, the cracked Hercules "will sit on the ramp here, probably for quite some time," said Johnston.

This is not hyperbole. Until June, another one of the 86th's airlifters "hadn't flown in five years, because we just didn't think it was airworthy enough," said Johnston. Simply put, C-130 No. 68-10947 had exceeded its life expectancy. Nonetheless, maintainers at Ramstein kept it in flyable condition for five years, as required. Then, enough was enough.

In early July, that aircraft was stuck in Barbados, on its way to the Boneyard at Davis-Monthan AFB, Ariz.

Flying in daylight only, No. 0947 finally made it to the Boneyard and has now been officially decommissioned.

The 86th struggles with readiness problems caused by Vietnam-era C-130s. Of a fleet of 16 aircraft, two were considered "good," three were under restricted flight status, four were forward deployed, and seven were in depot.

Tail No. 1835 is illustrative. It was supposed to have been in depot for six months' worth of refurbishment. It will be 480 days—16 months—before the wing gets it back.

"Forty percent of my airplanes are in depot," said Johnston, slightly understating the problem. "That's ridiculous. We should have two airplanes [there]."

Help is on the way, but not until 2009 when the first C-130J replacements are scheduled to arrive at the base. In the interim, "we won't be able to maintain 100 percent crew currency, we know that now," said Johnston, so the wing is looking to mitigate the problem by focusing training on the most likely and critical capabilities.

"We recognize that we won't be as capable until we get those" C-130Js, he concluded.

To help perform its mission, Ramstein depends on a regular rotation of four Guard or Reserve C-130s assigned to temporary duty at the base.

Despite the equipment shortcomings, USAFE is "getting more and more mobility minded," Hobbins said, and the facilities modernization programs at Ramstein and Spangdahlem stand in stark contrast to the health of the C-130s.

The bases are on the route to Iraq, and midway between the US and Afghanistan, making them key waypoints for troops and materiel. Ramstein also receives the injured troops headed to the massive Landstuhl medical center. Johnston noted that 95 percent of the aircraft going through the base are supporting a combat mission.

Many facilities are from the 1950s, noted Col. Earl D. Matthews, commander of Ramstein's 435th Air Base Wing. With the base increasingly busy and at the center of a 55,000-person American community, infrastructure improvements are designed to both increase combat capabilities and ease long-standing quality of life concerns.

- An airfield equipment maintenance complex, indoor pool, and new townhouse-style housing community are all in progress.
- A second runway is nearly completed. Ramstein recently became DOD's only airfield with a CAT III instrument landing system that allows aircraft to land in very low visibility conditions.
- "Building 530" has been gutted and is being renovated for the 24th Intelligence Squadron—with more than 40 miles of fiber-optic cable running under its floors.
- A new munitions maintenance complex with foot-thick concrete walls is under construction at the end of Ramstein's enormous weapons storage area. Weapons storage and maintenance capabilities on base are "exhausted." The facility is needed so wartime operation is not hampered.
- More than 12,000 "patient movements" have gone through the 435th Contingency Aeromedical Staging Facility's new building in the past year. The 435th receives wounded and sick troops from the war zone, and either

## The K-Town Community Center

The Defense Department's largest current construction project is the Kaiserslautern Military Community Center, a program to bring together scattered shopping, lodging, and other services under one roof near Ramstein's passenger terminal. The project has become "every bit a nightmare," one official said, and is currently 18 months behind schedule.

This is unusual at Ramstein, where most of the myriad improvement projects currently in progress have stayed on schedule.

"Significant problems urgently confront the KMCC," said Brig. Gen. Danny K. Gardner, in June testimony. Gardner, USAFE's director of installations and mission support, said this project "presents few clear, easy choices."

KMCC has suffered from the lack of an overall contractor, inadequate quality control, and ineffective contract management. "The most prominent example of poor enforcement of quality ... is the deficient roof that now requires nearly complete replacement," Gardner testified.

treats them or sends them on to Landstuhl for additional care. After treatment, the unit sends patients back to the States. Up to 120 movements have been made in one day.

■ New underground fuel hydrants run out to all the parking spots used by the "heavies," replacing an old fueling system Matthews described as "decrepit." The aircraft plug into the hydrants, eliminating the need to run "truck after truck" out to the tankers and transports, explained A1C Apasara Takara, a technician with the 435th Logistics Readiness Squadron. The new system allows a C-17 to refuel in about an hour—instead of up to four hours.

■ Underground refueling hydrants are also now in place at Spangdahlem, a longtime home to USAFE F-16s and A-10s that has undergone an airlift renaissance. The base recently expanded to accommodate part of the old Rhein-Main Air Base mission, and now has spots for 13 widebody aircraft.

### Gas and Go

The community support around Spangdahlem has been exceptional, noted Col. Darryl Roberson, 52d Fighter Wing commander. Local communities donated land that allowed the base to build the airlift segment of the base and a new main gate. Land has also been granted to Spangdahlem from surrounding communities to allow absorption of the facilities that are still open at Bitburg Annex. New housing, a base exchange, a hospital, and a high school are all planned for Spangdahlem, though it will be years before all these facilities are consolidated.

While Spangdahlem now has its own passenger terminal, the primary airlift mission is to provide "gas and go" services for aircraft headed downrange, said Lt. Col. James Kirk, commander of the 726th Air Mobility Squadron. Aircraft are typically on the ground for less than four hours to get fuel and a new crew, he said, adding "mission velocity is key."

For a period this summer, however, mission velocity was almost nonexistent at Spangdahlem, as the runway was closed for major repairs and its operational aircraft dispersed throughout the world for the months of June and July.

One squadron of F-16s deployed 40 miles up the road to Buechel Air Base, a Tornado base for the Luftwaffe. This local deployment allowed airmen to spend their evenings and weekends at home, but added an hour-long bus ride to the workday.

A second Viper squadron spent the summer in Nevada, at Nellis Air Force Base. Roberson noted that it participated in a Green Flag exercise, preparing for its upcoming AEF deployment.

Spangdahlem's third fighter squadron, the 81st, spent much of the summer in England, at RAF Lakenheath. The A-10 crews are benefiting from the "much better" training airspace available there, said squadron commander Lt. Col. Keith McBride. Realistic training is important for a squadron that has deployed to Afghanistan three times in the past four years.

Hobbins also lauded the training ranges in the UK, saying that the airspace is "wide open" off the coast.

The USAF operating locations in England are leading candidates to receive Joint Strike Fighters when the F-35 becomes available for overseas basing.

Hobbins said he would "love to" see the F-35 based in England. The logistics there are good: McBride noted that Lakenheath had the space and equipment in place to easily absorb his squadron's 18 A-10s for the summer.

These are the only A-10s permanently based in Europe, which points to USAFE's lack of depth.

Even the command's newer equipment isn't trouble-free, and several officials called attention to the workloads that maintainers and crew chiefs are bearing. At Spangdahlem, some crew chiefs stayed at the base when most of the aircraft shipped out, so they could work on broken aircraft. SrA. Jose L.C. Ramos said that nine of the wing's F-16s stayed behind while the runway was closed.

Ramos and SSgt. Christopher L. Hatten expressed their frustration with one F-16, No. 91-344. The problems began when a stuck throttle made for an exciting engine start-up.

The airmen discovered a problem with the throttle cable, which runs from the cockpit to the back of the aircraft. Replacing it required removing the pilot's seat and numerous panels, and Hatten said it was a "full day's work to get it out."

After waiting for the replacement cable, another day was spent reinstalling it and reassembling the F-16.

The new cable was also defective.

On June 25, this particular Viper was still torn apart, sitting in its hardened aircraft shelter, waiting for another replacement cable.

"We need to recapitalize the force ... because we're on borrowed time," said USAFE command chief Coleman. "The innovation and expertise of these airmen who are serving us has its limits," he said. "I clearly sense that we are getting there."

The pace of the manpower reductions "may go faster than the pace of the new initiatives and ways of doing business that will allow us to absorb the impacts," said Snodgrass. "We ought to all be concerned about that."

Commanders are taking care that they "don't increase the burden on [airmen] and call that making it better," said Coleman. "Our AFSO 21 program here in the command is really sensitive to that" and careful not to "play the shell game" by simply moving jobs from one area to another.

Ramos said one thing that keeps the airmen going is the desire to accomplish their mission, by seeing an aircraft return to service. An aircraft won't fly until it is ready, he said—but the airmen will keep at it until it does. ■

# THE RIGHT CHOICE FOR CSAR-X. IT'S A FACT.

On November 9, 2006, after months of detailed evaluation, the United States Air Force selected the Boeing HH-47 as the next generation Combat Search and Rescue helicopter. Now the competitors are insisting that the Air Force made the wrong choice for the CSAR-X contract. It's time to set the record straight:

**FACT:** The HH-47's performance was the only entry assessed by USAF as "Exceptional." It met or exceeded all 569 Air Force requirements.

**FACT:** The HH-47 is the fastest combat-configured aircraft of the entries and exceeds all competitors' high altitude capability—critical to rescue operations in mountainous terrain.

**FACT:** The HH-47 is the only entry with U.S. certified air refueling and terrain following/avoidance radar. Along with its state-of-the-art electronic warfare system and avionics, this translates into high survivability, protecting the brave airmen who fly search and rescue missions.

**FACT:** The HH-47 offers superior cabin size and volume. It can carry more survivors and treat more patients than either of its competitors.

**FACT:** The HH-47 beats the Air Force downwash requirement. This has been substantiated in flight demonstrations at Nellis AFB and by personnel around the world who routinely work underneath hovering H-47s.

**FACT:** The HH-47 is 85% common to existing H-47s in production and widely fielded. The H-47 support network spans the globe, including depots in the U.S., Europe and Asia—backed by Boeing's 16,000-member Support Systems organization in 170 locations worldwide.

The bottom line is that the Air Force chose the HH-47 for the CSAR-X contract because it is the best platform for the mission: the most capable, the most proven and the lowest risk.

BOEING

**The Air Force can't buy many new large ISR aircraft. It must wring out much more from what it's already got.**

# The Big Squeeze

**By John A. Tirpak,** Executive Editor


Photo by Richard VanderMeulen

***The Air Force is upgrading its large ISR fleet, such as this E-3 AWACS. They may be stuffed with new equipment, but the airframes remain three decades old or more.***

**The** Air Force is seeking fundamental change in the field of intelligence-surveillance-reconnaissance. It's increasingly clear that changes at the margin won't do.

Faced with insatiable demand for up-to-the-minute information, but with limited funds to acquire new hardware, USAF knows it must squeeze more from the system already in place. The service believes it must expand the definition of what constitutes an ISR platform. USAF also seeks to improve relationships between ISR agencies both inside and outside the service.

Air Force officials do not see this drive to overhaul ISR operations and culture as a decade-long campaign, but rather as a transition measured in months. Otherwise, the service won't be able to keep pace with changing conditions and wartime demands.

Driving this shake-up is a fundamental fact: Commanders just can't get enough battlefield information.

"There will always be more demand for the capability than there is supply," said Lt. Gen. David A. Deptula, Air Force deputy chief of staff for ISR, or A2. He's been tasked by Gen. T. Michael Moseley, Chief of Staff, to rethink the entire ISR enterprise. The ISR overhaul is being pursued on many fronts:

- Deptula's own job is a recent creation, meant to highlight the importance of ISR and to be an advocate for the field, which has sometimes suffered because of the bewildering array of organizations and systems it encompasses.
- The old Air Intelligence Agency has been realigned into the Air Force ISR Agency at Lackland AFB, Tex. No longer under Air Combat Command, it reports directly to Deptula.
- The A2 office is shuffling the ways that systems are grouped together and managed, hoping that managers with a broader view of programs will find efficiencies and eliminate bottlenecks.
- The ISR career field is being revamped, with the goal of developing professionals who will not only serve USAF better, but make more attractive joint leaders at the top levels. USAF has not provided an intelligence general on a regional command staff for several years.
- Deptula has campaigned to consolidate the acquisition and tasking of unmanned aerial vehicles under USAF, to save money, deconflict airspace, and make sure all the services buy systems that can feed common distribution pipes.
- All ISR platforms are being upgraded and networked to more broadly disseminate their products. The inherent ISR

USAF photo by SSgt. Stacy Fowler

*L-r: Maj. Tim Hart, Capt. Curtis Knighten, and Capt. James Garza, all from the 552nd Air Control Wing, Tinker AFB, Okla., work at their stations on board an E-3 AWACS.*

capabilities of other combat systems are being tapped.

The creation of the Air Force ISR Agency was one of the "major muscle moves" in the recasting of ISR, Deptula said, and probably the biggest one coming for a while. It's now a field operating agency.

What did the change solve?

There was a "confusing set of crisscross responsibilities, often making it unclear who was responsible for providing particular capabilities to combatant commanders in national intelligence agencies," said Maj. Gen. John C. Koziol, commander of the AF ISR Agency. "That was the problem. That's why we've restructured everything [to do with ISR] on the Air Staff."

Particularly, the old AIA was "mainly focused on signals intelligence," at the expense of other types of ISR, Koziol said. Human intelligence, for example, has been atrophying, and Deptula wants it reinvigorated. Deptula noted that USAF has "a requirement for 171 Humint slots," adding that they are not cloak-and-dagger clandestine jobs but "mainly in the scientific and technology field." He added that "it's very important to get one-on-one interfaces to acquire information."

The AF ISR Agency "will expand into Air Force human intelligence," Koziol said, and develop greater focus as well on geospatial intelligence, space, ground, and airborne systems.

The goal is to become "an all-source, full spectrum ISR mission-capable organization," he added.

Deptula said he is considering some other organizational changes within the ISR community, but hasn't nailed them down yet. As a rule, they have to do with "flattening organizational hierarchies, as opposed to recreating vertical structure, because ... vertical structure ... induces delay. And in today's fast-moving world, we can't afford staffing through various levels before the leadership gets insight" into a particular issue.

### Slice and Dice Capabilities

The swiftness and relative ease of the AIA restructuring was a pleasant surprise, Deptula said. There are tougher nuts to crack ahead.

One of the toughest will be how to reorganize the various ISR capabilities to find efficiencies and synergies between them, Deptula said. He wants to reshape "the way we process, handle, and manage systems from a program-element-based approach to an ISR-capability-based approach, and that's quite frankly turning out to be more difficult than I had anticipated."

As it stands now, ISR is managed by platform, be it Airborne Warning and Control System or Joint STARS or Global Hawk. But Deptula wants a broader approach.

"In the ISR universe, there are many ways you can slice and dice capabilities," he said, wondering out loud whether it should be done by forms of intelligence—signals, human, measurement—or across domains, such as land, sea, air, or space.

"You end up with a matrix," he said, that does not lend itself easily to grouping. The right number of capability areas "can't be too big, and it can't be too little," although he thinks the right answer will be "closer to seven" than 20 mission areas.

He doesn't want to blend the programs. He wants to have people in charge to "monitor what's going on" in related programs, "to ensure that the left hand knows what the right hand is doing." Deptula's determined to avoid expensive snafus, such as services having incompatible data transfer systems.

From a hardware perspective, the new ISR scheme will rely on many very familiar systems. The E-3 AWACS, E-8C Joint STARS, and RC-135 Rivet Joint aircraft—the Air Force's sensor "battleships"—are all old, and the service's plans to begin replacing them with a new platform based on the Boeing 767 have been dropped. It was, as is so often the case, simply a matter of money, not need.

Deptula said the 707-based sensor aircraft—the airframes of which are all 1970s-vintage—can continue for up to about 20 years, assuming avionics upgrades and barring any age-related technical problems.

"There's no crisis" forcing the Air Force to replace the old warhorses, he said. However, "the question becomes, ... Do you want this capability flying around on a 60-year-old airplane?" There are so many unknowns about how old aircraft break that USAF could be building itself "a single-point failure that we might not be able to stand," Deptula said.

He predicted that the Air Force may put the Multiplatform Radar Technology Insertion Program (MP-RTIP) on Joint STARS, or on a new aircraft, possibly the one chosen to be the next aerial tanker.

The Joint STARS has racked up some successes against insurgents in Iraq by allowing commanders to "rewind" the movements of vehicles in an area where roadside bombs have been placed. The origin point of those placing the charges can then be investigated or targeted.

The 17 Joint STARS have long suffered from being underpowered, a problem that should be fixed by a program to re-engine the fleet.

The E-3 AWACS is also in the midst of a program to update its sensors and processing systems in a suite of improvements that will bring it to an "E-3G" configuration. While the AWACS would also benefit from a re-engining like the Joint STARS is receiving, USAF has no plans or funding to do it.

The 13 RC-135 Rivet Joints, which conduct tactical signals reconnaissance missions, get frequent hardware upgrades because of the constantly changing ways that people communicate—everything from radios to cell phones. No major upgrades are planned for the RJ fleet, but they are

Northrop Grumman photo

***The E-8C Joint STARS aircraft, such as the one at left, has proved to be a marvel in supplying ground target information in both the invasion of Iraq and the insurgency that followed. It will likely get the new MP-RTIP radar, which will give it finer-grained detail of what's moving on the battlefield.***

in virtually a constant state of electronics refreshment.

Since all three of the big sensor aircraft are out of production, the Air Force will have to add more capability to its ISR portfolio in other ways. Deptula said the big aircraft will be vastly augmented by the new F-22 Raptor and in-development F-35 Lightning II, neither of which was originally designed to be a dedicated ISR platform. The Air Force will also continue to add capability with new Predators, Reapers, and Global Hawks.

The two new fighters, in addition to their remarkable abilities at penetrating hostile airspace and conducting stealthy attacks, feature a formidable array of sensors, able to track both air and ground targets, as well as locate a variety of electromagnetic threats, such as radars. They will also be networked with other systems so that the data they collect will be available to all friendly forces that need it.

The F-22, Deptula told a Capitol Hill symposium in April, is "not just an air-to-air platform." It would be more accurate, he said, to describe the Raptor as "an F/A/B/E/EA/RC/AWACS-22. It's a flying ISR sensor that will allow us to conduct network-centric warfare inside adversary battlespace from the first moments of any conflict." He said that traditional nomenclature masks the F-22's true significance—the first of a new breed of super-multirole aircraft.

Deptula added later that the Air Force may need to "re-look ... at the balance [of investment] between sensors and shooters," adding that "there is lots and lots of untapped opportunity to capitalize on the capabilities that are resident in the modern platforms that we're beginning to acquire in numbers."

He quickly pointed out that he doesn't mean that ISR should get a disproportionate share of funding for new systems, but that the capabilities of new systems, like the F-22 and F-35, should be counted when priorities are considered. The new aircraft are like getting several assets in one. A new bomber, for example, will likely have capabilities comparable to those of the F-22, and become yet another stealth forward-area ISR collector.

### Headline Demands

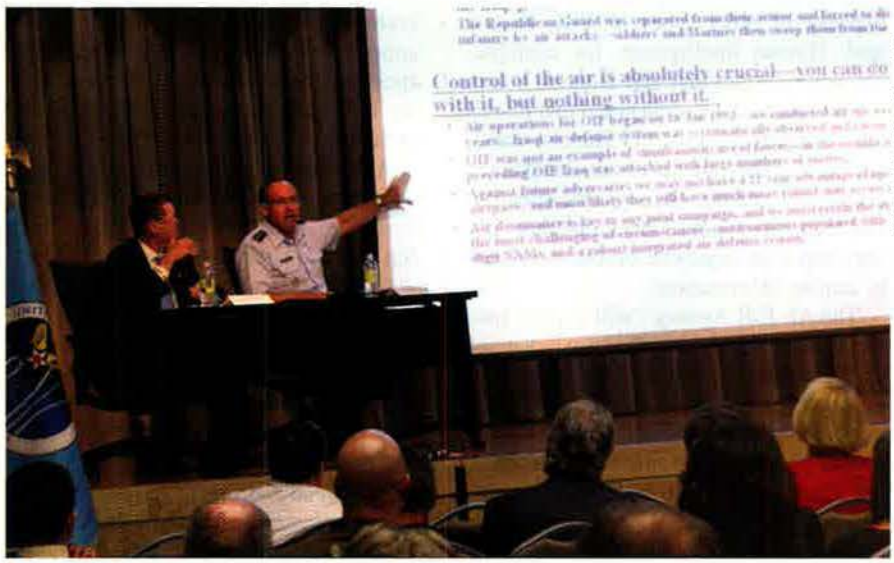
"Our Air Force is going to have to change the way they think about these platforms," he observed.

To a degree, that's already taking place. For the past five years, the Air Force has been buying Sniper and Litening targeting pods for its fighters, and is adding them on bombers as well. The pods were designed to improve electro-optical and infrared targeting of surface objects miles away, but provided the added bonus of streaming video that could be used for surveillance.

Full-motion video, Deptula said, has become one of the headline demands from battlefield commanders. The pods provided a capability not unlike the Predator UAV, and have been described as "nontraditional ISR."

An Air Combat Command spokesman said ACC is planning to acquire 835 advanced targeting pods, and production will continue beyond Fiscal Year 2012. More than 520 have been delivered.

"My stretch goal is that, in five years, there will be no term ... 'nontraditional ISR,'" Deptula said. "There will be just 'ISR,' and you will gain that capability




USAF photo by TSgt. Cohen A. Young

***Lt. Gen. David Deptula (gesturing at center), shown here at a Pentagon seminar, wants USAF to recast its notions of what constitutes ISR, operations, and strike.***

## The Once and Future ISR Aircraft

In recent years, the Air Force had planned to replace its three big ISR platforms—the E-3 AWACS, E-8 Joint STARS, and RC-135 Rivet Joint—with the E-10, which was intended to incrementally blend the capabilities of Joint STARS—which uses radar to map the ground and track moving vehicles—with AWACS, which surveys the airspace and tracks individual aircraft, and potentially the Rivet Joint, which collects signals intelligence.

The E-10 was also to be an airborne battle management system, or flying command post, and use the Multiplatform Radar Technology Insertion Program, or MP-RTIP, a fine-toothed, long-range mapping radar ideal for precisely locating ground targets and low-flying aircraft.

Over the last few years, owing to the cash demands of the wars in Southwest Asia, the E-10 has steadily slipped from being a viable program to a technology demonstrator and, in Fiscal 2007, disappeared completely. It was felled by the "demands of the immediate circumstances we find ourselves in," said Lt. Gen. David A. Deptula, the deputy chief of staff for ISR.

However, the E-10 remains something "the Air Force is very much interested in," he added.

"The issue is, when can we afford it, ... and when will we *have* to bring it on board." Deptula predicted there will be a "resurrection" of the system at some point in the future, because of its unique capability in defense against cruise missiles.

"It's something our nation's defense requires," he added.

from a variety of different platforms."

He noted that pressing fighters into the ISR role, while putting weapons on UAVs such as the MQ-1 Predator and MQ-9 Reaper, is blurring the lines between strike and ISR anyway.

Lt. Gen. Donald J. Hoffman, the Air Force's uniformed deputy to service acquisition chief Sue C. Payton, said at an August conference on UAVs that the Predator and Reaper are not even considered ISR platforms, even though that was what they were designed for. The new UAV squadrons being stood up at Creech AFB, Nev., and elsewhere are counted "as attack squadrons," he said, because that will be their primary mission.

That won't be the case with the RQ-4 Global Hawk family, at least for the near future. Although there have been some discussions about arming the Global Hawk, which flies at 65,000 feet, so far, the Air Force prefers that its payload be either sensors or fuel. Lower-flying attack aircraft can usually be vectored to a target discovered by Global Hawk.

The first seven Global Hawks of the Block 10 variety are "in the war right now, flying daily missions," Hoffman said. They can fly for up to 24 hours, providing a persistent view of targets of interest. They will be joined shortly by the Block 20, whose wings are larger, enabling both a greater payload to be carried and tripling its on-station time to three days.

The Block 20, Hoffman said, will be the basis for all future Global Hawk variants. The Block 20 will have electro-optical, infrared, and synthetic aperture radar capabilities.

Owing to its roots as a technology demonstrator—quickly rushed from experimental status to war use—Global Hawk is not easy to modify, Hoffman said, and it takes "major surgery to the central nervous system" to make changes to the aircraft.

It will be a major challenge to the Air Force to integrate Global Hawk, Predator, Reaper, and other unmanned systems that have "nonstandard architectures" into the Air Force worldwide network, Hoffman reported.

The Air Force expects to add 47 RQ-4Bs to its initial batch of seven RQ-4A Global Hawks. It is the intended replacement for the manned U-2, which the Air Force plans to phase out in a few years.

Although "counted" as strike platforms, the Predator and Reaper UAVs will still provide a large quantity of ISR data to the Air Force. Plans call for about 170 MQ-1 Predators and about 60 MQ-9 Reapers to be built, providing electro-optical and infrared imagery, as well as target lasing. Hoffman noted that the Reaper flies "twice as high, twice as fast, with 10 times the payload" as a Predator.

One area of confusion with the Predator-Reaper family, Hoffman noted, is that it's hard to find common definitions of their capability. The Air Force uses the term "orbit" to describe the number of drones needed to maintain 24-hour watch over a particular area. A term coming into vogue is a UAV "cap," but it is not well-defined, and has different meanings for different branches of the armed services.

"We're hoping to develop a common lexicon we can all use," he said.

Such would be one of the benefits of the Air Force's obtaining executive agency for UAVs.

In July, the Joint Requirements Oversight Council—made up of the vice chiefs of each service—decided to allow the Air Force to be the executive agent for UAVs, but the decision was still awaiting the input and signature of Defense Secretary Robert M. Gates in early August.

A common refrain from field commanders, Deptula said, is "give me more Predators," but what they really want, he said, is full-motion video, a capability that can be provided by more than 1,000 other UAVs now in the Southwest Asia theater.

"The issue is, how do we build an architecture that can rapidly task, retask, and share that information across the theater to where it's needed the most?" The Air Force, as executive agent, would network all sensor aircraft so the actual platform would be irrelevant, and users would simply pull down data, perhaps not even aware of where it was coming from.

Without executive agency, services may restrict access to UAVs. The Army, for

USAF photo by Steve Zapka

***Targeting pods not only add high precision to legacy aircraft, they can turn them into prodigies of reconnaissance as well. Here, a B-1B sports a Sniper pod.***

USAF photo by SSgt. Suzanne M. Jenkins

***SSgt. Jeffrey Hicks, with the 46th Expeditionary Reconnaissance Squadron, performs a flight inspection of a Predator in Iraq. Unmanned armed aircraft such as Predators and Reapers highlight the blurring lines between strike and ISR platforms.***

example, wants to reserve its Warrior UAVs—a close relative of the Predator—for use by individual divisions.

"Ownership at the division level means that if that division is not deployed, its assets are not deployed, so the nation doesn't have access to those assets," Deptula asserted. That doesn't jibe with the unrelenting demand for video surveillance.

### Near-Space Possibilities

"Concept of operations is a big piece of solving ISR demand in the FMV [full-motion video] arena," he said.

He also said the Air Force has no intention of forcing its own systems on anyone else. To prove it, USAF is buying two Warriors to test. If they prove superior to the Predator, "then we're going to buy them." The Warrior differs from the Predator in its size, power, and use of heavy fuel. Predator runs on aviation gas.

The Air Force continues to be interested in extremely high-flying UAVs—what are called "near-space" systems. Deptula said that, after an initial assessment, "near-space" was transitioned from Air Force Space Command to Air Combat Command because "it's more 'air' than it is 'space.'"

Hoffman reported that near-space is "very attractive" because of its potential to offer long dwell, but it would not be pursued for its own sake. Near-space capability must "earn its way" into the portfolio by offering something unique—something better or cheaper than Global Hawk at those same altitudes, or higher, with the desired sensor payload.

The Air Force has done experiments, he said, where a Global Hawk carried a data server, and those on the surface within line of sight could, with a handheld device, access imagery the UAV had collected over the previous month.

"Lots of potential, there," Hoffman noted.

He also noted that China's anti-satellite test has now proved that satellites are vulnerable, and near-space systems may be "part of the solution" if it turns out to be too costly to harden or protect satellites.

A huge element of national ISR capability is in space systems, an area about which the Air Force doesn't provide much detail. A big boost to the nation's ISR capabilities would be the Space Radar, an orbital constellation of radar satellites with enough power to keep detailed watch over areas of interest—with moving target recognition capability—almost indefinitely. Congress is interested, and has provided seed money to get the project going, but so far, the Air Force is not planning to retire anything else in anticipation of a Space Radar capability.

Deptula said he is building a relationship between his new position and the National Reconnaissance Office and Air Force Space Command.

"One of my goals is to ... make space part of the Air Force ISR enterprise to a degree that we haven't seen in the past," partly because the Air Force often held back and let the NRO and the rest of the intelligence community work out requirements and systems.

However, Deptula sees a greater need for Air Force involvement because of needs such as space situational awareness, which "sounds like another term for intelligence in space to me," he said. Deptula wants to ensure that the Air Force is a full partner in the space "enterprise" and that ISR planners both within and outside the service think of space, and not just "airborne things" such as Rivet Joint, Global Hawk, and U-2.

He added that his job will be to lay out "a vision for the future" and make sure the Air Force will meet needs as they come along. His job is not in directing investment.

Underlying all the efforts to rethink ISR is the need to keep it as a whole, and not a series of pieces, Deptula said.

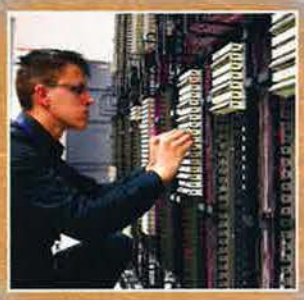
"Some people want to separate the intelligence from surveillance and reconnaissance, when in fact, all three are interrelated," he asserted.

"We conduct surveillance and reconnaissance to obtain intelligence. ... If you separate them, then how can you think about identifying the system requirements that provide the information we'll need 10, 20, 30 years from now?" ■

USAF photo by TSgt. Robert J. Horsman

***MSgt. Curtis Bodart confers with crew chiefs as they prep an RC-135 for a mission. Rivet Joints must get constant updates to keep up with changing technology.***

# Fly and Fight in cyberspace

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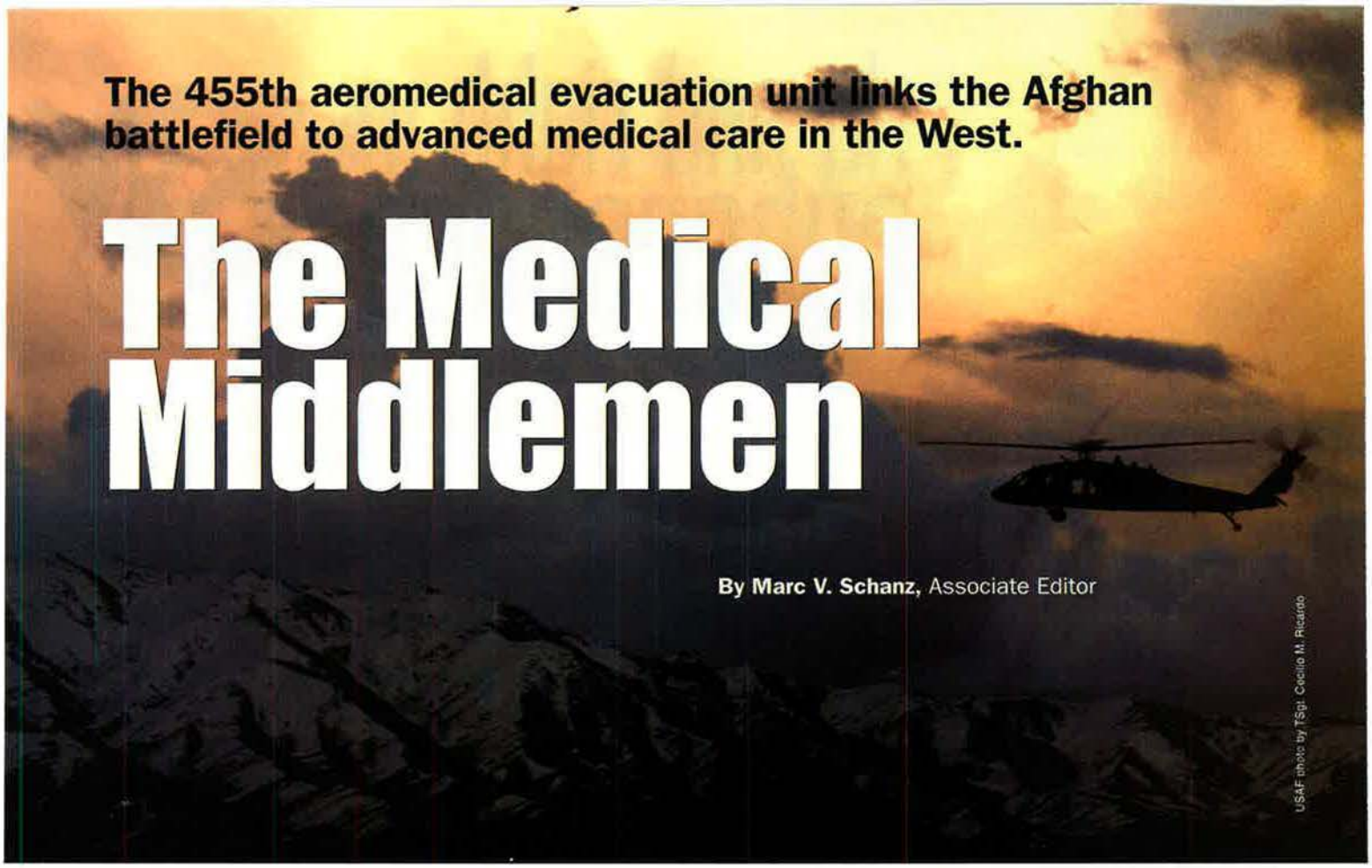
**The 455th aeromedical evacuation unit links the Afghan battlefield to advanced medical care in the West.**

# The Medical Middlemen

By Marc V. Schanz, Associate Editor



USAF photo by TSgt. Cecilio M. Ricardo

Maj. Paul Stroud's office, wedged in the back of a "b-hut" just off the flight line at Bagram AB, Afghanistan, began to gear up at about 1 a.m. The week's aeromedical evacuation craft, a KC-135 aerial refueler of the 791st Expeditionary Aeromedical Evacuation Squadron—had just arrived from Germany.

The tanker came to move the sick and wounded to a place where they could receive advanced care. For the troops at Bagram, it was a big event.

Stroud's small hut is home to the 455th Expeditionary Aeromedical Evacuation Flight, the only Air Force unit conducting the fixed-wing AE mission in Afghanistan. Stroud knew that, on this night, he would have a full load to put on board the tanker. At least one patient was said to be in critical condition and needed to get airborne just as soon as possible.

The 455th medical personnel and associated AE aircraft provide the vital link between the battle space and large medical facilities in Germany and the United States. US Army and Air Force helicopters bring in the wounded from battle in the rugged, mountainous interior of Afghanistan. The 455th stabilizes these patients and prepares them for evacuation.

In great measure, the phenomenal survival rate of injured personnel in the Global War on Terror—approximately 90 percent—can be traced to the training, integration, organization, and equipping of these aeromedical evacuation airmen. It is a highly demanding job, and many are volunteers: Air National Guard and Air Force Reserve personnel provide the bulk of the force's 31 AE squadrons, with only four in the active duty force.

Stroud himself came here as a volunteer from the Oklahoma Air National Guard. "Many of my airmen are new second lieutenants," Stroud said. "I don't mind volunteering and being away from home. I want to help mentor folks." He paused and then nodded. "It's been an interesting last six months."

The clock on the wall said it was 1 a.m., local time. The newly arrived KC-135 was getting looked over and refueled for the trip back to Germany. This was the eighth AE trip for a tanker into Bagram this year—a feat not possible even a year ago. At that time, the length and condition of the runway would not have accommodated such a large aircraft. Now, the runway has been lengthened and improved.

The goal on this night was to get everyone securely on board and into the air within two hours—the unit's best time so far, said Capt. Christopher Capozzolo, the chief flight nurse. The tanker would refuel, patients would be loaded, and checklists would be cleared, with the aircraft gone well before dawn.

Before the transportees departed the medical center for the aircraft, though, nurses triple-checked their patients, noting everything from dressings to medications. Everything had to be in order before the ambulances could pull up and load patients for the trip to the Bagram flight line.

The late night quiet pervaded the Craig Joint Theater Hospital. A couple of AE airmen entered the emergency room to check the status of patients leaving in just a few hours. Many in the hospital—Americans and Afghans—bore the awful scars of battle. They included victims of roadside bomb blasts, rocket-propelled grenade attacks, and land mine explosions. All were recovering in the intensive care unit of the new $14 million hospital.

Across the room was a sleeping Afghan

child, his midsection wrapped with a large white bandage. The boy's name was Shahidullah, nine years of age. His uncle, Barhan, sat near the bed. He quietly explained the situation to a translator.

Shahidullah, said Barhan, was hit by a truck near the village of Asadabad and was near death. Relatives took him to the US outpost in town. He was stabilized, then flown to Bagram. He had lost both legs, below the knee, but one of the medical technicians said he was likely to get prosthetic limbs.

said, but he added that civilians caught up in the fight are not as lucky.

Iddins oversees the medical care for coalition forces, Afghan nationals, and others under the purview of Combined Joint Task Force-82. In all, there are five hospitals and six forward surgical sites across the country under the umbrella of Task Force Med.

In the hut, most airmen of the 455's operations team had been awake for 18 hours, preparing for the night's mission. A pot of coffee percolated as Capozzolo

continuing to treat patients as they move through the pipeline from Afghanistan to Germany and not leaving them in the combat zone until they are stable. This is no simple task, but the AE airmen have mastered it.

"It has reached a state of the art here," Iddins said.

Each step of the process—hospital to flight line, flight line to critical care teams on the aircraft, from the aircraft to medical centers in Landstuhl, Landstuhl to the US—adds a new increment of medical care. Aircraft and medical technology used in the transportation of patients are linked together like never before.

Stroud emphasized the emergence of the concept of Critical Care Air Transport Teams. "It has created an ICU on board any aircraft we use," he said. The

USAF photo by SSgt. Craig Seals

***Opposite: Helicopters (such as this UH-60 Black Hawk) bring the wounded to the Bagram theater hospital. Left: SSgt. Eric Emmett, a medical technician of the 455th Expeditionary Aeromedical Evacuation Flight, gives the signal that his patient is secure.***

At Craig (named for SSgt. Heathe N. Craig, an Army medic who was killed in Afghanistan in 2006) around 150 surgeries and 2,200 outpatient visits occur every month. Col. Bart Iddins, commander of the medical task force (Task Force Med), noted that there have been 250 major operations in just the past three months. More often than not, children and adults are admitted to the hospital after IED blasts or land mine explosions. Burn and blast injuries are common, Iddins noted.

### Body Armor Works

While direct fire from enemy forces still kills, Iddins credited the protective equipment used by coalition forces with cutting down on the number of life-threatening gunshot and shrapnel wounds. "Body armor does an amazing job of protecting that soldier," Iddins

and his crew prepped for a return to the hospital.

Moving around sick and wounded persons is no snap, especially when they're being placed on a 10-hour nonstop flight out of a combat theater. "There are several stresses of flight on the body," Stroud noted.

Noise, heat, and pressure can all conspire to affect a patient's condition, depending on the type of injury or type of medical treatment. Crews and critical care airmen have to keep track of barometric pressure in a patient's abdomen, for example, because a change can send a stable patient south in a hurry. One of the benefits to getting tankers in the rotation: It offers more space for high-technology life support equipment, which helps medical airmen better monitor patients.

All of these procedures are part of improving "en route care"—that is,

three-person teams help to evacuate patients who are not yet stable but are in need of fast and sophisticated medical attention.

These new teams can reconfigure the passenger compartments of a variety of mobility airframes—C-130, KC-10, KC-135, or C-17—for installation of critical care equipment. While AE crews wear wings and CCATT members do not, their contribution has been revolutionary, said the commander.

Most severely wounded service members are moved to Germany then back to a Stateside hospital within three days.

On this particular night, the KC-135 was primed for a straight 10-hour shot from Afghanistan to Ramstein Air Base in western Germany. Plans called for it to pick up the patients and get moving.

The radios in the hut signaled that the tanker was fully fueled. There was a full

complement of 20 patients. Most of their medical problems were not directly related to combat. One was a cardiac patient, but a few would require specialized en route care, which would be continued after they arrived at the Army's Landstuhl Regional Medical Center in Germany. One patient was recovering from head trauma as a result of an improvised explosive device (IED) explosion.

### Pace Picks Up

Capozzolo paused to go over a checklist one more time, and then headed out of the emergency area to pick up the rest of the AE crew for the mission. Activity at the hospital began to pick up momentum.

Several patients were in the hallway leading to the ambulance parking area. Some were in chairs, others on stretchers. Three critical care airmen prepped an Army sergeant who had suffered a heart attack. Two other medical airmen walked over to the triage area and explained the flight rules to patients.

Two Army ambulances idled outside the loading dock while stretchers were wheeled out and loaded by the hospital personnel. The dock, empty and quiet just a few minutes ago, had filled up with uniforms and was humming with the steady pace of moving the sick and wounded out of the hospital.

Two more ambulances had lined up next to the first two, awaiting the rest of the patients and the AE team that was going to Germany. Capozzolo left to prepare the Halvorsen aircraft loader in advance of the patients.

The ambulance then headed for the flight line. Tonight's AE crew was augmented; it had two additional flight nurses and three technicians because of some special needs. In addition to cardiac patients, there was also a psychiatric patient and one with a serious kidney ailment.

Loading a KC-135E with patients takes considerable time. The Halvorsen loader, not the standard aircraft ramp, served as the intermediary bridge between the ambulance and the passenger compartment. Using the loader required close coordination between the multiple ambulances.

Meanwhile, the flight crew was back at the aircraft, making sure everything was in order. The flight commander, Maj. Chuck Remboldt of the 190th Air Refueling Wing, Kansas ANG, made his way past the floodlights that were illuminating the tanker to one of the AE trucks. "We were looking for a mission about a month ago, and when we had an opportunity to do this, we jumped at it," Remboldt said. The unit had never done an Afghan run.

He said that the crew had been going over their AE procedures in preparation for getting the wounded back, trying to keep the aircraft's cabin pressure low and the altitude steady and level. "You have to keep your mind on the people in the back above all else," he noted.

One of the AE airmen shouted out the time—3:15 a.m.—just as the final ambulance pulled away from the Halvorsen. Remboldt consulted briefly with the AE crew, and then climbed up on the last lift of the Halvorsen. The loader slowly backed away.

Fifteen minutes later, the operations team was back at the hut, waiting for takeoff. "It went pretty well, right?" Capozzolo asked. "I'll admit, this is a tough plane to load for young crews."

Over the radio, the tower gave the tanker clearance. Two minutes later, the KC-135 slowly lifted off in the darkness with the patients bound for Germany and, eventually, home. ■

USAF photos by SSgt. Craig Seals

***Top, Capt. Christopher Capozzolo (l), the chief nurse of the 455th EAEF, discusses a patient manifest with Army Spc. Renee Castillo of the 396th Combat Support Hospital. Above, Capozzolo tells TSgt. Thomas Sullivan (l) and TSgt. Dexter Romias (r) where to place litters of medical equipment.***

# The Warthog: Modernized...and Operational!

From the outside, the revered "Warthog" appears unchanged. But to the warfighters operating the new A-10C, the changes are transformational. Major development and integration of new systems enable pilots to plug into the battlefield "net" for vastly improved situational awareness, deliver smart weapons and fight more efficiently. As the A-10C achieves operational status, the A-10 Prime Team congratulates the U.S. Air Force, Air Force Reserves and Air National Guard for reaching this important milestone. We wish the A-10C pilots and crews fair skies for their critical mission.

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HOFFA IS ELECTED TEAMSTERS HEAD; WARNS OF BATTLE

FALUBUS CHIEF ARES HIS STAND TO LEES

ARGENTINA TAKES EMERGENCY STEPS

SATELLITE SIGNAL BROADCAST HERE

Image via thunderbay.org

*On the morning of Oct. 5, 1957, the* New York Times *(above) gave Sputnik "second coming" treatment. The actual launch (below) came a few hours earlier, at 10:28 p.m. (Moscow time) Oct. 4, 1957, at the Baikonur Cosmodrome in the Kazakh Soviet Socialist Republic.*

via sovfoto.com

On the first Friday evening in October 1957—50 years ago this month—the American nervous system got an enormous jolt. The shock came from news reports about Sputnik, a beach ball-sized silver sphere that had just begun whizzing through space at 18,000 mph, orbiting Earth every 96 minutes. It was man's first satellite, and it was not American. It was Soviet.

This was a stunning and historic achievement. It was also disturbing, recalled Roger D. Launius, the former chief historian of NASA and now chairman of the Division of Space History at the National Air and Space Museum. "Words do not easily convey the American reaction to the Soviet satellite," Launius wrote. "The only appropriate characterization that begins to capture the mood ... involves the use of the word hysteria."

The world was caught off guard by the USSR's Oct. 4, 1957 launch of Sputnik. People were fascinated by the object described as "an elegant ball ... antennae thrown back like a galloping horse." Its beeping signal, clearly audible to ham radio buffs around the world, mystified scientists and lay persons alike. It had a menacing air, and it went on for weeks.

At first, President Dwight D. Eisenhower and his administration made light of Sputnik, calling it "a silly bauble" and "a neat scientific trick," but they drastically misjudged the public, which feared it as a Pearl Harbor-type event. Americans saw Sputnik as proof of a Soviet power to launch nuclear warheads at US cities. In London, the *Guardian* claimed, "The Russians can now build ballistic missiles capable of hitting any chosen target anywhere in the world."

The fear also focused on America's status. In beating Washington to the punch in space, the Kremlin really hit us where it hurt—in our technological

# Sputnik Shocked rld

**With the success of Sputnik 1, the Space Age was born, and the Space Race was about to begin.**

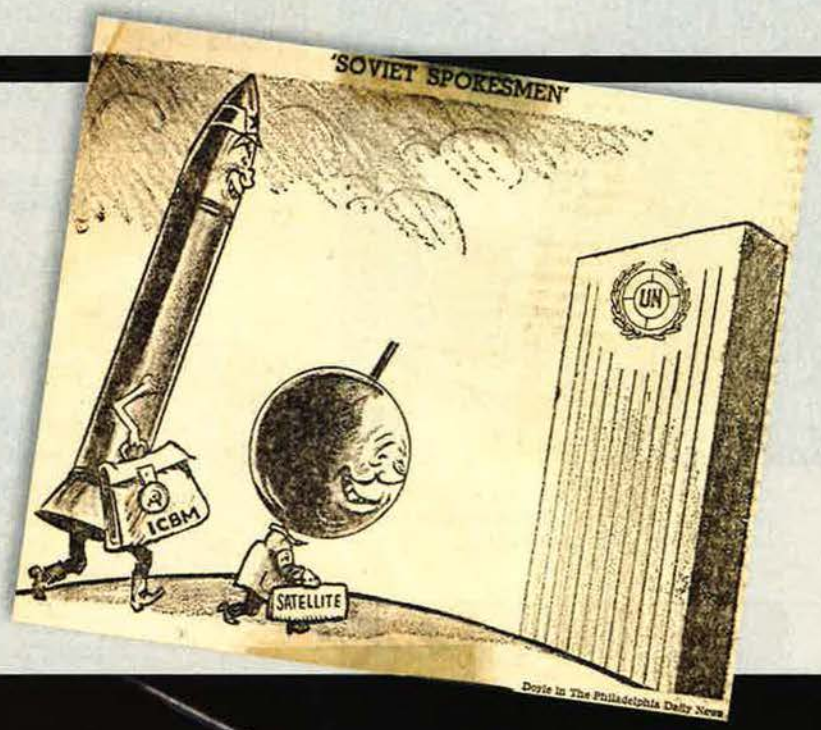
ego. Sputnik instantly catapulted the Soviet Union onto the world's scientific top shelf, raising doubts about America's own standing. For Premier Nikita Khrushchev, it was a tremendous propaganda coup, greatly enhancing the USSR's image. This effect was intensified by subsequent Soviet space successes and spectacular American failures.

That Sputnik had a dramatic and lasting effect on this nation is by now well known. After initial soul-searching, the US embarked on a massive and determined space effort. The Pentagon formulated a huge program. On the civilian side, newly created NASA did the same. The aerospace industry exploded. Colleges were flooded with new engineering students eager to take up the Russian challenge. Public education turned hard toward math and science curricula. Sputnik may have started the Space Age, but America created the Space Race. Soon, the US was to leave Moscow in the dust.

The passage of 50 years has effaced much of the Sputnik imprint. Indeed, from the vantage point of 2007, 1957 looks like a kind of lost world. The Soviet Union itself no longer exists. No one fears Moscow's space program. The United States long has been, and is today, the world's undisputed technological giant, and it will be for a long time to come. The march of socialism, so fearsome in the 1950s, ground to a halt long ago.

We herewith present archaeological evidence of this lost world. It's hard to believe it ever existed, but it did.

*—Robert S. Dudney*



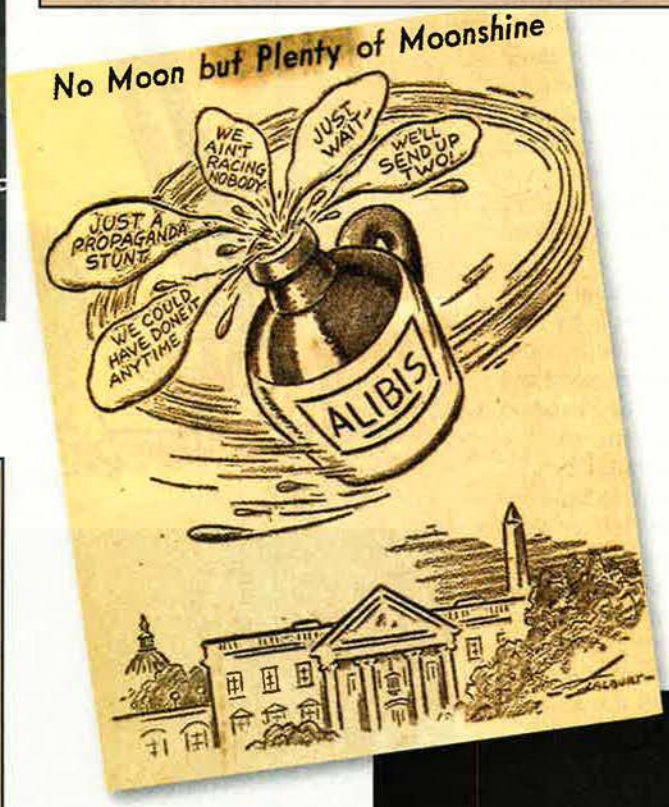


***The military aspect of Sputnik was grist for numerous cartoons, such as the one above. Right: Soviet technician tweaks the actual spacecraft shortly before launch.***

NASA photo

## Sputnik Aftershock—It Was a Tough Year

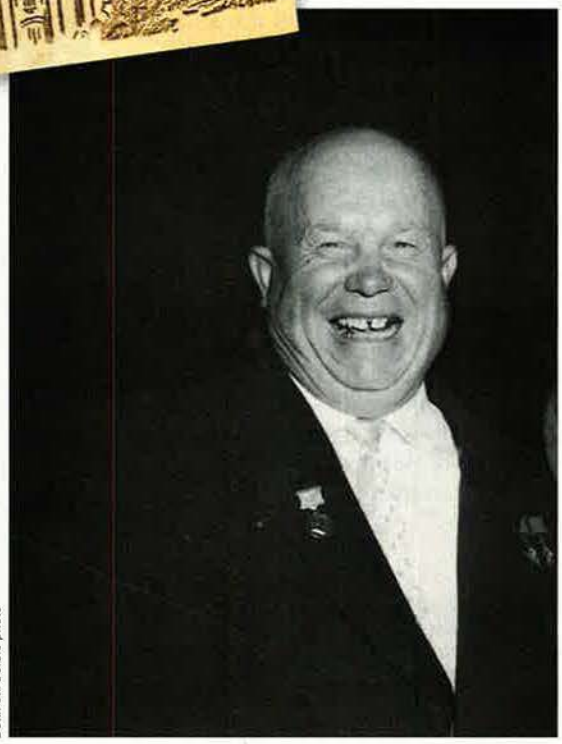
**Oct. 4, 1957.** USSR launches Sputnik 1.
**Nov. 3, 1957.** USSR launches Sputnik 2, with dog Laika.
**Dec. 6, 1957.** US Vanguard explodes on launchpad.
**Jan. 31, 1958.** US launches Explorer 1, first US satellite.
**Feb. 3, 1958.** USSR tries, fails, to launch Sputnik 3.
**Feb. 5, 1958.** Vanguard fails for the second time.
**March 17, 1958.** US successfully launches Vanguard 1.
**April 28, 1958.** Vanguard fails for the third time.
**May 15, 1958.** USSR launches Sputnik 3, components fail on orbit.
**May 27, 1958.** Vanguard fails for the fourth time.
**June 26, 1958.** Vanguard fails for the fifth time.
**Sept. 26, 1958.** Vanguard fails for the sixth time.




*Above: "Exploded" view of satellite. Right: Typical cartoon lambasting Washington's excuse-making.*

## Sputnik Specs and Stats

**Name:** Sputnik 1
**Meaning:** Satellite
**Operator:** Soviet Union
**Launch:** Friday, Oct. 4, 1957
**Re-entry:** Jan. 4, 1958
**Diameter:** 23 in
**Weight:** 184 lb
**Shape:** spherical
**Material:** polished aluminum
**Transmitters:** two radios
**Antennas:** four whip-type
**Apogee:** 559 mi above Earth
**Perigee:** 155 mi above Earth
**Speed:** 18,000 mph
**Orbit Period:** 96 min
**Total Orbits:** about 1,400
**Launch Vehicle:** R-7
**Site:** Baikonur Cosmodrome
**State:** Kazakh S.S.R.



Bettman/Corbis photo

*Soviet Premier Nikita Khrushchev.*

## Losing Ground

LBJ Aide George E. Reedy: "It took them four years to catch up to our atomic bomb and nine months to catch up to our hydrogen bomb. Now we are trying to catch up to their satellite."

## How Moscow Broke the News

"Tass Report"
Pravda, Oct. 5, 1957
Moscow, USSR

As a result of very intensive work by scientific research institutes and design bureaus, the first artificial satellite in the world has been created. On Oct. 4, 1957, this first satellite was successfully launched in the USSR. According to preliminary data, the carrier rocket has imparted to the satellite the required orbital velocity of about 8,000 meters per second. ...

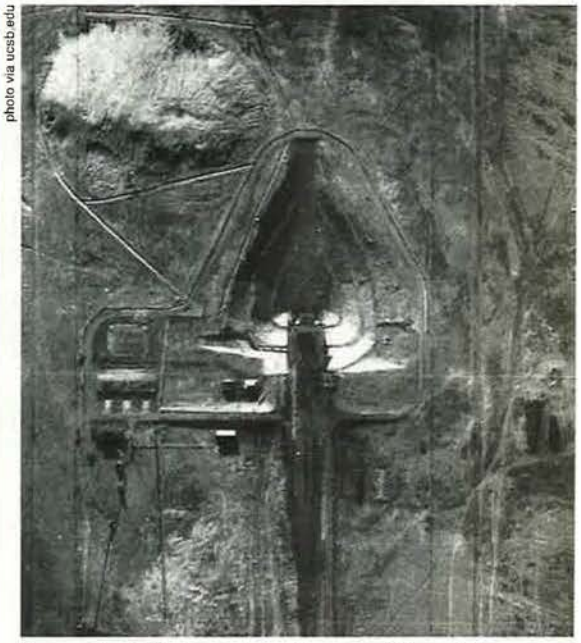
According to calculations which now are being supplemented by direct observations, the satellite will travel at altitudes up to 900 kilometers above the surface of the Earth; the time for a complete revolution of the satellite will be one hour and 35 minutes; the angle of inclination of its orbit to the equatorial plane is 65 degrees. On Oct. 5 the satellite will pass over the Moscow area twice—at 1:46 a.m. and at 6:42 a.m. Moscow time. ...

The satellite has a spherical shape 58 centimeters in diameter and weighs 83.6 kilograms. It is equipped with two radio transmitters continuously emitting signals at frequencies of 20.005 and 40.002 megacycles per second (wave lengths of about 15 and 7.5 meters, respectively). The power of the transmitters ensures reliable reception of the signals by a broad range of radio amateurs. ...

There are no data at present for the precise determination of the satellite's lifetime and of the point of its entry into the dense layers of the atmosphere. Calculations have shown that owing to the tremendous velocity of the satellite, at the end of its existence it will burn up on reaching the dense layers of the atmosphere at an altitude of several tens of kilometers. ...

The successful launching of the first man-made Earth satellite makes a most important contribution to the treasure-house of world science and culture. The scientific experiment accomplished at such a great height is of tremendous importance for learning the properties of cosmic space and for studying the Earth as a planet of our solar system. ... ■

photo via ucsb.edu



***Above: Sputnik launchpad (snapped by a US Corona spy satellite in early 1960s). Below: After Sputnik, Khrushchev took bows around the world for months.***


via sovfoto.com

***Listeners at a Moscow radio control post monitor the incessant "beep beep beep" electronic signals pouring out of Sputnik.***

## High Moment

When Sputnik successfully entered Earth orbit and its radio signal was heard around the globe, R-7 chief rocket designer Sergei Korolev exulted: "I've been waiting all my life for this day!"

image via kankakee area radio society, w8az.com


AMONG LOCAL radio amateurs listening for signals from Russia's circling man-made moon is W. G. Williams, 372 N. Greenwood Ave. Many radio hams in the area are tuned in on the proper frequency, but none reported hearing a signal.

W9VQC

## Hams Here Listen For Space 'Talk'

Local ham radio operators kept a listening vigil to try and signals from Russia's cir earth satellite. One Kankakee reported that he might have ted it early Saturday.

Clint Platt of 277 N. Sixth A a night engineer at St. Mary's H pital, said he saw something fl through the gray morning sky few minutes before 6 a.m.

Platt said that just before walked outside he had heard a dio broadcast about the man-ma moon.

While glancing toward the nor Platt said he saw a light move high speed from west to east acro the sky from horizon to horizon.

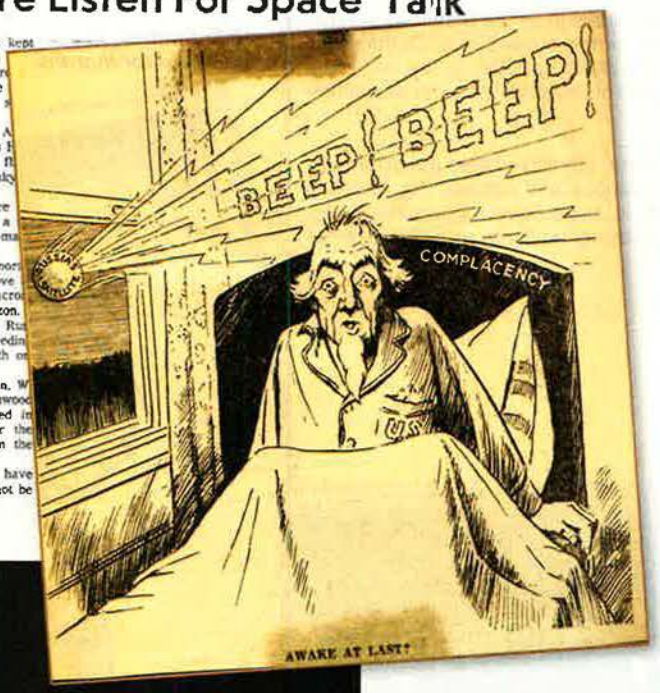
Scientists, however, say the Rus sian space object is speedin around Earth in a north-south or bit.

One local amateur radioman, W G. Williams, 372 N. Greenwoo Ave., said he has been tuned in periodically to try and hear the radio signals emanating from the satellite.

Williams said he "might have heard it" once but he could not be sure.

photo via sovfoto.com

***Left: Illinois newspaper covers the local "beep" phenomenon. Above: R7 booster (number 8K71PS) hours before blastoff. The R7 began life as an ICBM, but achieved its greatest fame as a launch vehicle.***




### His Verse Was Worse

Sputnik moved some to jeers, some to fears, some to grim determination. It moved Michigan Gov. G. Mennen Williams, a Democrat, to poetry. Here, he throws a veiled jab at President Eisenhower, whom he evidently viewed as an amiable golf-playing slacker:

*Oh little Sputnik, flying high*
*With made-in-Moscow beep,*
*You tell the world it's a Commie sky*
*and Uncle Sam's asleep.*
*You say on fairway and on rough*
*The Kremlin knows it all,*
*We hope our golfer knows enough*
*To get us on the ball.*

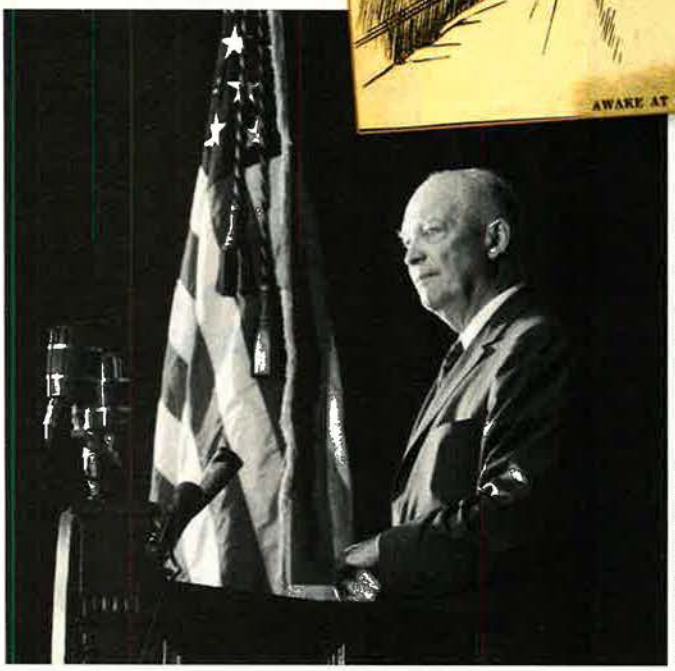


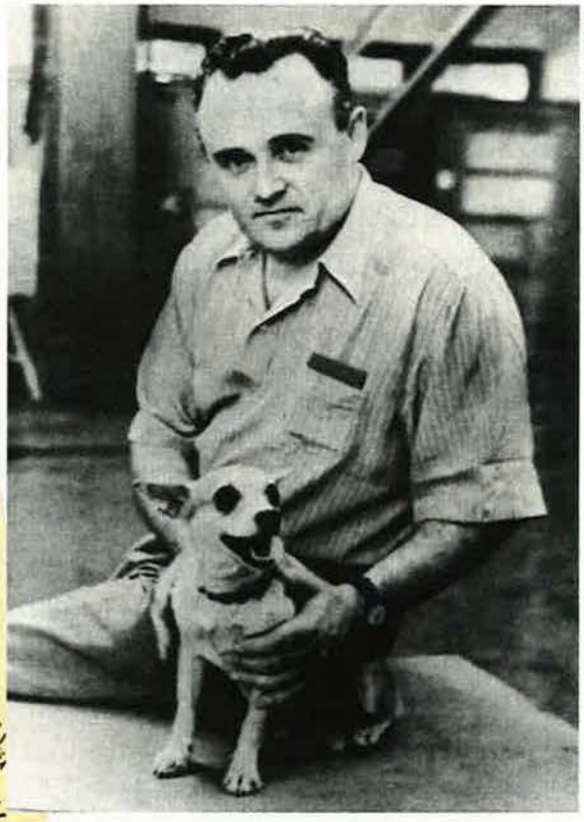
Photo by Wally McNamee/Corbis

***Above: Sudden and rude awakening was a common theme among political cartoonists. Left: President Eisenhower speaks shortly after the Sputnik surprise.***


***Commemorative stamp. In its upper left corner: "4 October 1957." Lower right corner: "First in the world Soviet artificial Earth satellite." Bottom: "40 kopeks, Mail USSR."***

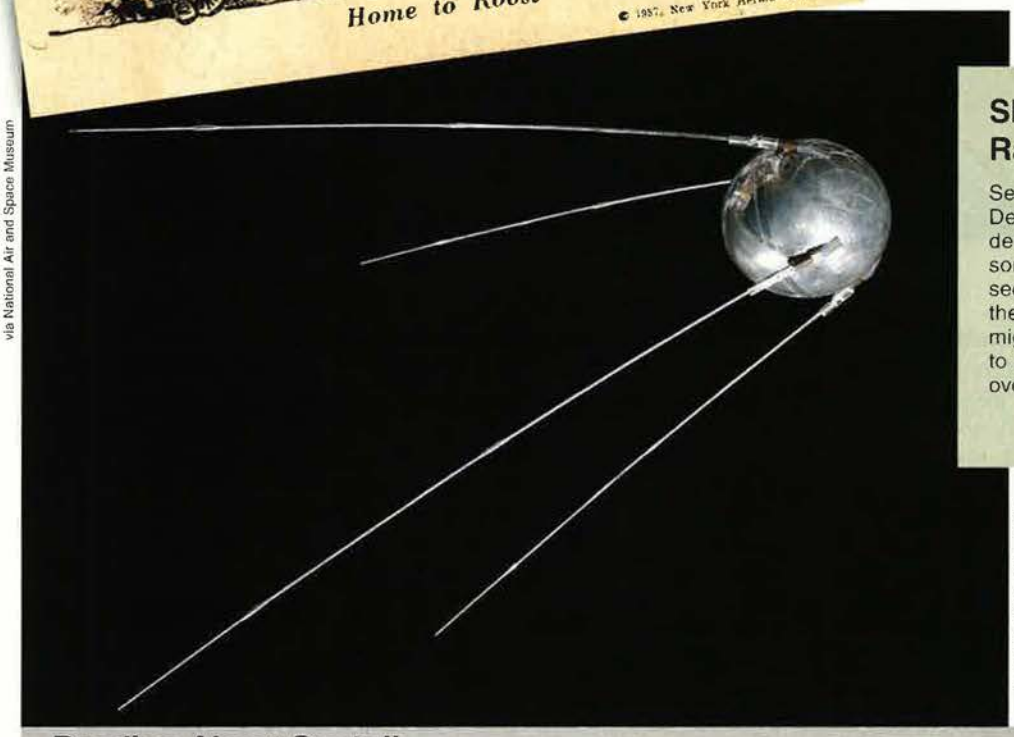
### What Do You Get When You Cross Sputnik With Jack Kerouac?

Herb Caen, a columnist with the *San Francisco Chronicle* and former Army Air Forces airman in World War II, was inspired by Sputnik when he coined the term "beatnik" in an April 2, 1958 story about the so-called Beat Generation of writers and artists.

NASA photo by Asif Siddiqi

***Left: Cartoons reflected US technological fears. Above: Sergei Korolev, head of the project, in 1954. He holds a dog that just returned from a suborbital flight.***



via National Air and Space Museum

## Shock and Awe at the Ranch

Sen. Lyndon B. Johnson, the Texas Democrat who would become President, recalled his reaction: "Now, somehow, in some new way, the sky seemed almost alien. I also remember the profound shock of realizing that it might be possible for another nation to achieve technological superiority over this great country of ours."

***Soviet test pilot Marc Gallai: "Today, after decades have passed, we simply cannot imagine the first Sputnik to be anything other than what it was: an elegant ball ... with antenna thrown back like a galloping horse."***

## Reading About Sputnik

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Divine, Robert A. *The Sputnik Challenge.* New York and Oxford: Oxford University Press, 1993.
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Launius, Roger D. *NASA: A History of the US Civil Space Program.* Malabar, Fla.: Krieger Publishing Co., 1994.
McDougall, Walter A. *The Heavens and the Earth: A Political History of the Space Age.* New York: Basic Books, Inc., 1985.
Roman, Peter J. *Eisenhower and the Missile Gap.* Ithaca, N.Y.: Cornell University Press, 1995.

# Desert Airlift

**Up against the elements and old airplanes, air and ground crews somehow manage to hold it all together.**


**By David Wood**

**Looking** for trouble under the squat hulk of a C-130 airlifter waiting to take off from Kuwait, SSgt. Michael James paused in the shadows beneath the tail. He cranked back his head, looked up to a point 15 feet above him, and squinted at a sliver of sky that was showing up where he thought it shouldn't.

James, a 32-year-old from Ashland, Ky., is a veteran C-130 crew chief. His years on duty have given him an exasperated fondness for the old Hercules—and a keen awareness of potential problems. He glared at the crack between the horizontal stabilizer and elevator. The scorching dull yellow sun sent its rays back through the tiny gap.

James heaved a heavy sigh. "That's just wrong," he said to a young airman standing nearby. "Go get the ladder."

Two platoons of infantrymen had been standing nearby, waiting to hitch a ride back to Iraq. They shifted from one boot to another, smoking and watching. Airmen swarmed over the aircraft, which has been in continuous service since Lyndon B. Johnson whipped Barry Goldwater in a Presidential election—that is, since 1964. Forty-three years later, on a parking apron near Kuwait's border with Iraq, the soldiers knew it would be a long afternoon.

So goes a little noticed war that sets a dedicated band of C-130 air and ground crews and technicians against the relentless effects of time, weather, and hard use on USAF's best-known airlifter. Sometimes it's hard to tell who's winning.

The wars in Iraq and Afghanistan have brought attention to soldiers and marines, who are taking lots of casualties. Less noticed are the men and women who provide the air bridge enabling them to fight as they do. No other military in the world can fly people and cargo as far and as fast and as efficiently as can the American military. No one else can accomplish the astonishing choreography that enables C-130s to ferry rifles, spare tires, computer paper, blood, cash, ammo, and thousands of other items to bases around Iraq, and then shuttle weary troops out to Kuwait to meet homebound C-17s that gas up twice with tankers, orbiting at the right places and the right times, on their way back to American bases.

In addition, no one else could suddenly rescramble all of that careful timing to divert a C-17 into Balad Air Base in Iraq to transport a terribly wounded marine

*Opposite: Sgt. 1st Class Ricky Bryant carries his gear onto a USAF C-130 in Afghanistan. Right: A Hercules lands at a remote Afghan location.*

USAF photo by SSgt. Aaron D. Allmon II

to Kuwait and on to the National Naval Medical Center in Bethesda, Md., with global tanker schedules rejiggered to support the marine's flight home. That is exactly what airmen at the Tanker Airlift Control Center (TACC), Scott AFB, Ill., did last spring.

The Air Force's unmatched mobility force, however, is up against some serious problems. Old aircraft such as the venerable C-130 are wearing out, just as the demand for airlift has risen dramatically at busy air bases feeding into Iraq and Afghanistan and the swarming wartime bases in those countries themselves.

Airmen say that it is like driving a 1964 Chevy on a daily work commute; you can do it, but the operating cost is high. The expense of running a fleet of C-130s is accelerating steadily, and concern about their stamina in this long war goes deep. This spring, Secretary of the Air Force Michael W. Wynne told a House panel about his concern that the Hercules' wings will "crack and fall off." The E models, which the Air Force began buying in 1962, are restricted from flying in Southwest Asia. Even the MC-130Es used in special operations force missions cannot exceed 90 flight hours without undergoing a major inspection. Maintainers pull their engines and strip the skin from the wings, a process that takes up to 36 hours.

## Heroics Not Enough

"This is some tired iron," said Maj. Gen. Ronald R. Ladnier, TACC commander.

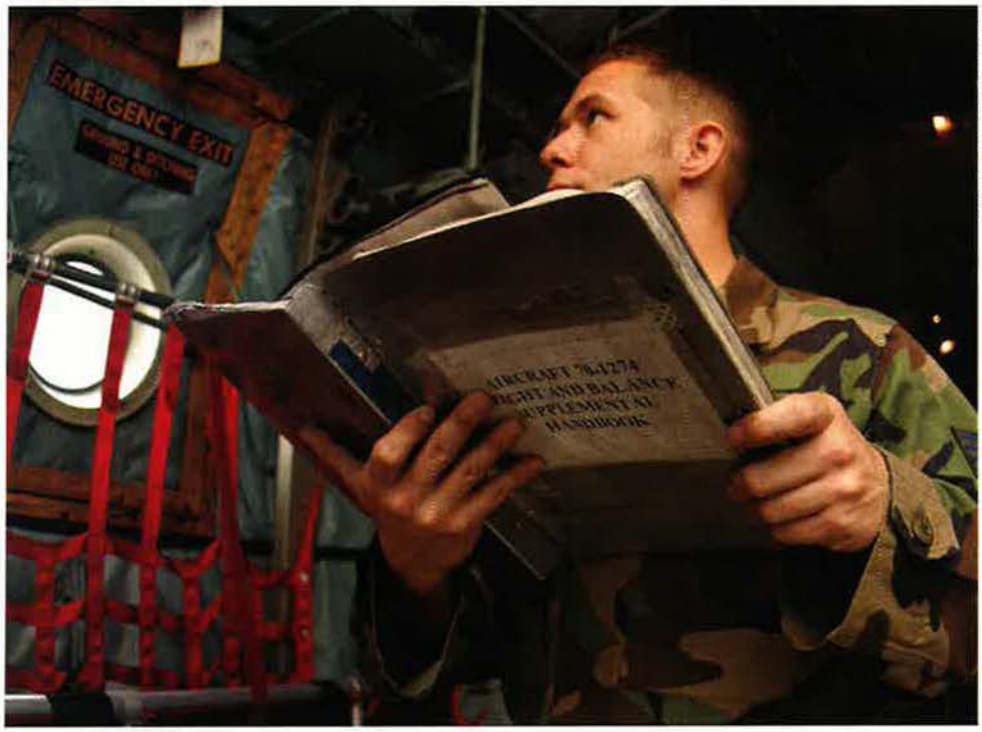
Even with heroic labor and inspections, and with crews working long hours in the stupefying 130-degree heat and choking dust, there just aren't enough mobility airplanes to fill the need in Southwest Asia. In the entire US Central Command area, one finds just 40 theater-range C-130s and 20 longer-legged C-17s. It is no surprise that the C-130s are struggling, but senior USAF officials note that even the new C-17s are starting to show the effects of fatigue.

"I wonder if we do have enough airlift," Ladnier said. "Every day, we rack and stack requests and support them until we run out of aircraft." Ladnier keeps a chart titled, "Regrets"—which, he explained, lists those he has told, "Sorry, can't move you today; we are out of airlift."

Few aircraft are worked harder than the ubiquitous C-130, which first flew as a prototype in 1954 and in the ensuing years has seen action in just about every war theater in the world. That history makes good stories. For example, a C-130 recently parked on the apron at a base in Kuwait is said to be the same one that took a mortar in one engine while hauling marines out of Khe Sanh in early 1968. After the airplane sustained more battle damage, the story goes, USAF replaced all four of its engines and both of its wings, and it is going strong today in the Gulf.

What keeps it all working is a stubbornly dedicated collection of air and ground crews that refuse to accept defeat in the face of unexpected breakdowns, enormous dust storms that fling rocks into engine intakes, or the blowtorch heat that bakes dirt onto compressor blades so hard it has to be chiseled off.

Take, for example, a recent C-130 midnight run from a Persian Gulf nation




USAF photo by A1C Kenny Holston

*TSgt. Jerry Peterson, 86th Maintenance Squadron, performs a weight and balance check on a four-decade-old C-130.*

DOD photo by TSgt. Cecilio M. Ricardo

*A1C Josh Huffman drops a box of leaflets from a C-130 into the remote southeastern mountains of Afghanistan.*

(it must remain unidentified) to Baghdad. The flight, tagged as Chrome 31, was to go from Baghdad on to Balad, al-Taqaddum, and al-Asad air bases, and then back to Baghdad and on to the trip's origination point.

Just as the airlifter touched down in Baghdad with a belly crammed with combat-loaded troops, its No. 3 engine flamed out and went dead. That problem cropped up after the airlifter's self-contained navigation system flight computer blew out, its radar malfunctioned, the navigator's headset stopped working, and the air-conditioning failed. With onboard temperature spiking to 110 degrees, Chrome 31 bucked and heaved through gusty crosswinds on its final approach. One after another, the passengers became violently ill.

## Out of Options

"Uh-oh, we have sympathetic puking," one of the loadmasters reported to the flight deck.

"OK, I am about out of troubleshooting options," declared Chrome 31's exasperated flight engineer, 28-year-old SSgt. David Baker.

Chrome 31's flamed-out engine seemed to be taken as a personal insult by engineer Baker, a bearish man who radiates a huge amount of nervous energy. On the ground, as the three good engines spun down, he bolted from his seat and soon had opened an engine hatch, through which he poked and prodded the engine under the glare of floodlights attracting swarms of flying insects.

"We have very little maintenance [support] here," said a truck driver who came around to watch. In a demonstration of his meaning, he held his thumb and forefinger about an inch apart. What with regular mortar and rocket attacks, he went on, "they don't want to keep nothin' on the runway too long, you know?"

Meantime, a long line of combat troops had formed up, preparing to board. Chrome 31 was to be their way out of Baghdad for two weeks of leave, and they were ready to go. They were so close, and yet ... Baker cursed and fumed at the engine. Soon, someone passed the word that the flight would be delayed, and the disappointed travelers shuffled away to wait. Soon enough they were back. Baker slammed the hatch shut, the engines roared back to life, and Chrome 31 was back in business. What was the problem? Baker shrugged. "Don't know," he said.

Air and ground crews seem to take the problems in stride. Peering into a C-130 wheel well during a preflight check, SrA. Joshua Putrzenski was philosophical. "This wasn't first on my list," he said, "but it's part of the deal."

The heat, dust, monotony, and absence of friends and loved ones grate on the airmen. In addition, they are bemused at what they perceive as a gulf between the sense of mission that they feel and the apparent lack of American public support for the war effort. "Nobody wants to be here—it sucks," said Capt. Jeffrey Downs.

The state of the airplanes themselves is worrisome. US troops are riding into combat in rickety airplanes first designed in the early 1950s. Part of the reason is the incessant demand. The Air Force has been on a war footing, without let up, for the past 17 years, and the pace of "normal" global operations has busted all previous calculations about the useful life of airframes and engines and other components.

The Air Force plans to spend $32 billion on airlifters and tankers over the next four years, but progress has been slowed in recent years by cost growth


USAF photo by TSgt. Cecilio M. Ricardo Jr.

*Aerial porters assigned to the 332nd Expeditionary Logistics Readiness Squadron load bundles of water and MREs onto a C-130 at Balad AB, Iraq.*

USAF photo by Sgt. Craig Seals

*A C-130 Hercules crew chief from the 455th Expeditionary Maintenance Group marshals a C-130 onto its parking spot on the flight line at Bagram AB, Afghanistan.*

and delays in some critical aircraft programs, not to mention an overall lack of funds for critical modernization and upgrades.

All of these problems leave the airmen struggling with an increasingly aged fleet. Across the Air Force, the average age of airplanes is 24 years, up from eight years in the course of a single generation. Maintenance costs are skyrocketing, according to Air Force officials. Each year, the Air Force pays $10 billion to fix old airplanes it had planned to junk, but is forced to keep flying. That's $10 billion it doesn't have to buy new airplanes. And that leaves the C-130s, climbing past four decades of air turbulence and hard landings with heavy loads, as the critical link in the war.

Their gun-metal gray fuselages are dented and scarred. Over the years, airmen have added homey touches—an iPod wired into a headset, a cupboard strapped to the cockpit settee fashioned from three-quarter-inch plywood—but it seems like a losing battle. A1C John Kolakowski and SSgt. Jacob Pomerenke struggled recently to replace cockpit windows on a 39-year-old C-130 damaged in a sandstorm. They had to carefully remove screws that had been tightened when their fathers were children, but the screws quickly disintegrated into dust.

## Zero Tolerance

Despite such challenges, the ground and air crews stationed at a handful of bases around Southwest Asia achieve astonishing mission effectiveness rates. A large reason is motivation: Every pound of cargo that goes by air doesn't have to be carried by truck convoy, and that means fewer American troops are at risk of death and injury from roadside bombs planted in their paths.

And what the C-130s carry into Iraq is critical to the war effort. "Guys see what's happening in there and they want to make mission," said Lt. Col. Michael Zick, commander of the 746th Expeditionary Airlift Squadron, which has deployed from its regular home at Dyess AFB, Tex. Knowing their work is critical puts high stress on ground and air crews. "We have zero tolerance for error," explained Lt. Col. Pat Pollock, deputy commander of the 386th Airlift Group. "You've got to rise to the occasion."

The work is a grind. All the airmen here are volunteers, mostly on a cycle that calls for a four-month rotation into the theater and four months at home station. That's not four months of home rest, said Capt. Matt Anastas of Centreville, Va., a C-130 aircraft commander. Time at home station is crammed with training on skills not used here, such as formation flying and airdrops. In the past 30 months, Anastas has served in the Gulf Region for a total of 12 months, shuttling into Iraq with troops and supplies and bringing homeward-bound soldiers, and often wounded, out. Some trips are designated "HR flights." The initials stand for "human remains," referring to the bodies of Americans killed in action.

Aircrews carry weapons and wear body armor. Flying into Iraq, usually at night, they strip the American flag emblems and name tags from their flight suits in case they are shot down. They carry rescue packets. They constantly change flight patterns and altitudes to avoid ground fire and surface-to-air missiles. It is not uncommon for an airplane's automatic flare dispenser to launch blinding flares when a missile threat is detected.

Approaching Baghdad or other air bases in Iraq, C-130s weave through thickets of air traffic including unmanned aerial vehicles piloted remotely from Nevada, attack and medevac choppers, and chartered Russian Il-76 cargo aircraft. Pilots wearing night vision goggles peer through their windscreens at the tilting landscape outside, and the danger of midair collision is ever-present, said Zick. Most modern aircraft have automatic collision avoidance systems. Today's C-130s do not.

"A lot of people are operating in a tight space, and it's 'see and avoid,'" Zick said.

With the crew members anxiously scanning the sky for aircraft and the ground in search of missile launches or small-arms fire, C-130 pilots plummet toward the runway in a twisting corkscrew dive that leaves the troops crushed into their red canvas sling seats one second and seeming to float above them the next.

Delivering them promptly and safely requires the constant attention of air crew members and people on the ground—such as crew chief James, who was up on that ladder, poking his finger into that troubling gap between the stabilizer and the elevator. The metal was burning hot. An hour passed. Finally, James pronounced himself satisfied that the flight could proceed. "It's not a showstopper," he explained. "It's a 'maintenance inconvenience.'"

Replied SrA. Carlos Alcantar, an avionics technician, "Stuff goes bad, we pull it and replace the part, send it away to get fixed. The part comes back, we put it back in, and it goes bad again. So it goes." ■

*David Wood, national security correspondent for* The Baltimore Sun, *recently completed his fifth reporting trip since 9/11 to the US Central Command area of responsibility. This is his first article for* Air Force *Magazine.*

The North Dakota Air National Guard wing has moved on to new aircraft, but it won't soon forget its F-16s.

# The Hooligan Trade

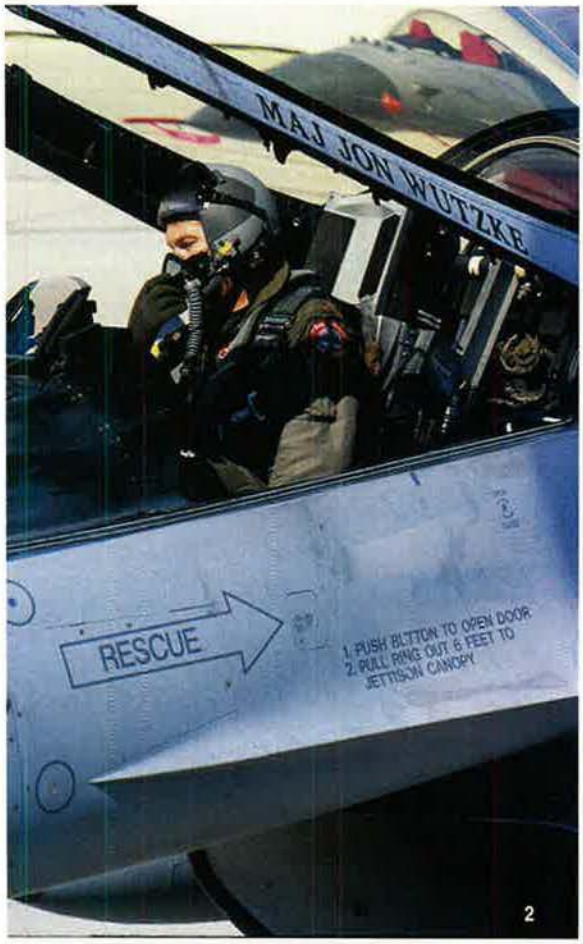
Photography by Rick Llinares and USAF photographers


USAF photo by SMSgt. David Lipp

*Airpower on the northern Great Plains has entered a new era. Here, the North Dakota ANG's first C-21 (piloted by Lt. Col. Craig Schroeder and Maj. Jon Wutzke) nears Fargo on January 10 and is joined by one of NDANG's last F-16s (flown by Capt. Stephanie Kelsen). The moment was symbolic for the 119th Fighter Wing—the "Happy Hooligans." The unit traded out its fighters for C-21s and UAVs, becoming the 119th Wing in a restructured Air Force.*

*For the North Dakota ANG, fighters were a big deal for a long time—60 years. The 119th FW—the Happy Hooligans—mobilized for Korea. More recently, they rushed to Washington, D.C., to fly combat air patrols on Sept. 11, 2001. Alert Det. 1, an F-16 unit at Langley AFB, Va., supported domestic air patrols. Now, though, the wing's F-16s are gone; the 119th flew its final F-16 missions one year ago, and the last fighter departed in early 2007. Since then, the wing has acquired eight C-21 transports and has begun operating MQ-1 Predator UAVs. Clearly, the Hooligans are going through radical cultural change.*

*[1] The very last Hooligan F-16 fighter revs up to depart Fargo on Jan. 30. Piloting the fighter is Capt. Ryan Rastedt.*




*[2] Maj. Steve Watson prepares for one last F-16 training flight. Watson now flies the Predator. [3] In April, MSgt. Jeffery Lien, 119th Maintenance Squadron, spray-paints the Hooligan tail flash on one of the wing's new C-21 transports. [4] MQ-1 Predators such as this one in Iraq are flown by former Hooligan fighter pilots. This UAV is tended by General Atomics Aeronautical Systems mechanic Bruce Ottenwess.*


USAF photo by SMSgt. David Lipp

USAF photo by SSgt. Brian Ferguson


*|1| A C-21, piloted by Wutzke, takes off on March 16 from Hector Airport in Fargo. |2| MQ-1 Predators, such as this one at Creech AFB, Nev., perform interdiction and reconnaissance missions, and are armed, medium-altitude, long-endurance UAVs. |3| In the final fighter deployment, an F-16 cozies up to an air tanker of the 459th ARW, a Reserve unit at Andrews AFB, Md. |4| A 119th airman checks an AIM-9 Sidewinder on a Hooligan F-16. |5| An F-16A heads out on a training mission, one of the last, off the coast of Virginia. The 119th FW also flew the two-seat F-16B.*

*Provisions of the 2005 Base Realignment and Closure law and new Total Force initiatives have had a dramatic impact on the 119th. It is a serious contender to be the first recipient of the Joint Cargo Aircraft. Its pilots already are flying UAVs. Moreover, the 119th activated the Guard's largest security forces squadron.*

*(1) Col. Robert Becklund, the wing commander, noses up his C-21 in a March 19 flight. (2) In the old Alert Det. 1 at Langley AFB, Va., enlisted airmen such as SSgt. Ryan C. Hehr, pictured here, provided the indispensible support and maintenance. (3) (L-r) SSgt. Joshua Gonser, TSgt. James Kemmer, SSgt. Timothy Eraker, and SSgt. Jeffery Jacobson perform a C-21 aircraft phase inspection.*


USAF photo by SMSgt. David Lipp


USAF photo by SSgt. Michael Holzworth

*(4) Two F-16s perform a scissor break over the Atlantic. For the most part, the F-16 pilots have stayed on for new missions. (5) The preflight done, an MQ-1 Predator in Iraq readies for takeoff. Control of Predator UAVs will be by Hooligans deployed to Nevada or in North Dakota.*

*The Happy Hooligans have a long history of innovation and adaptation. In 1984, the 119th deployed six F-4s and their crews and support personnel to Iceland, where the Hooligans intercepted eight Russian Tu-95 bombers. In 1986, the unit became the first to assume USAFE's Zulu alert mission at Ramstein AB, Germany, providing continuous alert in Europe.*

*The Hooligans first flew the P-51 Mustang in 1947 and have operated many types of fighters since then. After the Mustang was phased out in 1954, the Hooligan pilots flew the F-94, F-89, F-102, F-101, F-4D, and, finally, the F-16, starting in 1990.*

*|1| TSgt. Christopher Plath (l) and TSgt. Nathan Nerby carefully preflight this F-16 before a mission.*

USAF photo by Maj. David Kurle

*|2| The top missions of the MQ-1 (here returning to an airfield in Afghanistan) are interdiction and armed reconnaissance against critical and fleeting targets. |3| Four antenna, or "bird slicers," in front of the canopy glass were part of the F-16's IFF avionics. |4| Two 119th Wing airmen, TSgt. Charles Welle and SSgt. Mathew Andvik, swap out a C-21 engine.*

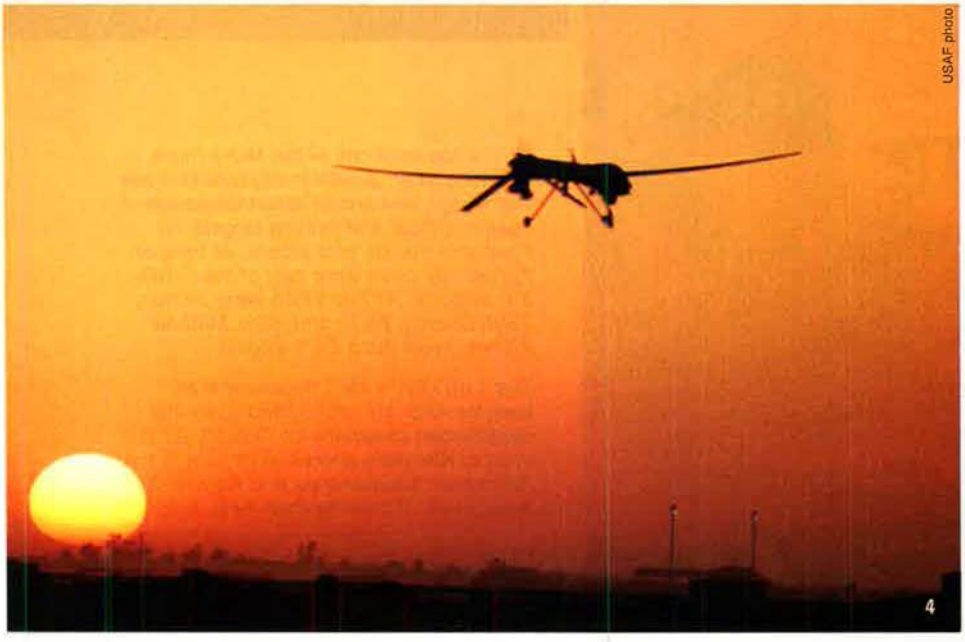
*The 119th FW's alert detachment at Langley AFB, Va., conducted its formal deactivation ceremony on Oct. 12, 2006. Most of the unit's aircraft were sent to the Aerospace Maintenance and Regeneration Center, Davis-Monthan AFB, Ariz.*

*The wing achieved a still-unparalleled flying safety record, compiling more than 144,000 flight hours without a Class A mishap.*

*[1] With the "Happy Hooligans" moniker proudly displayed upon their tails, NDANG F-16s execute a formation turn. Though the fighters are gone, some aspects of the fighter era live on.*



USAF photo by SMSgt. David Lipp



USAF photo

*[2] Under the 119th structure, the 177th Airlift Squadron operates the C-21, which provides operational support assistance and responsive aeromedical airlift services. [3] At the end of the day, a pair of Happy Hooligan Vipers soars above a sun-drenched Atlantic Ocean. [4] MQ-1 Predators of this type, when they arrive, will fall under the 178th Reconnaissance Squadron.*

*In their now-bygone fighter days, the Hooligans amassed many accolades for superior performance. They won the Air Force Outstanding Unit award 11 times, the William Tell top award three times, and the Hughes Trophy twice. The wing's leadership says it is committed to producing the same excellence in the new era.* ■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BOEING

# The Air Force on t
# Eve of World War

Schenectady Museum/Corbis photo

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**The United States was well down the list of the world's military powers, but it had strengths that were not fully apparent.**

*In 1941, the US's B-17 bombers—at top, flying over New York City—were as good as any foreign warplanes, but the nation only had a handful of them. It did, however, have a visionary two-star general, Henry "Hap" Arnold (right), to build the greatest air armada in the world.*

# he I

By John T. Correll

In the years leading up to World War II, the United States had not yet become the world's leading superpower. In fact, it was well down on the list of military powers. In 1939, the US Army, with a strength of 174,000, was 19th in the rankings of ground forces. That put it, according to historian Eric Larrabee, "ahead of Bulgaria but just behind Portugal."

The Army Air Corps was rated somewhat higher—perhaps fourth or fifth in the relative standings of flying forces—but that was partly because there were fewer air forces than armies. In 1939, the Air Corps had a personnel strength of only 26,000. It had about 1,200 bombers and fighters, a significant portion of them obsolete. Open-cockpit airplanes were still flying in operational units.

Eddie Rickenbacker, America's "Ace of Aces" from World War I, said the United States was 10 years behind Germany in the development of military aviation. The Luftwaffe in 1939 had 4,100 first-line combat aircraft. US pursuit airplanes were no match for the Messerschmitt Bf-109. The Ju-87 Stuka was better than the standard American attack aircraft. For that matter, the British Hurricane and Spitfire were superior to the best American fighters, as was the Japanese A6M Zero.

The only edge the Army Air Corps could claim was the four-engine B-17 bomber, but there were only 23 of them. The previous year, Secretary of War Harry H. Woodring had canceled the planned production of more B-17s for 1939 on the grounds that they cost too much and were not needed.

The US Navy fared considerably better than the other services in the interwar years. The nation depended on the Navy as its first line of defense, and the fleet ranked with the largest and best in the world.

But times were changing in 1939. World War II had begun in Europe, and it was obvious that airpower would be of critical importance to the outcome. The United States was rapidly losing confidence in isolationism, which had dominated its foreign and defense policies for decades. Prospects for the US staying out of the war were diminishing.

Rearmament had begun. Congress authorized up to 6,000 airplanes for the Air Corps but that goal was too ambitious for the emerging US production capacity to fulfill anytime soon. There was a long way to go.

Nevertheless, owing to some fortunate steps taken in the 1930s, the United States and the Army Air Corps were better prepared than they looked. Mistakes by the enemy helped, too.

By the time the US entered the war in 1941, the framework for growth was in place. Within a few years, the Army Air Forces would leap to a peak strength of 2.4 million people and 80,000 airplanes, beyond any doubt the best air force in the world.

## Disarmament and Isolationism

The United States had a long heritage of isolation, going back to the earliest days of the republic. President Woodrow Wilson was re-elected in 1916 on the slogan, "He kept us out of war." The US entered World War I late, and with great reluctance.

After 1919, US policy was to avoid alliances and conflicts abroad and rely on the ocean barriers to keep foreign troubles away. Some possibility of conflict with Japan was recognized, but that threat was presumed to be primarily naval and the US Navy was presumed capable of dealing with it.

Isolationism coincided with a rising belief in pacifism. In 1928, the Kellogg-Briand Pact—named after its drafters, US Secretary of State Frank B. Kellogg and French Foreign Minister Aristide Briand—renounced war as an instrument of national policy. It was ultimately signed by 62 nations, including the United States, Britain, Germany, Japan, and Italy.

In the 1930s, leading politicians of both parties were staunchly isolationist. President Roosevelt was ahead of the country on the need to prepare for war, but he could not take that position publicly or directly. It was years before he could openly cut his ties with isolationism. "I have said this before, but I shall say it again and again," Roosevelt said in a campaign speech in October 1940. "Your boys are not going to be sent into any foreign wars."

Military reductions had begun immediately when World War I ended. Nine months after the armistice, the Army had demobilized nearly 3,250,000 troops. The Army Air Service was cut back by more than 95 percent. Its strength in 1920 was 9,596, down from a wartime high of 197,338. Defense budgets suffered further in the general frugality of the Coolidge Administration and then dropped again sharply in the Great Depression.

The isolationist mood of the country was exacerbated by a belief that World War I caused the Depression and that US participation in the war had been instigated by "Merchants of Death," the munitions manufacturers and others who profited from the carnage.

Between 1934 and 1936, a Senate munitions inquiry questioned more than 200 witnesses but could find no evidence that munitions suppliers caused the war. The chairman of the investigating committee, Sen. Gerald P. Nye (R-N.D.), finally acknowledged that the evidence "does not show that wars have been started solely because of the activities of munitions makers and their agents." Even so, popular prejudice against the armament industry continued. A series of Neutrality Acts between 1935 and 1939 limited US involvement in foreign wars and prevented shipment of war materials to belligerents.

Politicians and the news media called for more reductions, not growth, in the armed forces.

## The Army and the Air Corps

The British established the Royal Air Force as a separate service, independent of the Army and the Navy, in 1918. The United States was not ready to go nearly that far, but the Army Reorganization Act of 1920 made the Air Service a combatant arm of the Army. The Air Corps Act of 1926 changed the name but not the status.

Going into the 1930s, the Air Corps was often at loggerheads with the other components of the Army. The disagreement was sometimes about doctrine, sometimes about money. In 1932, the Army was spending about a third of its budget on aviation and had diverted money from the other branches to support the Air Corps. As the Army appropriation shrank during the Depression, the competition for funding intensified.

The Army was past its early prejudice that airpower had little or no military value. For most officials in the War Department and on the General Staff, the issue was what kind of airpower, and for what purpose.

The prevailing opinion was that the Air Corps had no mission except to support Army ground forces. Maj. Gen. Hugh A. Drum, the Army deputy chief of staff and the second-ranking officer in the Army, said in 1934 that there should be "no air operations not contributing to the success of the ground campaign" and that independent air

| Their Aircraft Production—and Ours | | | | |
|---|---|---|---|---|
| Year | Japan | Germany | Great Britain | US |
| 1939 | 4,467 | 8,259 | 7,940 | 2,141 |
| 1940 | 4,768 | 10,826 | 15,049 | 6,086 |
| 1941 | 5,088 | 11,776 | 20,094 | 19,433 |
| 1942 | 8,861 | 15,556 | 23,672 | 47,836 |
| 1943 | 16,693 | 25,527 | 26,263 | 85,898 |
| 1944 | 28,180 | 39,807 | 26,461 | 96,318 |
| 1945 | 8,263 | -------- | 12,070 | 46,001 |

***The figures for 1945 are for eight months for the US, nine months in the case of Great Britain, and 7.5 months for Japan.***

Source: Wesley Craven and James Cate, *The Army Forces in World War II.*

operations "would be largely wasted and might be entirely ineffective." Drum added that there was no reason for airplanes to fly farther than three days' march ahead of the infantry.

However, the coastal defense mission, assigned to the Air Corps in 1931, essentially refuted the argument that airpower was always tied to ground units. By an agreement between Gen. Douglas MacArthur, the Army Chief of Staff, and the Chief of Naval Operations, Adm. William V. Pratt, the Air Corps would defend the coast and the Navy would defend at sea. Pratt wanted to concentrate on offensive rather than defensive missions and was happy to hand off the coastal defense responsibility. The agreement did not specify how far from shore the Air Corps would operate. When Pratt retired, the Navy sought to reclaim the mission but the Army was not willing to let it go since infrastructure and budget shares were likely to go with it.

In 1935, the War Department established the GHQ (General Headquarters) Air Force. It took all Air Corps units away from field commanders and put them under a single commander, an airman, reporting to the Army General Staff. In part, this was to head off pressure for Air Corps independence but it was also to enable concentration of forces for the coastal defense mission. The GHQ Air Force was a big step toward Air Force autonomy.

In an exercise in May 1938, three GHQ Air Force B-17s (with news reporters on board) intercepted the Italian ocean liner *Rex* some 725 miles east of New York, thus demonstrating the long-range capabilities. The Navy was outraged and in deference, Army Chief of Staff Gen. Malin Craig limited Air Corps operations to within 100 miles of the US shoreline.

"As far as I know, ... that directive has never been rescinded," Air Force Chief of Staff Gen. Henry H. "Hap" Arnold said years later. "A literal-minded judge advocate might be able to find that every B-17, B-24, or B-29 that bombed Germany or Japan did so in technical violation of a standing order."

In 1939, "the standard bomber was the B-18, a two-engine plane greatly inferior to the B-17 in performance," said Air Force historian Alfred Goldberg. "The A-17 was the standard attack plane and the P-36 the standard fighter. The three standard models comprised 700 of the 800 first-line combat aircraft of the Air Corps. By the time of Pearl Harbor, they were all obsolete."

### Strategic Bombardment

The early airpower advocates—Guilio Douhet, Hugh M. Trenchard, and Billy Mitchell—had proclaimed the importance of strategic bombardment, but in the 1930s, that was not an assigned Air Corps mission. In addition to other constraints, the policy of isolationism held the armed forces to defense of the Western hemisphere.

The Air Corps Tactical School at Maxwell Field, Ala., was a hotbed of Mitchellism and promoted the bomber as a long-range strategic weapon. World War II would eventually prove the Tactical School right, but that came later. The long-range bomber was originally pitched as a means of intercepting the enemy at sea in support of the coastal defense mission, and the Air Corps pushed it hard.

The first bombers were severely limited in range, speed, and payload. The opportunity for a breakthrough came with a bomber competition in 1935. The contender favored by the Air Corps was the four-engine Boeing 299, prototype for the B-17 Flying Fortress. It crashed on takeoff. The reason was aircrew error, but the Douglas B-18 Bolo was declared winner of the competition and was chosen for production. The B-18 had two engines, compared to the B-17's four, and less speed and payload. Nevertheless, it became the standard bomber for the rest of the decade.

In 1936, Brig. Gen. Stanley D. Embick, one of the Army's rising stars, opined that it was inadvisable to have a long-range bomber "since this would give rise to the suspicion, both at home and abroad, that our GHQ Air Force was being maintained for aggressive purposes."

In 1938, Embick—then a major general and deputy chief of staff—stated the General Staff's position: "Our national policy contemplates preparation for defense, not aggression. Defense of sea areas, other than within the coastal zone, is a function of the Navy. The military superiority of ... a B-17 over the two or three smaller planes that could be procured with the same funds remains to be established."

| Air Corps/Army Air Forces Military Personnel (as of June 30 each year) | | |
|---|---|---|
| | Total | Pct of US Army Strength |
| 1939 | 22,387 | 11.9 |
| 1940 | 51,185 | 19.3 |
| 1941 | 152,125 | 10.5 |
| 1942 | 764,415 | 23.2 |
| 1943 | 2,197,114 | 31.4 |
| 1944 | 2,372,292 | 31.0 |
| 1945 | 2,282,259 | 27.6 |

Source: *Army Air Forces Statistical Digest.*

Maj. Gen. Frank M. Andrews, commander of the GHQ Air Force, and Maj. Gen. Hap Arnold, who became Chief of the Air Corps in 1938, were committed to the concept of strategic bombardment and to the B-17. In 1938, the Air Corps had only 13 B-17s, the number bought on the original order. The plan to produce more in 1939 was canceled by Secretary of War Woodring on the advice of senior Army officers.

Maj. Gen. George C. Marshall replaced Embick as deputy chief of staff in 1938 and succeeded Malin Craig as Chief of Staff in 1939. Marshall, unlike his predecessors, supported the B-17. At the time of the Pearl Harbor attack in 1941, the Army Air Forces had 198 B-17s with more coming off the line every month.

What finally put the Air Force on a fast track, though, was the interest and support of President Roosevelt.

**Aircraft in Production Before Pearl Harbor**

| | Flight Test | In Production |
|---|---|---|
| B-17 Heavy Bomber | 1935 | 1936 |
| B-24 Heavy Bomber | 1939 | 1940 |
| B-25 Medium Bomber | 1941 | 1941 |
| B-26 Medium Bomber | 1941 | 1941 |
| A-20 Light Bomber | 1939 | 1940 |
| A-24 Light Bomber | 1941 | 1941 |
| P-38 Fighter | 1939 | 1940 |
| P-39 Fighter | 1939 | 1940 |
| P-40 Fighter | 1938 | 1940 |
| P-47 Fighter | 1941 | 1941 |

Source: Wesley Craven and James Cate, *The Army Forces in World War II*

### FDR, Rearmament, and Airpower

The President moved carefully toward rearmament because isolationists held the positions of power in Congress and elsewhere in Washington. His task was complicated by the fact that Woodring, formerly governor of Kansas and Secretary of War from 1936 to 1940, was a hard-core isolationist. Roosevelt did not fire him because he could deliver votes.

Roosevelt tested the political waters with his famous "Quarantine" speech of Oct. 5, 1937. He warned of growing aggression and threats abroad, but did not mention Germany or Japan by name. He did not propose any specific action and used the word "quarantine" only in an analogy, comparing the situation to containment of a medical epidemic. Encountering opposition from Congress, the news media, the public, and some of his colleagues, Roosevelt backed off temporarily.

The following January, he requested an increase of 20 percent for the building program of the Navy—his favorite service ever since his tour as assistant secretary of the Navy in the Wilson Administration—and launched the airpower buildup at a remarkable meeting in November 1938.

Reacting to reports of the growing Axis threat and expansion of the German Air Force, Roosevelt told the Air Corps to develop a program for 10,000 airplanes. According to historian Larrabee, Roosevelt said that "he didn't want to hear about ground forces, that a new barracks at some post in Wyoming would not scare Hitler one goddamned bit."

Arnold, who was there, regarded it as the "Magna Carta" for the Air Force, but Army leaders, who were also there, took a different view. The Army was extremely short of everything from semi-automatic rifles to howitzers and tanks and they opposed so much emphasis on airpower. Roosevelt was not dissuaded. In an address to Congress in January 1939, he said that "increased range, increased speed, increased capacity of airplanes abroad have changed our requirements for defensive aviation."

The National Defense Act adopted in April 1939 approved a strength of 5,500 airplanes for the Air Corps with a top limit of 6,000 airplanes. In May 1940, Roosevelt called for an air force of 50,000 airplanes—36,500 airplanes for Air Corps, 13,500 for the Navy—and production of 50,000 airplanes a year. That level of production was not possible, but as was often the case, Roosevelt was not using numbers literally. He was expressing a direction and a level of effort rather than stating a production order.

These preparations for war between 1939 and 1941 were without precedent. Previously, the approach had always been "first declare, then prepare." This war, however, was different from earlier foreign conflicts, which had been against relatively weak adversaries, such as Mexico and Spain.

US complacency was shaken by the blitzkrieg in Poland in 1939 and by the fall of France in 1940. Up to then, the American public had been confident that France and England would win. Isolationism faded as the British fell back from Dunkirk and fought off the Luftwaffe in the Battle of Britain.

### Lend-Lease Allocation Problem

A 1939 amendment to the Neutrality Acts allowed "cash and carry" arms sales to selected nations, provided that they paid cash and transported the weapons in their own ships. Roosevelt was reported to have said "the Maginot Line [is] our first line of defense."

By March 1940, the British and French had ordered 8,200 airplanes from American manufacturers. In December 1940, Roosevelt declared, "We must be the great arsenal of democracy."

The Lend-Lease program, adopted in March 1941, was a major departure from isolationism. It authorized the sale, lease, or lending of weapons and war materiel when doing so was in the interests of the United States. Between 1941 and 1945, huge quantities of airplanes and much else would be provided to Britain, China, and Russia under the banner of Lend-Lease.

While the isolationist Woodring was still in the saddle at the War Department, Roosevelt put his friend and Secretary of the Treasury, Henry Morgenthau Jr., in charge of foreign aircraft sales. Morgenthau did not understand the Air Corps need for airplanes and was not interested in hearing about it. He routinely diverted production needed by the Air Corps to the allies. Arnold protested, but Roosevelt backed Morgenthau and threatened to have Arnold reassigned to Guam if he defied the Administration's program.

In August 1941, Britain requested what amounted to all of the airplanes that US plants could produce. "The British as usual asked for everything they wanted regardless of whether we have or will ever have an air force," Arnold said. "They never blinked an eye when they asked for 100 percent of our production." In October 1940, the British had requested an additional 12,000 airplanes, bringing their order for US military aircraft to 26,000.

The new Secretary of War, Henry L. Stimson, carried more influence with Roosevelt than Woodring had, and the combination

| Airplanes on Hand in the AAF | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 |
| Very Heavy Bomber (B-29) | ------ | ------ | ------- | ------ | 2 | 445 | 2,865 |
| Heavy Bombers (B-17, B-24) | 16 | 54 | 120 | 846 | 4,421 | 11,720 | 11,065 |
| Medium Bombers | 400 | 478 | 611 | 1,047 | 4,242 | 5,427 | 5,384 |
| Light Bombers | 276 | 166 | 292 | 696 | 1,689 | 2,914 | 3,079 |
| Fighters | 494 | 477 | 1,018 | 2,950 | 8,010 | 15,644 | 16,799 |
| Reconnaissance | 356 | 414 | 415 | 468 | 486 | 1,056 | 1,971 |
| Transports | 118 | 127 | 144 | 824 | 4,268 | 9,433 | 9,561 |
| Trainers | 735 | 1,243 | 4,124 | 12,610 | 22,849 | 27,907 | 9,558 |
| Communications | 7 | 7 | 53 | 1,732 | 3,051 | 4,211 | 3,433 |
| **Total** | **2,402** | **2,966** | **6,777** | **21,173** | **49,018** | **78,757** | **63,715** |

***Figures for 1939 as of July 31; for 1940-44, as of June 30; for 1945, as of Aug. 31. Combined total production, counting Lend-Lease and experimental aircraft, was 230,288. Of these, 31,000 were heavy bombers, 68,259 were fighters, and 22,698 were transports.***

Source: *Army Air Forces Statistical Digest.*

of Stimson, Marshall, and Arnold eventually obtained a reasonable balance in the allocation of aircraft production.

### On the Eve of World War II

By the summer of 1941, with the clock ticking down toward Pearl Harbor, Army Air Forces strength was 152,125. The AAF had 6,777 aircraft, of which 120 were heavy bombers, 903 were light and medium bombers, and 1,018 were fighters. Fewer than half of these were combat aircraft, and even that total was inflated with substantial numbers of obsolete bombers and fighters. However, a number of offsetting factors made the situation better than it looked.

■ The enemy advantage was brittle. The Germans planned for a short war in Europe. They were not prepared for an enduring struggle with a determined adversary, particularly one that could bring the war to the German homeland.

German planners neglected strategic bombardment. They emphasized fighters and insisted on a dive-bombing capability for all bombers, which reduced both range and payload. The Luftwaffe's quality advantage dwindled as new American aircraft came on line. With the exception of the Messerschmitt Me-262 jet fighter, which appeared late in the war, the Germans relied primarily on improved models of the aircraft with which they had begun.

For the Japanese, Pearl Harbor turned out to be a one-shot trick. They soon lost their carriers, failed to develop forward airfields, and could not sustain their air forces over the long run or replenish their losses in aircraft and aircrews. The fighter lead established with the Zero was soon lost as well.

■ The fundamentals were in place. The Army Air Corps made tremendous technological progress in the 1930s. It began the decade with delivery of the Keystone B-3A bomber, a biplane with a cruising speed of 98 mph and a top speed of 114 mph. The P-26 "Peashooter" pursuit aircraft, which entered service in 1933, had an open cockpit and fixed landing gear. The Peashooters were considered hot at the time. A few were still on duty in Hawaii in 1941 when the Japanese attacked Pearl Harbor. By the end of the decade, these bombers and fighters had been superseded by a newer generation of aircraft with advanced capabilities.

In December 1941, virtually all of the major types of airplanes with which the Air Force would fight World War II were in production or soon would be. The AAF had 198 B-17s, with 93 more coming off the line that month. The B-24 was in initial production. The B-29 was in development and would fly within the year. The P-40 was replacing the P-36 as the standard fighter. The P-38, P-39, and P-47 fighters were in limited production, and the P-51 Mustang had made its first flight.

President Roosevelt had given approval in October 1941 for the development of the atomic bomb, and the Manhattan Project to build the bomb began the day before the Pearl Harbor attack.

■ The Air Force had direction and staying power. As historian Richard J. Overy has observed, "Support from the President in 1939 and 1940 rescued American air strategy from the War Department's view of airpower."

■ The impression was long since gone that the Air Corps was just another branch of the Army, like the infantry or the artillery. Hap Arnold was a member of the Joint Chiefs of Staff, alongside the Army Chief of Staff and the Chief of Naval Operations. The Air Force's most important role in the war would be long-range strategic bombardment.

Thanks to the early lead in rearmament that began in 1939, aircraft production was beginning to roll. The Germans and Japanese could not match the US industrial base as its output rose.

Circumstances allowed some time. Germany and Japan had their hands full consolidating their early gains from regional aggression in Europe and Asia. The United States and the AAF made good use of that time to move ahead.

Aircraft production was only part of the task. Aircrews had to be trained, bases built, infrastructure and logistics established. All of this the bourgeoning Air Force managed, just as it had overcome the obstacles of the 1930s.

When the strength of the AAF peaked a few years later at 243 combat groups, there was no longer any question where it stood among the air forces of the world. ■

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

# The Chart Page

**By Tamar A. Mehuron and Heather Lewis**

# Uniform Respect

Among more than half of Americans, US military officers enjoy "very great" prestige. Fully 96 percent of Americans believe the occupation has at least some prestige. In fact, being a US military officer is the fifth most prestigious occupation in the country, behind only firefighter, scientist, teacher, and doctor. That is the result of an annual Harris Poll, released Aug. 1, which measures perceptions of 23 professions and occupations. On the prestige scale (see table below), officers wearing the military uniform rated higher than even nurses, police officers, and clergy. They far surpassed those professionals at the bottom: bankers, actors, and real estate brokers. Moreover, the 25-year prestige trend for military officers shows a dramatic upswing. In 1982, according to Harris, the occupation got a "very great" prestige rating from only 22 percent of Americans. That figure has risen more or less steadily ever since, and finally broke the 50 percent mark last year. It rose from 51 to 52 percent in the most recent year.

| | Very Great Prestige | Considerable Prestige | Some Prestige | Hardly Any Prestige At All | Not Sure/ Refused |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Firefighter | 61 | 26 | 10 | 2 | - |
| Scientist | 54 | 28 | 13 | 4 | * |
| Teacher | 54 | 24 | 16 | 6 | * |
| Doctor | 52 | 35 | 12 | 1 | - |
| **Military officer** | **52** | **29** | **15** | **4** | * |
| Nurse | 50 | 29 | 17 | 4 | - |
| Police officer | 46 | 27 | 19 | 7 | * |
| Priest/clergy | 42 | 23 | 26 | 9 | * |
| Farmer | 41 | 16 | 26 | 17 | - |
| Engineer | 30 | 37 | 25 | 6 | 1 |
| Member of Congress | 26 | 32 | 23 | 17 | 2 |
| Architect | 23 | 33 | 39 | 6 | * |
| Lawyer | 22 | 20 | 41 | 17 | * |
| Athlete | 16 | 20 | 45 | 19 | * |
| Business executive | 14 | 28 | 42 | 15 | * |
| Journalist | 13 | 24 | 47 | 16 | * |
| Union leader | 13 | 20 | 36 | 30 | 1 |
| Stockbroker | 12 | 17 | 46 | 25 | 1 |
| Entertainer | 12 | 16 | 42 | 31 | - |
| Accountant | 11 | 25 | 48 | 16 | 1 |
| Banker | 10 | 28 | 45 | 17 | * |
| Actor | 9 | 19 | 34 | 38 | - |
| Real estate agent/broker | 5 | 18 | 43 | 34 | * |

**Source:** Harris Poll, "Most Prestigious Occupations," released Aug. 1, 2007.

* Less than .05%.

- No response.

**The Chief of Staff wants to fix the way USAF uses its pilots, starting with those flying the F-22.**

# EVERY PILOT IN HIS PLACE

**By Adam J. Hebert,** Executive Editor

USAF photo by TSgt. Ben Bloker

**The Air Force** is making major changes to the way it trains and distributes many of its combat pilots, and the F-22 Raptor is the centerpiece of the overhaul.

Though the Raptor is in steady production, this new aircraft will be built in numbers far too small for it to replace the F-15C fleet entirely. Moreover, it will be widely dispersed in small numbers around the world. Its combat time, therefore, will be precious, and so it should be expended only on the highest-priority tasks.

That, say top Air Force officials, means it is time for F-22 pilots to narrow their focus, drastically.

The Raptors and their pilots will be optimized for two principal missions—air superiority and the destruction of enemy air defenses, also known as DEAD. They are high-risk, high-intensity, high-payoff missions, especially against anti-access threats such as advanced surface-to-air missiles and fourth generation fighters.

The Raptor is expected to excel in such environments. And because it is, training F-22 pilots for any mission other than these is "wrong," declared Gen. T. Michael Moseley, USAF's Chief of Staff. He added, "I want it fixed."

If the Air Force today is "spending precious Raptor modernization dollars or training sorties on the core missions of our other aircraft," Moseley declared in a recent memo, "that is also wrong, and I want it stopped."

The air dominance theme goes further. The Chief has directed that new F-22 pilots are to come from ranks of the F-15C community. Raptor pilots currently include officers drawn from F-15E, F-16, and F-117 cockpits, but these pipelines will come to an end. None of those fighters are pure air superiority machines.

A "priority needs to be set," said Col. Patrick Marshall, commander of the 1st Operations Group at Langley AFB, Va. Moseley said that with a variety of backgrounds already represented in the F-22 force, the final ratios "should provide the right squadron mix" of expertise as the Air Force brings the F-22 to the 3rd Wing at Elmendorf AFB, Alaska.

The directive allows Langley's fighter wing to prioritize its training and resources as it works to bring the 94th Fighter Squadron to full operational capability next year. The 94th is the second of the two F-22 squadrons at Langley.

The number of USAF air-to-air assets will decline as F-15s are retired, noted Lt. Col. Dirk Smith, deputy ops group commander. The Air Force needs to "keep that edge," he said, and cannot afford to water down F-22 training with missions that other aircraft can perform.

Smith noted that the Air Force already has "a bunch of bomb droppers," and, longer term, the service hopes to buy nearly 10 F-35 strike fighters for every F-22 it receives.

Regarding the F-35 squadrons, the service will follow a similar approach in staffing. Moseley's memo noted that USAF will "draw upon the experience of our A-10, F-16, and F-15E pilots" to ensure the service retains its close air support, suppression of enemy air defenses (SEAD), and interdiction capabilities.

At about the same time, Moseley announced a change to the way the Air Force assigns its pilots and other rated officers. Long-standing policies that led to too many pilots in operational units—and too few in other positions that require rated expertise—are coming to an end.

Said the Chief of Staff, "I am particularly concerned about overmanning in fighter [and] bomber units."

This is preventing some younger aircrew members from getting the flying hours they need to become "experienced," which is defined as 500 flying hours in a fighter or 1,000 hours in many other aircraft.

The goal will be to prevent overstaffing in these operational units. To that end, the Air Force wants to keep these units staffed at a rate of 100 percent to 105 percent, said Lt. Col. Frank Van Horn, aircrew management expert on the Air Staff. That is less than is usually the case today.

US Air Forces in Europe has this problem in many of its fighter units. Gen. William T. Hobbins, USAFE commander, said A-10 flying unit staffing will be reduced from 120 percent to just over 100 percent.

USAFE's F-15C and F-16 units were even more out of whack, but the situation is already improving, Hobbins said. Weapons systems officers, navigators, and air battle managers have been filling in many of the gaps left by the overpopulation in the flying units, and these career fields can also look forward to more equitable distribution in the future.

With staffing levels as high as 120 percent "and climbing," Van Horn said, there have been isolated cases of younger pilots finishing an initial tour with less than the 500 flying hours they need for more advanced follow-on assignments.

## Now, TAMI-21

Through a program called Transformational Aircrew Management Initiatives for the 21st Century, or TAMI-21, sorties for inexperienced airmen will increase, with the goal of ensuring that training requirements continue to meet the needs of the combatant commanders.

Going down to 100 percent manning will probably give young pilots two additional sorties per month.

With the overmanning of flying units ending, about 180 pilots will be reassigned to currently short-staffed areas. This includes unmanned aerial vehicle units, Air Force Special Operations Command units, command and control units, and assorted staff assignments that require rated expertise. TAMI-21 will move 80 inexperienced fighter pilots, 40 inexperienced bomber pilots, and 60 experienced fighter pilots out of standard operational units. This may take up to three years.

The younger officers will move into new special operations forces aircraft such as the CV-22, as well as Predator and Reaper units. Older airmen will take on instructor, air operations center, and staff positions that are presently undermanned.

The various movements represent "a one-time fix," said Lt. Col. Michael Hornitschek, chief of the Air Staff's Rated Force Policy Branch. Once the imbalances are corrected, the assignment system is expected to keep staffing levels in balance.

"We're still living with the impact" of the drastic cuts in rated officer production in the 1990s, Van Horn added, and the Air Force needs to avoid those sorts of long-term imbalances in the future.

Some career enlisted personnel will be used to fill nonflying positions that are currently reserved for rated officers. The Air Force's major commands have been asked to identify some 400 positions, in places such as the air operations centers, that could be switched over, said Van Horn.

The service wants this to be a Total Force effort, and is looking "for a mutually beneficial relationship," Hornitschek said. Reserve component units may be able to help the Air Force absorb new pilots by ensuring they receive adequate flying hours in Guard and Reserve units.

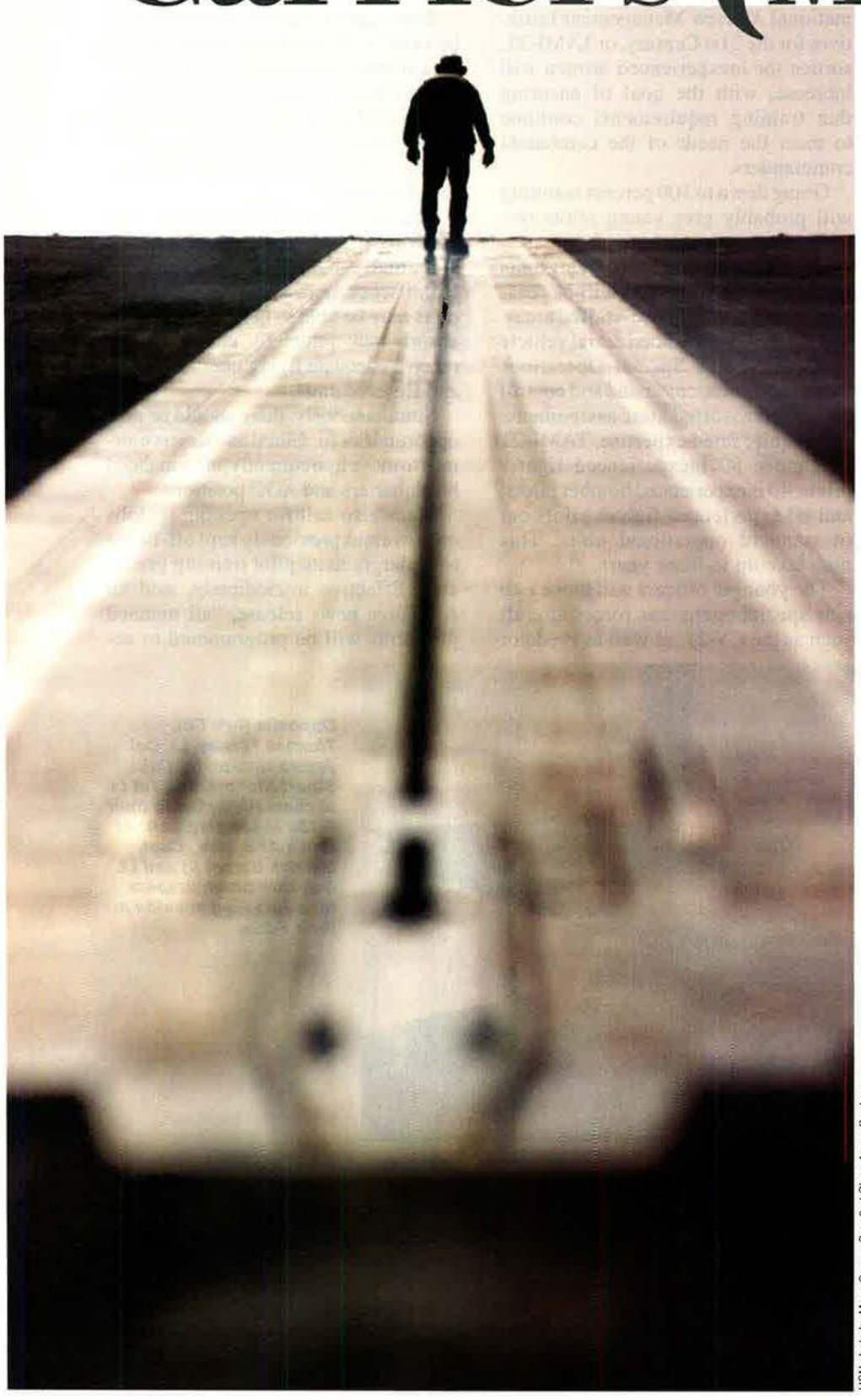
Simultaneously, there should be new opportunities for Guard and Reserve airmen to move into currently undermanned headquarters and AOC positions.

Plans also call for opening up jobs on airframes previously kept off-limits to undergraduate pilot training graduates. Effective immediately, said an Air Force news release, "all manned platforms will be programmed to accept" new pilots by the time they first become operational. This will include the F-35, next generation search and rescue helicopters, the KC-X tanker, and "all future systems."

Next year, for the first time, UPT grads will be assigned directly to the F-22, ending the F-15C's temporary monopoly on Raptor pilot positions. ■


***Opposite (l-r): Col. Thomas Tinsley, Lt. Col. James Hecker, Lt. Col. Stuart Nichols, and 1st Lt. Michael Hiatt step to their F-15s at Langley. Left: At Nellis AFB, Nev., Capt. Merrick Baroni (l) and Lt. Col. Dirk Smith prepare for a Red Flag mission in their F-22s.***

# Seven New Carriers (Maybe)



USN photo by Mass Comm. Spc. 2nd Class Aaron Burden

**The Navy plans to build many more flattops, and they won't be "Gary Hart carriers."**

By Otto Kreisher

**Today's** Navy leaders are in a bind. With the size of the fleet at 277 warships, and with a stated requirement for 313, the service faces a broad, long-term, and expensive shipbuilding task. Senior officers are struggling to find the money, with no assurance of success.

In the midst of all this, however, there is at least one certainty. Navy leadership is staunchly committed to buying many more big-deck, nuclear-powered aircraft carriers—the most powerful, and expensive, warships on Earth. The Navy's latest shipbuilding plan calls for building seven of these ships over the next 30 years.

The top admirals insist that the Navy's current force of eleven 100,000-ton, 1,100-foot-long floating airfields offers the best means for carrying out a wide array of US Navy missions. Adm. Michael G. Mullen, who served as Chief of Naval Operations before his recent elevation to become Chairman of the Joint Chiefs of Staff, told Congress this spring that the Navy wants big carriers because they supply "global reach" and "persistent presence."

Still, the high cost of building new carriers raises considerable concerns. Government and independent analysts assert that the Navy, if it sticks to its existing carrier plans, will run out of money to modernize and expand other vital parts of the fleet, such as submarines. They suggest dropping below a steady state of 11 supercarriers, or, in the alternative, switching to smaller and cheaper aviation-capable ships.

The Navy's position paper on its new class of carriers declares: "Nuclear aircraft carriers provide the nation with the capability to quickly bring significant firepower to the theater of operations, remain there for extended periods of time without the need to rely on bases from other nations, control the battlespace, and project power ashore."

That is true, however, only if the warships and their air wings also have access to air refueling and resupply, which, of course, in turn require access to bases on land and, usually, the support of Air Force aircraft. USAF fighters usually can deploy in force to a theater faster than can carriers, and can provide a heavier sustained punch, if they have access to theater bases. And Air Force bombers can, if necessary, conduct strikes from extreme distances—including from US bases.

Still, a 2006 RAND study noted, "On numerous occasions over the past 50 years, US military and civilian defense leaders have relied on aircraft carriers and their air assets, not only as key forward-based elements of the nation's deterrent and warfighting force but also when the US has needed to project military power, engage in hostile operations, provide humanitarian relief, or fulfill a range of other hostile and nonhostile missions."

## Afghan Naval Theater

Without air bases near Afghanistan, the early part of the Operation Enduring Freedom air war was handled by Navy and Marine Corps strike aircraft aboard carriers, while Air Force bombers pounded the Taliban from bases on Diego Garcia and in the United States. In the major combat phase of the 2003 Iraq War, sea-based fighters slightly outpaced the Air Force in strike sorties, but USAF, thanks to its bombers, delivered much more ordnance.

The size of the carrier force has fluctuated widely since World War II, but it stabilized after Vietnam at 15, each with an air wing of about 80 aircraft.

Although Navy leaders insisted that 15 was the minimum number needed to meet their obligations, budget constraints, the deteriorating condition of older carriers, and the increasing cost of the new ones forced an initial reduction to 12. With the decommissioning in March of the conventionally powered carrier *John F. Kennedy,* the force dropped to 11. Among Navy personnel, that number now is considered to be "the minimum."

To get more overseas presence out of fewer ships, the Navy in 2003 scrapped the constant deployment of two carrier strike groups and promulgated its "Fleet Response Plan," which promised to provide Washington the ability to surge six carrier groups within 30 days and a total of eight within 90 days. That capability was demonstrated partially in June 2004, when seven carrier groups were deployed at once.

Maintaining 11 carriers was a key element of the Navy's 30-year shipbuilding plan, which was adopted in 2005 in an effort to rebuild the fleet

USN photo by Chief Mass Comm. Spc. Spike Call

***Opposite, an aviation boatswain's mate checks the catapult on USS* Ronald Reagan. *Above, the* Reagan and *two destroyers power through the Pacific.***


USN photo by Mass Comm. Spc. 3rd Class Gary Prill

***Aircraft jam a carrier deck earlier this year during a munitions offload.***

to 313 combatants. It would require procurement of a new nuclear carrier every four years, so as to have replacements ready when the oldest carriers are stricken from the active list.

Mullen said the shipbuilding cost would average $14.5 billion per year, higher by several billion dollars than is the case today. Critics, within and outside of government, warn that Mullen's figure is far too optimistic. They say the Navy will need much more than that if it is to buy all of the ships that it says it needs.

J. Michael Gilmore, a Congressional Budget Office (CBO) analyst, told the House Armed Services Seapower subcommittee July 24 that the plan would generate expenditures of $23 billion a year. Similar warnings have been issued by three prominent naval analysts—Ronald O'Rourke of the Congressional Research Service; Norman Polmar, a private naval systems analyst and author; and Robert O. Work, a retired Marine Corps officer and now an analyst for the Center for Strategic and Budgetary Assessments.

O'Rourke, Polmar, and Work all have presented alternative shipbuilding plans that would support a steady state force of only seven or eight carriers. These plans are said to be more "affordable," which, in reality, means little more than "cheaper."

Work, in an effort to justify going to a smaller carrier force, pointed out that each of today's naval air wings, equipped with precision munitions in large numbers, could effectively hit six times as many targets as it could about two decades ago.

The analysts also disputed the accuracy of the Navy's projected cost for the next generation of nuclear carriers. The first of the line, not expected to enter service until 2015, will be named after the late President Gerald R. Ford. Polmar, in two recent articles in *Proceedings,* the journal of the US Naval Institute, said *Ford* would require research and development of $12 billion followed by $12 billion in construction costs. Excluded from those figures are the cost of aircraft themselves.

Polmar argued that the Navy should stop building its enormous nuclear carriers and build more of the 45,000-ton big-deck amphibious assault ships, which he said would cost about $2 billion and could carry a squadron of

USAF photo by SSgt. Jocelyn Rich

***When local land bases are in short supply, airpower's initial punch is often provided by carrier-based aviation and USAF's long-range bombers, such as this B-52, shown taking off from a forward operating location during Operation Iraqi Freedom.***

## Eleven Big Decks, and Another One on Deck

| Ship Name | Hull No. | Commissioned | Home Port |
|---|---|---|---|
| USS *Kitty Hawk* | CV 63 | April 29, 1961 | Yokosuka, Japan |
| USS *Enterprise* | CVN 65 | Nov. 25, 1961 | Norfolk, Va. |
| USS *Nimitz* | CVN 68 | May 3, 1975 | San Diego, Calif. |
| USS *Dwight D. Eisenhower* | CVN 69 | Oct. 18, 1977 | Norfolk, Va. |
| USS *Carl Vinson* | CVN 70 | March 13, 1982 | Newport News, Va. |
| USS *Theodore Roosevelt* | CVN 71 | Oct. 25, 1986 | Norfolk, Va. |
| USS *Abraham Lincoln* | CVN 72 | Nov. 11, 1989 | Everett, Wash. |
| USS *George Washington* | CVN 73 | July 4, 1992 | Norfolk, Va. |
| USS *John C. Stennis* | CVN 74 | Dec. 9, 1995 | Bremerton, Wash. |
| USS *Harry S. Truman* | CVN 75 | July 25, 1998 | Norfolk, Va. |
| USS *Ronald Reagan* | CVN 76 | July 12, 2003 | San Diego, Calif. |
| *George H.W. Bush* | CVN 77 | Building | ------- |

the short takeoff and vertical landing version of the F-35.

### Lehman's Taunt

Some in and out of the Navy refer to this ship concept as a "Gary Hart carrier," an epithet popularized in the early 1980s by Secretary of the Navy John F. Lehman and referring to then Sen. Gary W. Hart's call for small carriers using jump-jet aviation.

It is clear that the Navy doesn't like the idea any more than it did in the Lehman years. Navy officials consistently have rejected the idea of smaller flattops, arguing that supercarriers provide a stronger and more sustained combat punch at longer range, and are more survivable than the smaller ships.

Moreover, the Navy thinks the critics are inflating their cost estimates. Rear Adm. David Architzel, the program executive officer for carriers, wrote in the August issue of *Proceedings* that building *Ford* would cost $8 billion over several years, and the research, which will benefit all the future carriers, would cost only $5.6 billion. That is a total of under $14 billion, not the $24 billion lofted by Polmar.

Though the Navy rejects the ideas of most critics, it has accepted some recommendations in the RAND study, which said that future carriers, to meet emerging missions, "will need to be more modular, deploy on shorter notice, and be prepared to handle more casualties than they can today."

The Navy also wants to contain the cost of these new carriers. According to the Navy's fact sheet, the new Ford-class of warships "preserves the core capabilities of the carrier strike group but with more flexibility to adapt to changing missions, and with reduced manning and maintenance to lower total ownership costs."

Capt. Michael Schwartz, *Ford's* program manager, has repeatedly emphasized its flexibility, improved operational capabilities, and reduced cost. "The new carrier is being built with flexible, adaptable command and control spaces," Schwartz said, to support a wider range of missions. "In carriers today, it's all bolted down equipment, fixed infrastructure. For a ship that's going to have a 50-year service life, it's difficult for us to know what types of missions a carrier's going to be involved in."

The new carriers also are being designed to meet the Fleet Response Plan's requirement for greater availability by going at least 12 months longer between major maintenance periods.

Another key feature, say Navy officials, will be greater combat performance. A 1999 test determined that the maximum number of strike sorties a carrier could launch was 220 to 230 in 24 hours, and about 120 in a 12-hour operating cycle.

That exercise identified "the key bottlenecks," which were mainly the ability to move aircraft around the flight deck, carry out maintenance tasks, and refuel and rearm them for the next mission, Schwartz explained. The new carrier is being designed to reduce those bottlenecks so it can conduct sustained operations of 160 sorties in a 12-hour cycle and surge operations of 270 sorties in 24 hours.

Achievement of that goal, which is not assured, will require each carrier to have more flight deck space for moving and storing aircraft, more "pit stop" fueling points, more accessible maintenance and supply facilities, and a greatly streamlined system of moving, preparing, and loading weapons. They also will have launching and recovery systems that need fewer operators and less maintenance and are able to handle a wider range of airplanes.

According to Schwartz, the improved design "not only gives you the ability to launch more aircraft sorties, which is a great tactical advantage, but also allows you to do it more efficiently, with a lot fewer people than today." That in itself will reduce carrier expenditures, he added.

Current carriers operate with more than 5,500 personnel in the ship's crew and air wing crew. The goal is to operate *Ford* with 1,200 fewer personnel.

In a significant turn, the new carriers will also be expected to support a large unmanned combat air system (UCAS)—a stealthy drone that the Navy hopes will be able to conduct long-range, extended endurance strike and reconnaissance missions in high-threat environments. If development is successful, the UCAS could be available shortly after *Ford* enters the fleet in eight years.

Despite the domestic critics, the Navy is clearly betting the farm on supercarriers—both today and tomorrow. Navy leaders aren't alone in their devotion to the big decks; Britain, France, India, Russia, and China also are moving to acquire large, air-capable warships.

The aircraft carrier has been the Navy's premier weapon since it eclipsed the battleship during World War II, and the end of this dominance is nowhere in sight. Yet to be seen, however, is whether the Navy can create the carrier force it wants without wrecking its chances of building the larger, newer, and well-balanced fleet that it needs. ■

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*Otto Kreisher is a Washington, D.C.–based military affairs reporter and a regular contributor to* Air Force *Magazine. His most recent article, "Versatile, Ready, and Rated," appeared in the August issue.*

Bettmann/Corbis photo

**In World War II, a handful of American fliers answered Britain's call for help.**

# The Eagle Squadrons

**By Tamar A. Mehuron,** Associate Editor

By Sept. 19, 1940, the Battle of Britain had depleted the Royal Air Force. Its fighter pilots and airplanes were worn down and stretched to the max. Responding to Britain's call for more pilots, however, was a small group of American volunteers.

In a brief ceremony that day at Church Fenton, RAF Fighter Command stood up its first all-American fighter unit, No. 71 Squadron. This unit soon became known to all as the Eagle Squadron, inspired by America's national symbol. Within a year, they would be joined by two other Eagle outfits, No. 121 Squadron and No. 133 Squadron.

The three squadrons valiantly defended Britain in combat against the Nazis from Feb. 5, 1941, until Sept. 29, 1942, when they were assimilated into the expanding Army Air Forces presence there. The airmen then provided an invaluable boost of experience to the green USAAF crews who soon began to arrive in England in large numbers. "Those stout-hearted fellows who came from America to fight for us a year and a half ago, still fight with us," said Robbie Robinson, Member of Parliament and first intelligence officer for No. 71 Squadron, in a speech thanking them on the BBC.

By the end of 1942, the former Eagle Squadrons, now comprising USAAF's 4th Fighter Group, were the only US fighter group selected to remain to defend England, as most of the forces transferred to Africa for the North African campaign. It was a long road getting to that point, however.

USAF Museum

***Eight members of the first Eagle Squadron, No. 71, return from a training mission in October 1940.***

For Vernon C. Keough, Andrew Mamedoff, and Eugene Q. Tobin, three original members of No. 71 Squadron, the unit's activation made reality of their push to fly the RAF's hot military fighters of the day, the Hawker Hurricane and Supermarine Spitfire. And they were convinced that, sooner or later, America would be drawn into the war. They wanted to get in on the action on their terms—as volunteer fighter pilots, not as infantry draftees in the US Army. It was a sentiment felt by many of the Eagles.

Those Americans—244 in all—who formed the three Eagle Squadrons found their way to the RAF by various routes, all of them chancy. One avenue for volunteers was to enlist first in the British or Canadian armed services, and then try to transfer into the RAF. This was the route taken by Eagle William Dunn. He came into No. 71 Squadron in early 1941.

Several, including Keough, Mamedoff and Tobin, were assisted by Col. Charles Sweeny, a World War I Army veteran and admirer of the successful, legendary Lafayette Escadrille. In his post-Great War life, he was a daring, flamboyant promoter, who in the late 1930s and early 1940s publicized to Americans the French and British need for fighter pilots. His aim was to form an American squadron of fighter pilots, reprising the Escadrille.

*Eagle Squadron No. 71 member William Dunn is shown wearing both the RAF brevet and the US Army Air Forces pilot wings.*

Sweeny carried out his recruitment efforts in the face of stringent US Neutrality Acts, which forbade Americans to travel on the ships of combatant nations or travel in a combat zone. Violators were supposed to be subjected to stiff fines and other legal sanctions. Sweeny's recruitment activities in 1939 and 1940 thus earned him the ire of the US authorities.

Still, he was successful in finding volunteers. After the calamitous fall of France in June 1940, the US halted prosecution of violators of the Neutrality Acts. Sweeny pared down his operation, but still channeled recruits to Britain, via Canada and then by sea to English ports.

In this, he was aided by his nephew, Charles Sweeny, a successful businessman. Charles Sweeny got London's authorization to establish an American RAF fighter squadron. He organized the volunteers, sent by his uncle, who were to form the nucleus of the first Eagle Squadron. And he created the Eagle flash, inspired by the image on his US passport.

The Sweeny operation was not the only recruitment effort. Another, even larger supplier of American volunteers was what was called the Clayton Knight Committee, which operated from April 1940 to October 1942. Knight was a World War I aviator, admirer of the Escadrille, and an aviation artist. At the behest of World War I ace William A. Bishop, Knight obtained British support for an organization that could tap into the large pool of American pilots. The Knight Committee had considerable reach as a result of a network of offices throughout the United States.

Although Britain supported both the Sweeny and Knight operations, the Knight Committee supplied more than 80 percent of the pilots for the RAF's Eagle Squadrons. Out of nearly 50,000 Americans who signed up, the committee took 6,700 to become RAF pilots.

### A Passion for Flying

The Americans who volunteered were mostly men under the age of 25. They came from a wide variety of both blue-collar and middle-class jobs. With the nation just emerging from the poverty of the Great Depression, they lacked money for college. Some of them had taken jobs in aviation or aviation-related industries.

All of them, somehow, were bound by their experience in or passion for aviation. They came from all over the United States, with many from California, which was at the time the center of American aviation. Many lacked the education and physical requirements to get themselves into the coveted Army Air Corps training schools. The stipulation of two years of college and 20/20 eyesight shut the door to many worthy candidates.

The RAF had less stringent standards. There was no college requirement, and a prospective pilot's eyesight could be 20/40 if corrective lenses could produce 20/20 vision. Applicants had to have a birth certificate, a high school diploma, a minimum of 300 hours of certified flying time, a pilot's license, and be single.

The Eagles differed from their Lafayette Escadrille precursors in several areas. Many of the Escadrille pilots were well-educated and had come from wealthy, prominent Eastern families and tended to view flying as a hobby for the elite. The Eagles, for the most part, had high school educations and held blue-collar or working-class jobs. Far from treating flying as a lark, they had solid backgrounds in aviation. Carroll McColpin, for example, had more than 450 hours of flight time.

All of them recognized that volunteering for the RAF was their ticket to fly fast military aircraft, and to get into the war on highly exciting terms. Some were so eager to get in the British air service that they embellished their logbooks, registering more flight time than was actually the case.

Upon arrival in England, the volunteers were sent to an operational training unit for two to four weeks of initial flight training in Miles Master trainers, Hurricanes, and Spitfires. This was an important step in establishing a common baseline of flight training in fighters. When the volunteers completed this training phase, they usually were assigned to an RAF squadron.

There, the American volunteers were inculcated with the RAF cultural norms, military conduct, operations, and flying methods. The RAF approach was simple: If one could fly an airplane, one could fly all airplanes.

RAF Fighter Command divided Britain into geographic sectors called groups. Each group contained major cities and RAF bases, several of which were used by the three Eagle Squadrons.

Thus, No. 11 Group included the cities of London, Uxbridge, Dover, Southampton, and Portsmouth, as well as the Eagle Squadron bases of North Weald, north of London, Biggin Hill, south of London, the coastal bases of Martlesham Heath and Southend-on-Sea, and Debden and Great Sampford.

No. 12 Group, to the north, included the cities of York, Manchester, Liverpool, Birmingham, and Coventry, and housed the Eagle Squadron bases of Church Fenton, Kirton-in-Lindsey, Colly Weston, Coltishall, Fowlmere, and Duxford.

No. 13 Group covered the north, as well as Scotland and Northern Ireland, which housed the sole Eagle Squadron base of Eglinton near Londonderry.


Staff Illustration by Zaur Eylanbekov

***Maj. William Daley brought with him this Spitfire Mk VB No. EN853 AV-D (shown as it appeared in November 1942), into the USAAF's 335th Fighter Squadron.***

On May 14, 1941, the RAF stood up the second Eagle Squadron, No. 121, in Kirton-in-Lindsey, with a core of experienced pilots and headed by an RAF veteran of the Battle of Britain as squadron leader. After two months of training in Hurricane Is, the unit switched to Hurricane IIBs, and was declared operational July 21, 1941.

Just 11 days later, the third Eagle Squadron, No. 133, stood up, moved to Duxford, and spent the month of September training. As with the predecessor squadrons, No. 133 began with convoy patrol duties, their target area covering the North Sea.

All three Eagle Squadrons were commanded at first by English RAF squadron leaders, which afforded the Eagles more grounding in RAF operations. Later, they were commanded by Americans. All three units also began by flying convoy escort missions in Hurricanes and transitioned later to Spitfires.

By October 1941, No. 71 Squadron had wielded the Spitfire so effectively in combat that it led all of Fighter Command in enemy aircraft destroyed. The Eagles moved on to fighter sweeps in France. RAF operations called for fighters to undertake air defense missions, bomber escorts, and attacks on enemy targets.

The pilots normally would be on three kinds of alert. Cockpit alert required the pilot to be in or near the cockpit, ready to take off. This category called for the pilot to run the engine every half-hour, if weather permitted, so the aircraft would have full power right as it started.

The second type of alert required the pilot to stay in the alert shack or dispersal hut on the flight line. He was dressed in flight clothes with his Mae West inflatable life jacket on. His parachute would sit on the wing, his helmet ready atop the control stick. Once alerted, usually by telephone, he had two to three minutes to get airborne.

The third alert category was the 15- to 30-minute alert. In this situation, the pilots could be in their quarters or the mess, spending time reading, writing, playing cards or pool, but they had to be prepared to dash to their airplanes, most often to replace an alert crew that had already been scrambled.

Great care was taken not to grind down the pilots. The Eagles could request time away from duty, and each squadron had a different day off. There was also a stand-down day, with individual leaves on top of that.

Weather conditions proved to be almost as formidable a foe as the Luftwaffe. Bad weather led to the crashes of two No. 133 aircraft in October 1941. Poor weather grounded No. 71 Squadron for much of January 1942. Then, the weather cleared. That April, the squadron flew 661 missions, and on April 27, during a bomber escort mission over St. Omer, American squadron commander Chesley Peterson downed two enemy aircraft, with other squadron members destroying three more.

The three Eagle Squadrons flew together in only one mission: a raid on the French city of Dieppe on Aug. 19, 1942.

## Disaster Strikes

Designated Operation Jubilee, it was intended by the RAF as a dry run for an invasion of France. The raid was costly to the RAF, but the Eagle Squadrons outdueled the Luftwaffe on that day. For the Eagle Squadrons, Dieppe's bomber escort duty proved to be the high point of their service. The Eagles destroyed nine German aircraft and posted four "probables."

That victory was followed by disaster on Sept. 26, 1942.

Squadron 133 was assigned to bomber escort duty for a mission to Morlaix, France. The mission planner anticipated a routine flight, with intermittent clouds and a southerly 35 mph wind. Flying brand-new Spitfires, the pilots were to meet up with a force of bombers in midchannel between Bolthead and Morlaix. Once airborne, however, the pilots flew in heavy overcast and were unknowingly blown far south of their rendezvous point by 100 mph northern winds. They lost radio contact with ground control in England.

With fuel running low, the Eagles met up with a group of bombers returning to England, and began to escort them back to base. One of the Spitfire pilots requested permission to go down through the cloud cover to determine their location, and the entire flight went with him. When the squadron broke out of the cloud cover, they were over Brest, France, flying in the teeth of a huge German anti-aircraft artillery trap.

Four Eagle pilots were shot down and killed, six more were shot down and taken as prisoners of war. One Eagle crash-landed in England and was critically injured. The final pilot bailed out and made his way back to England with the help of the French underground.

All 12 Spitfires were destroyed.

Three days later, on Sept. 29, 1942, members of the three Eagle Squadrons were transferred directly into the 4th Fighter Group, US Army Air Forces.

Having flown for Britain for two years, the Eagles brought to their green American units a core of badly needed combat experience. After helping the RAF in its time of desperate need, many of the Eagle pilots continued to serve valiantly for the remainder of World War II.

Members of No. 71 Squadron merged into USAAF's 334th Fighter Squadron. Those of No. 121 moved over to the 335th Fighter Squadron. The Americans in No. 133 Squadron became part of USAAF's 336th Fighter Squadron. These units live on today as three of the squadrons flying F-15E Strike Eagles for the 4th Fighter Wing at Seymour Johnson AFB, N.C. ■

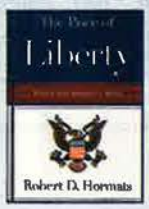
# Books

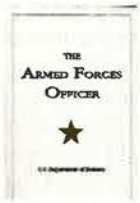
**Compiled by Chequita Wood,** Media Research Editor

***Airpower Leadership on the Front Line: Lt. Gen. George H. Brett and Combat Command.*** Lt. Col. Douglas A. Cox, USAF. Air University Press, Maxwell AFB, AL (334-953-2773). 102 pages. $10.50.

***Hog Pilots, Blue Water Grunts: The American Military in the Air, at Sea, and on the Ground.*** Robert D. Kaplan. Random House, New York (212-782-9000). 428 pages. $27.95.

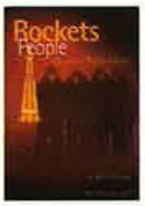

***The Price of Liberty: Paying for America's Wars.*** Robert D. Hormats. Times Books, New York (888-330-8477). 344 pages. $27.50.




***The Armed Forces Officer.*** US Department of Defense. Potomac Books, Dulles, VA (800-775-2518). 162 pages. $14.95.

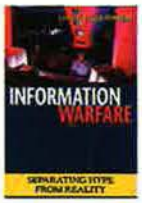
***Images of America: McClellan Air Force Base.*** Kyle Byard and Tom Naiman. Arcadia Publishing, Mount Pleasant, SC (888-313-2665). 127 pages. $19.99.




***Rockets and People, Vol. II: Creating a Rocket Industry.*** Boris Chertok. Supt. of Documents, Washington, DC (866-512-1800). 669 pages. $25.00.

***Beyond Preemption: Force and Legitimacy In a Changing World.*** Ivo H. Daalder, ed. Brookings Institution Press, Washington, DC (800-537-5487). 190 pages. $19.95.

***Information Warfare: Separating Hype from Reality.*** E. Leigh Armistead, ed. Potomac Books, Dulles, VA (800-775-2518). 189 pages. $24.00.



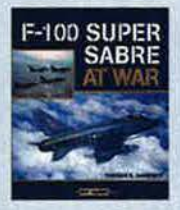

***Service to Country: Personnel Policy and the Transformation of Western Militaries.*** Curtis Gilroy and Cindy Williams, eds. The MIT Press, Cambridge, MA (800-405-1619). 499 pages. $27.00.

***Critical Issues in the History of Spaceflight.*** Steven J. Dick and Roger D. Launius, eds. NASA Center for AeroSpace Information, Hanover, MD (301-621-0390). 659 pages. $25.00

***Inside the Danger Zone: The US Military in the Persian Gulf, 1987-1988.*** Harold Lee Wise. Naval Institute Press, Annapolis, MD (800-233-8764). 272 pages. $36.95.


***War Bird Ace: The Great War Exploits of Capt. Field E. Kindley.*** Jack Stokes Ballard. Texas A&M University Press, College Station, TX (800-826-8911). 208 pages. $29.95.

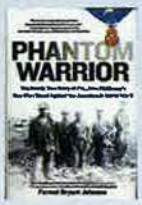
***F-100 Super Sabre at War.*** Thomas E. Gardner. Zenith Press, St. Paul, MN (800-766-2388). 127 pages. $19.95.




***Partners in Command: George Marshall and Dwight Eisenhower in War and Peace.*** Mark Perry. Penguin Press, New York (800-631-8571). 472 pages. $29.95.


***Where Valor Rests: Arlington National Cemetery.*** Rick Atkinson. National Geographic Books, Washington, DC (800-647-5463). 190 pages. $30.00.


***Front Row Center 3: Inside the Great American Airshow.*** Erik Hildebrandt. Specialty Press, North Branch, MN (800-895-4585). 160 pages. $39.95.




***Phantom Warrior: The Heroic True Story of Pvt. John McKinney's One-Man Stand Against the Japanese in World War II.*** Forrest Bryant Johnson. Berkley Caliber, New York (800-631-8571). 340 pages. $25.95.


***Wiring Vietnam: The Electronic Wall.*** Anthony J. Tambini. The Scarecrow Press, Lanham, MD (800-462-6420). 212 pages. $60.00.

**What has been lost with the demise of wipers, oilers, cleaners, and supernumeraries?**

# Vanished Arts

By Bruce D. Callander

As recently as World War II, the Army Air Forces had a military occupational specialty (548) for fabric and dope mechanic, and another (044) for canvas cover repairman.

While most of the aircraft of that era were made of aluminum, some trainers, gliders, and liaison aircraft still were cloth covered and "doped" with lacquer. Others had at least fabric-covered control surfaces. Some also retained wooden frames or plywood skins, so there was still an airplane woodworker specialty (550).

Today, the Air Force no longer even has reciprocating engine mechanics, but whole new families of specialties have grown up since World War II in fields scarcely envisioned in the era of fabric and dope mechanics—such as experts in unmanned aerial vehicles.

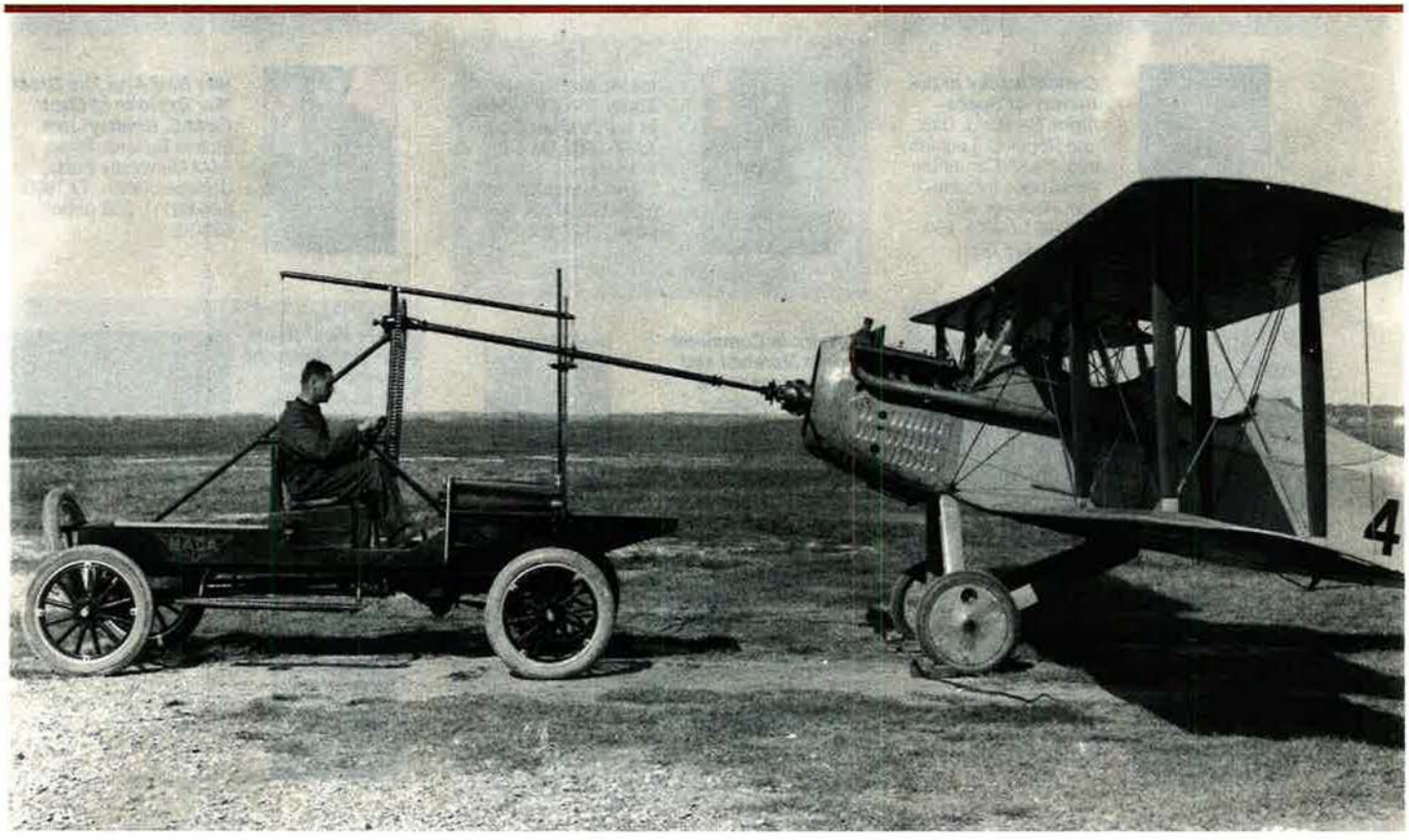
There is now an Air Force specialty code for navigators to fly Predator UAVs, noted Barry Craigen, chief of military classification at the Air Force Personnel Center at Randolph AFB, Tex. "They don't have to be an Air Force pilot. They just have to have an FAA certification of pilot."

Predator navigator is a far cry from the first specialties unique to aviation. Looking back on the specialties that have come and gone in the Air Force provides an insightful look at how much has changed over the years.

The first airmen had basic skills—pilot and aircraft mechanic. The first pilots were trained by the Wright brothers until the Signal Corps' Aeronautical Division set up schools to train its own.

Mechanics were another matter. Before the Army bought its first airplane, it had lighter than air vehicles and ground transports that required mechanics. Heavier than air flying machines were a totally new concept that demanded special skills.

By 1914, the Signal Corps had for-



*At bottom left, an airman uses a "Huck" starter to swing the prop of an aircraft. Below, an airman climbs into the ball turret of a B-17.*

malized the assignment of mechanics and had begun dividing them into specialties.

The NCO in charge was responsible for overall maintenance and, under him, other enlisted men had specific jobs. The No. 1 man was the "Oiler" who was in charge of the engine compartment. The No. 2 man was the "Wiper" who filled oil and fuel tanks and was in charge of lubrication. No. 3 was the "Cleaner" whose job was to take care of all controls except for the throttle. Nos. 4 and 5 were assistant cleaners, one of whom concentrated on all surfaces while the other tended to the fuselage, landing gear, and cockpit. A sixth man was a "Supernumerary" who filled in for the others and kept track of supplies and spare parts.

America's entry into World War I created a need to train mechanics by the thousands.

The US government agreed that newly recruited air mechanics would be assigned to British flying schools before moving on to France.

Among the first jobs for the Americans were creating make-shift hangars and assembling new airplanes, which arrived in crates from the factories. The war ended shortly thereafter.

## The Enlisted Pilots

By World War II, the number of specialties had increased sharply. Now there were power plant, super charger instrument, and automatic pilot specialists. There were fire control, sheet metal, and propeller workers.

When Congress created a new grade of aviation cadet to fill wartime needs in the 1940s, the Army launched a massive flight-training program. In time, the cadet program would expand to train nonrated officers in such fields as communications, armament, weather, and radar.

Congress soon invented a new rank, that of flight officer. It was the equivalent of a junior grade warrant officer but with flight pay. In theory, the rank was to be given to aviation cadet graduates who did not qualify as second lieutenants but, in practice, it was hard to tell why one cadet was commissioned and another made a flight officer.

The rank of flight officer did not last that long, and ended with World War II, but the cadet designation endured through the Korean War and into the 1960s, said Craigen. It was known by reporting identifier 99011, which was not deleted until March 1969. The Air Force then went back to requiring rated officers to have college degrees.

Enlisted pilots had a long history. In 1912, 1st Lt. Frank P. Lahm set up a flying school in the Philippines and, unable to attract enough officers, trained Cpl. Vernon L. Burge, one of the enlisted men who had been with Benjamin D. Foulois at Ft. Sam Houston, Tex. Thereafter, a number of enlisted men were trained as pilots. (Burge later became an officer and retired as a colonel.)

Only a handful of enlisted men trained as pilots through the First World War. In June 1941, Congress again authorized an enlisted pilot training

program. Men between ages 18 and 25 who had graduated in the top half of their high school class could apply.

The sergeant pilots of Class 42-C finished training and graduated on March 7, 1942, half from Kelly Field and half from Ellington Field, Tex.

The era of sergeant pilots was short-lived. Such training ended in late 1942, when the qualification requirements for the enlisted pilot and the aviation cadet program were made equal. Yet in the short time the sergeant pilots program existed, almost 3,000 enlisted pilots had earned their wings with the Army Air Forces and its predecessors. A small number of enlisted men also had been trained and served as navigators and bombardiers.

"Those who received their ratings in World War II and stayed in the USAF were allowed to continue on with their flying jobs," said Barry L. Spink, an archivist with the Air Force Historical Research Agency. The last enlisted pilot on active duty, said Spink, was MSgt. George Holmes, who retired in 1957.

Aerial gunners are still hanging on as a specialty, though the emphasis has shifted from air-to-air combat, to defending the aircraft, to attacking ground targets. Although a machine gun had been fired from an airplane as early as 1912, it was not until World War I that back-seat observers in the DeHavilland DH-4 used a Lewis gun in combat. Most gunners were enlisted men, and in the Meuse-Argonne offensive, American gunners shot down an estimated 94 enemy aircraft.

With the buildup to World War II, the Air Force began training as many as 3,200 gunners a week. They manned flexible guns and turrets in the B-17, B-24, and other bombers.

When the B-29 came along, the gunner was removed from the guns and instead aimed from a central gun control station.

Another breed of enlisted gunners developed from the Vietnam experience, when the Air Force outfitted transports as flying gunships.

There now are about 350 airmen classified as aerial gunners (1A7X10) for Air Force Special Operations Command's AC-130 gunships—less than one day's worth of bomber gunner production at the height of World War II.

During the war years, the Army Air Forces needed pilots so badly that female pilots helped fill the need. They were not, at the time, even considered to be in service. Known as Women Airforce Service Pilots (WASPs), they were essentially civil servants.

The WASPs flew most of the aircraft in the inventory at the time but were barred from combat, and, when there were enough male pilots available, the women were sent home. It would be decades before the WASPs were even recognized as veterans.

When the Air Force became a separate service, it rejected the Army's idea of having women in a separate corps. Females were known as WAFs (Women in the Air Force) and, theoretically at least, were on an equal footing with men. They had their own director, however, a ceiling on the ranks, and limits on their use in combat. Women would not return to the cockpit until 1976.

## Specialty Pilots

Some of the prominent specialties of World War II have completely fallen by the wayside, with the bombardier being the most prominent example. Like pilots and navigators, most bombardiers were trained under the aviation cadet program and commissioned as second lieutenants. By the Korean War, no more bombardiers were being trained as such.

Those who held the rating and remained in the Air Force were reclassified as aerial observers and designated as bombardier navigators.

In 1951, the ratings of service pilot, glider pilot, liaison pilot, and balloon pilot, along with those of bombardier, no longer were considered current aeronautical ratings.

Service pilots were fliers who had amassed large numbers of flying hours in civilian life but had not completed military flight training. Typical were airline pilots too old for combat but ideal as flight instructors.

Glider pilots were trained primarily to land the cumbersome, powerless aircraft that carried airborne troops into battle. Many were men who washed out of pilot training but still could handle the basics of landing a glider.

Liaison pilots flew light aircraft, often off-the-shelf civilian craft, as couriers, aerial spotters, and chauffeurs for ground officers. The training was minimal, and such pilots could be either officers or enlisted members.

Balloon pilots were largely a carryover from World War I's tethered balloons and dirigibles. By World War II, the Air Force no longer was training balloon pilots, and the rating soon was declared obsolete.

Interestingly, however, the art of ballooning was revived in the 1950s and 1960s as the Air Force sought information on how humans would react in space, and sent men to record altitudes.

In August 1960, Capt. Joseph W. Kittinger Jr. rode to an altitude of 102,800 feet in a balloon, bailed out, and fell to 18,000 feet before opening his parachute and landing.

After flying three tours in Vietnam and spending 11 months as a POW, Kittinger retired and made the first solo trans-Atlantic balloon flight, covering 3,500 miles in some 83 hours. If the balloon pilot rating hadn't been made obsolete, he easily could have claimed it.

Today, one of the trends affecting Air Force specialties is the shift of many noncombat duties to civilian employees or to contractors. Communication units at the base level are now primarily manned by civil service or contractor personnel. "The comm [airmen] will be very heavily engaged in electronic warfare, in cyberspace," said Craigen, as the more rudimentary tasks are contracted out.

More skills have been civilianized than ever before. "In many cases, you look at an air logistics center where they overhaul the aircraft, and those are civil service," Craigen said. At Randolph, civilians overhaul the T-38s, "but we still have aircraft maintenance officers."

In the end, the aim is not to make specialties obsolete but to match specialties to the Air Force's requirements. "We are looking at building an Air Force [with] breadth of experience," said Craigen. "So instead of looking at people with a narrow specialty, you have people who can do various things without going to a new tech school."

To that end, USAF is looking to merge its life support equipment and survival equipment AFSCs, because "there is so much overlap between the two."

The Air Force hasn't completely abandoned noncore tasks however. Craigen noted that at Randolph, "we still have food service officers. ... Baking and cooking is just part of this 'services' enlisted career field today." ■

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*Bruce D. Callander is a contributing editor of* Air Force *Magazine. He served tours of active duty during World War II and the Korean War and was editor of* Air Force Times *from 1972 to 1986. His most recent article for* Air Force *Magazine, "State-of-the-Art Teaching," appeared in the March issue.*

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# The Keeper File

# "Aerospace," According to White

*Are air and space separate military environments? Or are they simply parts of a single "seamless continuum"—the aerospace—in which USAF operates? These seemingly academic questions have stirred fierce debate for five decades, with perceived influence, resources, and policy direction in the balance.*

*Some trace the controversy to an* Air Force *Magazine article, published in March 1958, mere months after Sputnik. The author was Gen. Thomas D. White, USAF Chief of Staff. The title, "Air and Space Are Indivisible," said it all. White bluntly declared, "In discussing air and space, it should be recognized that there is no division,* per se, *between the two. For all practical purposes, air and space merge, forming a continuous and indivisible field of operations." He was formulating the integrative concept of "an aerospace." As is now clear, White's statement did not close, but only opened, the debate, which goes on to this day.*

**"Air and Space Are Indivisible"**

Gen. Thomas D. White
Statement in *Air Force* Magazine
Arlington, Va.
March 1958

**Find the full text on the Air Force Association Web site**
**www.afa.org**
***Air Force* Magazine**
**"The Keeper File"**

THE nature of international relations has been radically altered by the concurrent development of thermonuclear weapons, intercontinental bombers, and missiles. International relations soon will be further complicated by man's capability to travel in the far reaches of space. ... Aircraft, missiles, and spacecraft are mutually supporting systems. They are compatible in development and operational strategies designed to gain and hold a superior advantage in air and space. They are a functionally complete system.

This factor of system completeness must be kept in perspective if the future patterns of airpower are to be seen clearly. Manned aircraft, missiles, and piloted spacecraft which are responsive to the command and control structure of the Air Force are parts of a continuing integrated system. From an operational viewpoint, they are a single instrument. Operating under the same control structure, missiles, manned aircraft, and spacecraft will provide great flexibility. If circumstances should rule out mission accomplishment with one method, another method will be responsive to the mission. If more than one method is required, they can be applied simultaneously to the target objective.

Ballistic missiles have sometimes been erroneously referred to as the ultimate weapon. It is extremely doubtful whether there ever can be an ultimate weapon, although experience has shown that a single weapon or weapon system can be decisive at a certain time or place. Missiles should be considered as but another step, albeit a very important step, in the evolution from manned aircraft to true piloted spacecraft.

In discussing air and space, it should be recognized that there is no division, *per se,* between the two. For all practical purposes air and space merge, forming a continuous and indivisible field of operations. Just as in the past, when our capability to control the air permitted our freedom of movement on the land and seas beneath, so, in the future, will the capability to control space permit our freedom of movement on the surface of the Earth and through the Earth's atmosphere.

The Air Force has been pioneering in the fringes of space for several years with manned aircraft. The Bell X-2, a rocket research plane, carried Capt. Iven Kincheloe up to approximately 25 miles above the Earth at 1,900 miles per hour. The X-15, which is now in the development stage, is designed for speeds and altitudes much greater than those of the X-2. The next step is the Air Force program to fly at hypersonic speeds, circumnavigating the globe many times before re-entering the Earth's atmosphere.

As a weapon system, this program will represent the first major breakthrough in sustained piloted spaceflight. With this system, it will be possible to resolve many of the problems involved in either placing man on a continuous orbit around the Earth or sending him soaring into outer space and to nearby planets. At the rate things are going, it is technically feasible for manned spaceflight to become routine in a very few years. The current technological race is producing technological advances at an unprecedented rate. Engine thrust has been increased many times over what was considered excellent a few years ago, and personal equipment has been improved to a point where it will be adequate for manned spaceflight to the moon.

It is natural for the Air Force to have a major operational interest in the integration of air and space capabilities. Since the beginning of controlled flight in a heavier-than-air machine over 50 years ago, the Air Force has used the airplane as its basic system. During these years, it has accumulated a vast amount of development knowledge, operational experience, and practical skills. Today, as the United States Air Force stands on the threshold of the space age, this know-how—the Air Force maturity in the science of flight—is a tremendously valuable and important asset. Through constant exploitation of the range, speed, altitude characteristics, and carrying capability of aircraft, the Air Force has developed techniques of air warfare, which were brought to a high state of perfection in World War II and which were improved even more during the Korean War. Strategic air warfare, the capability to penetrate deep within an enemy's defenses and attack his vital sources of power, is but one product of Air Force imagination, skill, and experience. ...

Missile development and the probing of piloted craft into the fringes of space have been tremendous undertakings, surpassing even the Manhattan Project in scope and goals. In the not too distant future, efficient ballistic missiles and true piloted spacecraft will enter our forces as operational weapons. The Air Force will be ready to receive them and use them effectively, although new problems and challenges can be expected. ■

# AFA National Report

natrep@afa.org

**By Frances McKenney,** Assistant Managing Editor

### SECAF Visits Chapter

Secretary of the Air Force Michael W. Wynne and Lt. Gen. Gary L. North, commander of both 9th Air Force at Shaw AFB, S.C., and US Central Command Air Forces, attended a dinner co-hosted in July by the **Swamp Fox Chapter (S.C.)** and the Greater Sumter Chamber of Commerce.

In his remarks as guest speaker for this 10th annual gathering in Sumter, Wynne described his efforts to focus the Air Force's mission, its role in Iraq and Afghanistan, and the importance of defensive operations in cyberspace.

The 240 guests at this country club dinner included Sumter Mayor Joseph T. McElveen Jr., who is an Air Force veteran; Chamber of Commerce Board Chairman Jack Osteen; and several AFA state leaders: David T. Hanson, the Southeast Region president; Rodgers K. Greenawalt, state president; and Col. Lance S. Young, president of the **Strom Thurmond Chapter (S.C.).** David A. Cotton, president of the Swamp Fox Chapter, was master of ceremonies for the evening.

Hanson said this was the Secretary's first visit to Shaw, and Wynne was able to meet airmen from 9th Air Force and the 20th Fighter Wing.

Photo courtesy Air Force Academy

***AFA Board Chairman Bob Largent presents the Outstanding Squadron Award to Cadet Squadron 8 at the Air Force Academy in May. L-r are squadron supervisors TSgt. Randy Kwiatkowski, MSgt. Andrew Lucas, and Maj. Ronald Tewksbury, Largent, and CS-8 cadets Ryan Twedell, Tanya Dubiel, and Brandon Nolan.***

### Bags to Balad

The **Lufbery-Campbell Chapter's** project to give duffel bags to wounded service members has expanded from its home base at Ramstein, Germany, to Iraq. It's so successful that the chapter even turned down money offered by a Stateside AFA chapter that wanted to help with this initiative.

The project began a year ago, with the outreach tour made by AFA Chairman of the Board Robert E. Largent to bases within US Air Forces in Europe. Largent met with leaders of the Lufbery-Campbell Chapter at Ramstein and suggested distributing duffel bags to service members wounded in Iraq and Afghanistan. He had learned that such patients going through Landstuhl Regional Medical Center and Ramstein are authorized $250 to buy civilian clothing to wear while they're traveling to the next medical facility or to their home station—but the funds can't be used for a bag to carry the clothing in.

Led by SMSgt. Kenneth E. Gammons, the chapter president, the A=Aers at Ramstein began fund-raising to buy duffel bags. In Pennsylvania, **Joe Walker-Mon Valley Chapter** members read about this and offered to contribute funds. By then, however, the Ramstein chapter's very first Community Partner had stepped in and donated $7,000, with the promise to keep buying the bags as long as necessary.

The first presentation of duffels—emblazoned with the AFA logo—to Ramstein's Contingency Aeromedical Staging Facility took place in February. Armed Forces Network Germany covered the event.

A few weeks later, chapter member Lt. Col. Daniel H. Drejza told a chapter meeting about the 332nd CASF at Balad AB, Iraq. A program there provides wounded military members with sweatsuits to wear before they're medevaced out of the country. Drejza thought the sweatsuit and duffel programs complemented each other.

Gammons contacted Maj. Kara Neuse, a chapter member deployed to Balad, and in July the first 150 duffel bags arrived in Iraq. "Please know that you are making a huge impact through your generosity to our wounded service members," Neuse wrote to Gammons.

Another shipment of duffels was on its way in September, and the chapter continues to sell some of them to raise money for scholarships.

### Take Off, Land, Take Off ...

A member of Georgia's **Carl Vinson Memorial Chapter** flew a Beechcraft B55 into every public airport in the state. That's 106 airports, more than 39,000 air miles, over a three-year period.

At the Georgia State Convention in Warner Robins in August, guest speaker Lt. Col. Jeffrey L. Thetford told the audience that he did it to promote the Air Force and the Air National Guard.

"In some of the small towns, people had never even met an Air Force member," said Thetford, an ANG intelligence detachment commander. "It was amazing how much interest people had in talking with someone in the Air Guard about serving our country and state."

The journey required collecting information on every runway and its potential trouble spots and planning the navigation to as many airports as possible in one trip. Thetford once hit nine fields in one day.

Trained as a navigator, he has flown more than 4,500 hours in the B-1, B-52, RC-135, and E-8 Joint STARS. He completed his tour of the Peach State's airfields on Nov. 5, 2006, landing at Hartsfield-Jackson Airport in Atlanta.

In other convention activities, AFA Board Chairman Largent joined Georgia State President Lynn M. Morley in presenting 11 state-level awards.

Edward I. Wexler of the Savannah Chapter received the state's top award for an AFA member. Lt. Gen. David Poythress, the adjutant general for Georgia, was keynote speaker for this awards luncheon.

**Where Did You Serve?**

A JROTC color guard presented the colors. Civil Air Patrol cadets performed a Fallen Comrades ceremony. The VIPs were introduced. Then all the military veterans at this **Gold Coast Chapter** meeting in Florida were asked to stand up, state their name, branch of service, and when and where they served.

It was amazing, reported Virginia S. Montalvo, the chapter's aerospace education VP. More than half the audience rose to their feet, she said. Among them: a Marine Corps veteran of the D-Day invasion, a sailor who served on a destroyer during the Korean War, a Vietnam War pilot, a soldier who served in Desert Storm, even a captain from the World War II Women's Army Corps. Montalvo said the audience gasped when one pilot stated that he flew 50 missions over Europe and Korea.

Just as impressive was the meeting's guest speaker, Tuskegee Airman Leo R. Gray. Now a retired lieutenant colonel, a chapter member, and recipient—this past March—of a Congressional Gold Medal, Gray spoke about being a part of America's first black military flying units in World War II. He was a P-51 pilot.

Gray described the challenge of overcoming adversity, and considering his audience of all-services vets from at least four wars, "we could all relate to that," Montalvo said.

**From the Team of the Year**

A member of AFA's Team of the Year addressed the July meeting of the Gen. **Joseph W. Ralston Chapter** in Cincinnati, speaking about the work of Air Force expeditionary medics in Iraq.

Col. Jay A. Johannigman was among the seven medical personnel selected as AFA's 2007 Team of the Year, this spring. Although team members historically come from the enlisted ranks, this year's honorees included two officers representing the nurses and doctors who are integral to a medical team.

Johannigman was an Air Force Reserve flight surgeon with the 332nd Expeditionary Medical Group, Balad AB, Iraq, and has served three tours of duty for Operation Iraqi Freedom. He is preparing for a fourth, according to Chapter President Robert L. Brewster.

In civilian life, Johannigman is chief of the trauma and critical care division at University Hospital at the University of Cincinnati.

For the chapter meeting, Johannigman backed his remarks with a PowerPoint presentation. His audience included CAP cadets as well as chapter officers Edward L. Katz, who is VP, Treasurer S.G. Howell, and Veterans Affairs VP Olaf Kahn.

**Surgeon in WWII**

In August, members of the **Columbus-Bakalar Chapter** in Columbus, Ind., learned about the work of a surgeon from an earlier war.

Paul Muller received a commission as a first lieutenant on joining the Army in June 1941. He served with the 61st Troop Carrier Group and later became executive surgeon with 9th Troop Carrier Command headquarters in Grantham, England. He helped plan the air evacuation of troops wounded in the D-Day June 1944 invasion of Normandy and also saw firsthand the conditions at the Buchenwald, Germany, concentration camp after its liberation by US forces in April 1945.

A native of Lawrenceburg, Ind., Muller returned to the Indianapolis area in 1949 and for 18 months was wing surgeon for the Reserve's 434th Troop Carrier Wing, located at Atterbury Army Airfield (later named Bakalar Air Force Base). He left the service as a colonel and resumed his civilian medical practice.

For the chapter meeting, Muller showed photos that he and Army photographers had taken during World War II and at Buchenwald.

Later, chapter members escorted Muller on a tour of the Atterbury Bakalar Air Museum at the Columbus Municipal Airport, where the chapter holds its meetings. Chapter Secretary James R. Alvis reported, "He was delighted and surprised to see all of the artifacts in the small museum."

**Louisiana Teachers**

The **Ark-La-Tex Chapter** at Barksdale AFB, La., honored three teachers with a banquet on the base in June.

Kimberley Meeder, a third-grade teacher at Bellaire Elementary School in Bossier City, took home two titles, as State Teacher of the Year and Chapter Teacher of the Year.

Linda Robinson of Benton High School and Mitchell Maxwell from Cope Middle School in Bossier City were runners up for the chapter TOY award. Chapter President Anthony E. Wolf made the presentations.

USAF photo by TSgt. Alan Port


***At Balad AB, Iraq, Ramstein Chapter member Maj. Kara Neuse (center) holds a box of duffel bags received in September from the chapter. The bags go to military personnel receiving treatment at the 332nd Contingency Aeromedical Staging Facility.***

Retired MSgt. Wes Browning, an aircraft mechanic in the Philippines when World War II began, was the evening's guest speaker. He spoke about the destruction of American aircraft in the Philippines when the Japanese attacked US bases there, shortly after Pearl Harbor. He described his subsequent three months as an infantryman and his capture in early 1942. He spent the next three years as a POW.

**More Chapter News**

■ The **Brig. Gen. James R. McCarthy Chapter** hosted the Florida State Convention in July at Daytona Beach, with AFA's new President-CEO Michael M. Dunn returning to his home there to serve as the awards banquet speaker. At the gathering, three Jimmy Doolittle Educational Fellows were named: John P. Johnson, president of Embry Riddle Aeronautical University; Thomas Connolly, the university's chancellor; and the school's AFROTC Det. 157, led by Col. Thomas Schrader. Chapter President Marguerite H. Cummock and David R. Cummock, an AFA national director, sponsor the fellows—an idea, Marguerite Cummock said, that "maybe other members will pick up."

■ At an August meeting of the **Strom Thurmond Chapter** at Clemson University, S.C., a US Army veteran received a Purple Heart to replace one that he had originally received during the Korean War. Former SSgt. John McCraw's original award was stolen, and only recently was all the paperwork resubmitted through the office of US Sen. Jim DeMint (R-S.C.). McCraw, who earned the award when he was assigned to the 1st Cavalry Regiment, received the award from Col. Lance S. Young, chapter president, and Seth Blanton, representing DeMint. Blanton also spoke to the gathering about military issues. His boss is a member of the Air Force Caucus.

■ A co-founder of the Air Force Caucus, US Rep. Cliff Stearns (R-Fla.), was guest speaker for the August meeting of the **Red Tail Memorial Chapter** in Ocala, Fla. Stearns is an AFA national director but didn't have an AFA lapel pin—a shortcoming that Chapter President Michael H. Emig fixed with a presentation at the meeting. Stearns founded the Air Force Caucus on Capitol Hill in 1998 with fellow USAF veterans Rep. Sam Johnson (R-Tex.) and Rep. Joseph R. Pitts (R-Pa.). Sen. Michael B. Enzi (R-Wyo.) leads the Senate's caucus. Today, the group numbers more than 100 members from the House and Senate.

■ In Virginia, **Northern Shenandoah Valley Chapter** members took a dozen military veterans out to the ball game—a Winchester Royals baseball game, played against the Waynesboro Generals. Both are summer collegiate teams made up of players from various colleges. The chapter's guests came from the Veterans Affairs Medical Center in Martinsburg, W.Va., and one of them had the honor of throwing out the first pitch. Chapter Veterans Affairs VP James R. Phillips organized the outing. Chapter members who attended the game included VP Norman M. Haller, Leadership Development VP Thomas G. Shepherd, and Arthur Olson II.

■ In May, the **Brig. Gen. E. Wade Hampton Chapter** hosted the New Jersey State Convention at Atlantic City, N.J. Col. Frederick H. Martin, commander of the 305th Air Mobility Wing at McGuire AFB, N.J., was guest speaker. Master of ceremonies for the event was Murlin R. Lower, state VP and treasurer of the **Highpoint Chapter.** ■

## Air Force Association/AFA Veteran Benefits Association Consolidated Statement of Financial Position

### Dec. 31, 2006 Assets

| | |
|---|---|
| **Cash and Investments** | |
| Cash and Cash Equivalents | $2,281,571 |
| Marketable Securities: | |
| Debt Securities | 7,286,210 |
| Equity Securities | 14,074,342 |
| Total Marketable Securities | 21,360,552 |
| Total Cash and Investments | 23,642,123 |
| **Accounts Receivable** | |
| Trade, Net of Allowance for Doubtful Accounts | 899,721 |
| Insurance Experience Refund | 645,627 |
| Accrued Interest | 152,180 |
| Other | 6,314 |
| Total Acount Receivable | 1,703,842 |
| **Prepaid Expenses** | 236,271 |
| **Inventory** | 92,548 |
| **Property and Equipment** | |
| Land | 929,491 |
| Building and Improvements | 19,727,560 |
| Furniture and Equipment | 1,499,115 |
| | 22,156,166 |
| Less Accumulated Depreciation | (8,118,681) |
| | 14,037,485 |
| **Prepaid Pension** | 5,413,113 |
| **Other Assets** | 1,668,461 |
| **Total Assets** | $46,793,843 |

### Liabilities and Net Assets

| | |
|---|---|
| **Liabilities** | |
| Accounts Payable | $1,421,432 |
| Insurance Dividend Payable | 288,948 |
| Accrued Expenses | 457,211 |
| Deferred Revenue: | |
| Membership Dues | 697,390 |
| Magazine Subscriptions | 80,868 |
| Other | 57,033 |
| Total Deferred Revenue | 835,291 |
| Note Payable | 6,025,000 |
| Total Liabilities | 9,027,882 |
| **Net Assets** | |
| Unrestricted | 36,729,547 |
| Temporarily Restricted | 464,175 |
| Permanently Restricted | 572,239 |
| Total Net Assets | 37,765,961 |
| **Total Liabilities and Net Assets** | $46,793,843 |

## Air Force Association/AFA Veteran Benefits Association Consolidated Statement of Activities

### Year Ended Dec. 31, 2006

| | Unrestricted | Temporarily Restricted | Permanently Restricted | Total |
|---|---|---|---|---|
| **Revenue** | | | | |
| Contributions | $1,297,529 | $354,366 | $9,499 | $1,661,394 |
| Investment Earnings | 3,518,809 | 5,750 | | 3,524,559 |
| Aerospace Technology Expo & Conference | 2,669,981 | | | 2,669,981 |
| Membership Dues | 2,369,874 | | | 2,369,874 |
| Member Group Insurance Programs | 1,692,094 | | | 1,692,094 |
| Magazine | 1,614,785 | | | 1,614,785 |
| Building Operations | 827,052 | | | 827,052 |
| Royalities | 711,666 | | | 711,666 |
| Symposia | 442,118 | | | 442,118 |
| Patron Dues | 264,523 | | | 264,523 |
| Industrial Associates | 79,750 | | | 79,750 |
| Other | 52,951 | | | 52,951 |
| Net Assets Released From Restriction | 352,413 | (352,413) | | |
| Total Revenue and Support | 15,893,545 | 7,703 | 9,499 | 15,910,747 |
| **Expenses** | | | | |
| Program Services: | | | | |
| Member Group Insurance Programs | 2,656,183 | | | 2,656,183 |
| Professional Development | 1,835,978 | | | 1,835,978 |
| Magazine | 1,451,028 | | | 1,451,028 |
| Aerospace Technology Expo & Conference | 962,253 | | | 962,253 |
| Scholarships | 456,488 | | | 456,488 |
| Patronship | 342,804 | | | 342,804 |
| Policy and Information | 250,311 | | | 250,311 |
| Calendar | 107,063 | | | 107,063 |
| Lapel Pin | 106,217 | | | 106,217 |
| Industrial Associates | 94,937 | | | 94,937 |
| Eaker Institute | 15,000 | | | 15,000 |
| Miscellaneous | 109,915 | | | 109,915 |
| Total Program Services Expenses | 8,388,177 | | | 8,388,177 |
| Supporting Services: | | | | |
| Membership | 5,313,279 | | | 5,313,279 |
| Building Operations | 918,471 | | | 918,471 |
| General and Administrative | 501,511 | | | 501,511 |
| Total Supporting Services | 6,733,261 | | | 6,733,261 |
| Fundraising Expenses | 170,405 | | | 170,405 |
| Total Expenses | 15,291,843 | | | 15,291,843 |
| **Change in Net Assets Before Capital Additions, Unrealized Loss on Marketable Securities, and Reclassification of Net Assets** | 601,702 | 7,703 | 9,499 | 618,904 |
| Capital Additions | 274,289 | | | 274,289 |
| Unrealized Loss on Marketable Securities | (728,736) | 3,883 | | (724,853) |
| Reclassification of Net Assets | (324,699) | | 324,699 | |
| **Change in Net Assets** | (177,444) | 11,586 | 334,198 | 168,340 |
| **Beginning Net Assets** | 36,906,991 | 452,589 | 238,041 | 37,597,621 |
| **Ending Net Assets** | $36,729,547 | $464,175 | $572,239 | $37,765,961 |

Treasurer's Note: On April 1, 2006, the Air Force Association transferred all activities, with the exception of its headquarters building and insurance programs, to the Aerospace Education Foundation, an affiliated organization exempt from tax under section 501(c)(3) of the code. AEF was renamed AFA, and the former AFA was renamed the AFA Veteran Benefits Association. While AFA and AFA/VBA operate as separate entities, they share a common board, thus the financial reporting is required to be consolidated. Single year financial statements are presented here since 2006 is the first year of operations as AFA and AFA/VBA.

### Have AFA News?

Contributions to "AFA National Report" should be sent to *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: natrep@afa.org. Digital images submitted for consideration should have a minimum pixel count of 900 by 1,500 pixels.

## Unit Reunions

reunions@afa.org

**9th BW.** Sept. 27-30 in Boise, ID. **Contact:** Dan Walbrecht (208-587-2266) (dwalbr8331@aol.com).

**13th AF** (WWII). Nov. 7-10 at the Holiday Inn Select, in Tulsa, OK. **Contact:** Raymond Perkins (918-227-9824) (nperkins2@peoplepc.com).

**29th BW** (WWII), 20th AF. Nov. 1-3 at the Radisson Hotel New Orleans Airport, LA. **Contacts:** Sue Nass, Steve Nass, or Larry Nass (480-838-5957) (neworleans29threunion@yahoo.com).

**36th/585th Air Police,** Bitburg AB, Germany. April 10-12, 2008 at the Sheraton Hotel in Tucson, AZ. **Contacts:** Jim Yarsevich (518-371-4892) (jimyarsevich@hotmail.com) or Denny Nichols (805-445-9165) (nickman777@msn.com).

**126th BW, 108th, 168th,** and **180th BS.** Dec. 6-9 in San Antonio. **Contact:** Joe West (joegowest@aol.com) (www.126thbombwingreunion.homestead.com).

**579th SMS.** May 15-18, 2008 in Roswell, NM. **Contact:** Fred Mortimer (727-734-3487) (fmortimer@tampabay.rr.com).

**AF Log. Officer Assn.** Nov. 12-15 at the Hilton in Washington, DC. **Contacts:** Bob Drewitt (916-947-6287) (olkegler@sbcglobal.net) or Dave Miller (937-602-1046) (dclzmiller@fuse.net).

**Pilot Training Class 55-P.** Nov. 8-11 at the Plaza Hotel & Casino in Las Vegas. **Contact:** Dave McCracken (307-635-1464) (jdmccrack@aol.com).

Seeking **AAF cadets** from **Wolford College,** Spartanburg, SC (1943), for a reunion in Miami in December. **Contact:** Joe Sestito, 6 Carlone St., Fairmont, WV 26554 (304-363-7859).

Seeking members of the **553rd Recon Wg** (1969-70) Korat AB, Thailand, for a reunion. **Contact:** Robert Spurlin (robert.spurlin@va.gov). ■

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Unit Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

# Verbatim

**By John T. Correll,** Contributing Editor

**Who Needs ISR?**

"The day of the spy-in-the-sky approach to intelligence gathering may be coming to an end, plagued by cost overruns and systems so complex they take too long to perfect and probably, most importantly, are increasingly less useful in the age of terrorism."***—Dan K. Thomasson, former editor of the Scripps Howard News Service, op-ed column,*** **Washington Times,** ***Aug. 1.***

**World's Worst Problem**

"The Americans want so much to be the winners. The fact that they are sick with this illness, the winner's complex, is the main reason why everything in the world is so confused and complicated."***—Former Soviet leader Mikhail Gorbachev, news conference in Moscow, July 27.***

**The More Strategic Service**

"In recent years, the Army and the Air Force have followed the example of the Marine Corps in posturing themselves as expeditionary warfighters. But the part of the Navy Department run by admirals doesn't really see itself that way. It views its forward deployed aircraft carriers and submarines as instruments of foreign policy as much as combat systems—in other words, as versatile tools in a global strategy. Because the Navy thinks strategically rather than tactically, its leaders are more comfortable with the nuances and ambiguity of political processes than warfighters in other services. So Navy leaders get along better with political appointees, ascending to the top jobs."***—Loren B. Thompson, Lexington Institute, July 31.***

**The Ground Force Force**

"The Marine Corps and Army have a proud record of training riflemen. Some may ask why the Air Force wants to establish its own ground combat schools. The real question, however, should be: Why is the Air Force assigning its airmen to be riflemen? The answer to the question is, 'Somebody made a bad decision.' If the Air Force can provide airmen to fill thousands of Army riflemen positions, the Air Force must have more personnel than it needs to do its job. Wouldn't it be smarter to provide those 5,000 or more manning slots to the Army so it can recruit and train riflemen to do the job the Army way?"***—Charles D. Sutherland, 32-year Air Force veteran, www.airforcetimes.com, July.***

**Have a Nice Day**

"Brands such as Starbucks and Apple have captured the hearts and minds of consumers. ... Since before World War II, the US military has developed a brand identity based on a force of might. ... Like consumer products positioned and branded for a day gone by, so too is the US military brand identity now—at least in part—out of date."***—"Enlisting Madison Avenue: The Marketing Approach to Earning Popular Support in Theaters of Operation," RAND study proposing a friendlier "brand" image for US troops, July 17.***

**Air-Raiding Villages**

"Now you have narco drug lords who are helping to finance the Taliban, so we've got to get the job done there, and that requires us to have enough troops that we are not just air raiding villages and killing civilians, which is causing enormous problems there."***—Sen. Barack Obama (D-Ill.), campaigning in New Hampshire Presidential primary race,*** **Nashua Telegraph,** ***Aug. 14.***

**Interpreting Torture**

"The Geneva Conventions provide important protections to our own military forces when we send them into harm's way. Our troops deserve those protections, and we betray their interests when we gratuitously 'interpret' key provisions of the conventions in a manner likely to undermine their effectiveness."***—Ret. Gen. P.X. Kelley, former Commandant of the Marine Corps, and Robert F. Turner, University of Virginia Center for National Security Law, on latest White House interpretation of permissible prisoner interrogation techniques,*** **Washington Post,** ***July 26.***

**Just Like Old Times**

"It was always a tradition for our long-range aircraft to fly far over the ocean, where pilots met American airplanes and visually greeted them. On Wednesday, we renewed that tradition."***—Maj. Gen. Pavel Androsov, Russian Air Force spokesman, on approach to Guam and US bases there by two Tu-95 Bear bombers,*** **Washington Post,** ***Aug. 10.***

**Well, Sort Of**

"US forces were prepared to intercept the bombers, but they never came close enough to a US Navy ship or to Guam to warrant an air-to-air intercept."***—Lt. Cmdr. Chito Peppler, Pentagon spokesman, on the Russian bombers, which never got closer than 305 miles to Guam, Reuters, Aug. 10.***

**Enabling Force**

"Air Mobility Command has requirements for modernization like we've never had in the past. [Air Mobility] is the No. 1 single enabling force [to carrying out the Air Force's strategic mission].***—Ret. Gen. Ronald R. Fogleman, former Air Force Chief of Staff, speaking at Fairchild AFB, Wash., July 24.***

**Laser Logic**

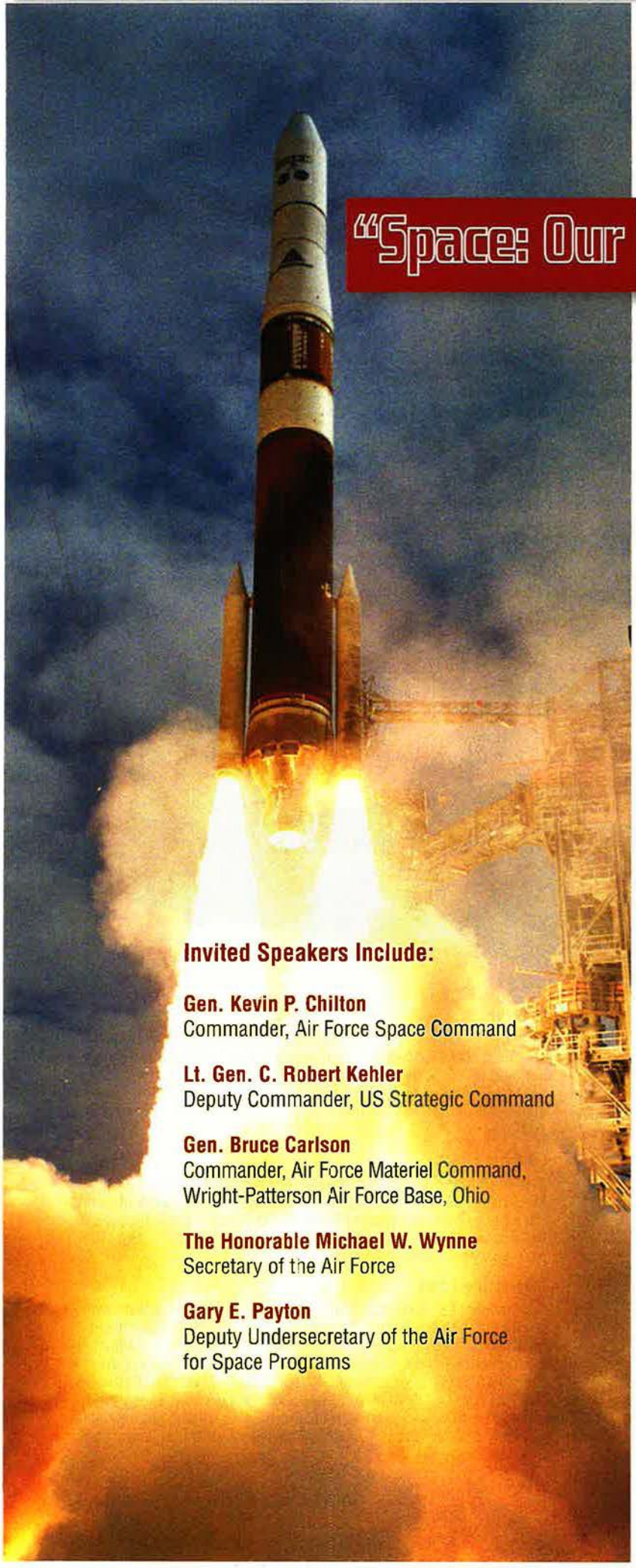
"We estimate that North Korea has around 800 [theater range] missiles in their operational inventory. Intercepting these missiles during their boost phase while still over North Korean territory would be a huge combat multiplier for me."***—Army Gen. B.B. Bell, top US commander in South Korea, on need for airborne laser,*** **National Review,** ***Aug. 13.***

**Considering the Draft**

"I think it makes sense to certainly consider it, and I can tell you, this has always been an option on the table."***—Army Lt. Gen. Douglas E. Lute, deputy national security advisor for Iraq and Afghanistan (aka the "War Czar"), on the possibility of a return to the military draft, "All Things Considered," National Public Radio, Aug. 10.***

**Not by the Pentagon**

"There is absolutely no consideration being given to reinstituting a draft. ... The all-volunteer force has surpassed all of the expectations of its founders."
***—Pentagon spokesman Bryan Whitman, responding to Lute's statement on NPR, meeting with reporters, Aug. 13.***



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## "Space: Our Heritage, Our Future"

Beverly Hilton Hotel
Los Angeles, California
Friday, November 16, 2007

### Invited Speakers Include:

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**Lt. Gen. C. Robert Kehler**
Deputy Commander, US Strategic Command

**Gen. Bruce Carlson**
Commander, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio

**The Honorable Michael W. Wynne**
Secretary of the Air Force

**Gary E. Payton**
Deputy Undersecretary of the Air Force for Space Programs

### Panel Discussion:

There will also be a panel discussion with aerospace industry leaders moderated by Lt. Gen. Michael A. Hamel, Commander, Space and Missiles Systems Center, AFSPC

### The Air Force Association's National Symposium on Space:

In the 21st century, space capabilities serve all warfighters. Space provides for precise navigation and timing, missile warning, surveillance, space control, weather tracking, and communications. In fact, space assets are essential to all military operations and to the nation. Airmen, soldiers, sailors, and marines in the field require critical information to do their jobs and to stay ahead of the enemy.

At the 2007 AFA Los Angeles National Space Symposium and Ball, top military and commercial leaders will address the contributions of space to the combat environment and current challenges affecting the military, civilian, and commercial space partnership.

### The AFA Annual Air Force Ball

The 36th Annual AFA Air Force Ball will also be held at the Beverly Hilton Hotel on Friday evening, November 16. For additional information regarding the Ball, and to reserve tickets and/or a table, please call Henry Sanders at (310) 645-3982.

### Beverly Hilton Hotel

If you plan to stay at the Beverly Hilton Hotel, please call the hotel directly to make reservations as soon as possible at (310) 274-7777 or 1-800-HILTONS. Mention the AFA Symposium to receive the special Symposium rate of $245 for a single or double room, plus taxes, which are currently 14.05%, plus 1.37% surcharge. The deadline to receive these rates is October 27, 2007.

### Symposium Registration

The fee for the Symposium is $495. This includes continental breakfast, coffee breaks, and lunch. For nonmembers, the fee is $595. To register, call 1-800-727-3337, extension 5848, or visit www.afa.org.

# Airpower Classics

**Artwork by Zaur Eylanbekov**

# F4U Corsair

The F4U was the naval fighter Japanese airmen feared most. The powerful Corsair dominated the Pacific air war, racking up an 11-to-1 exchange ratio (2,140 kills v. 189 losses). It reprised that success as a ground support airplane in the Korean War. This fleet, rugged fighter-bomber was the finest naval aircraft of its era, but it took some time to build up a head of steam.

From the beginning (1938), the goal was to build a small, sleek airframe with a monster engine. The flush-riveted Corsair—easily recognizable for its inverted gull wings—used a Pratt & Whitney R-2800 engine driving a huge 13-foot 4-inch propeller. Yet it had poor lateral stability, bad landing visibility, and it bounced on carrier decks. The Navy at first found it unsuitable, but the Marine Corps used it—as a land-based fighter. The Royal Navy figured out how to use it on carriers; the US Navy followed suit. The Corsair had blazing speed (the first 400 mph production airplane) and a high roll rate. The first Navy squadron was deck-qualified in April 1943. Soon, land- and sea-based F4Us were making life miserable for enemy pilots and troops.

In World War II, the Corsair flew 64,051 sorties—44 percent of the Navy-Marine Corps fighter total. It delivered 15,621 tons of ordnance—70 percent of the naval fighter total. In Korea, the Navy-Marine Corps team deployed 33 F4U squadrons, which devastated ground targets. Truly, it was one of the all-time greats.

*—Walter J. Boyne*

**This aircraft:** Navy F4U-1A Corsair BuNo 18086—*Lulubelle*—as it looked in late 1943 in the Pacific. It bears the name and victory markings of USMC Maj. Gregory "Pappy" Boyington, of VMF-214 "Black Sheep" fame.


***F4U-5N "night fighter" Corsair during the Korean War.***

### In Brief

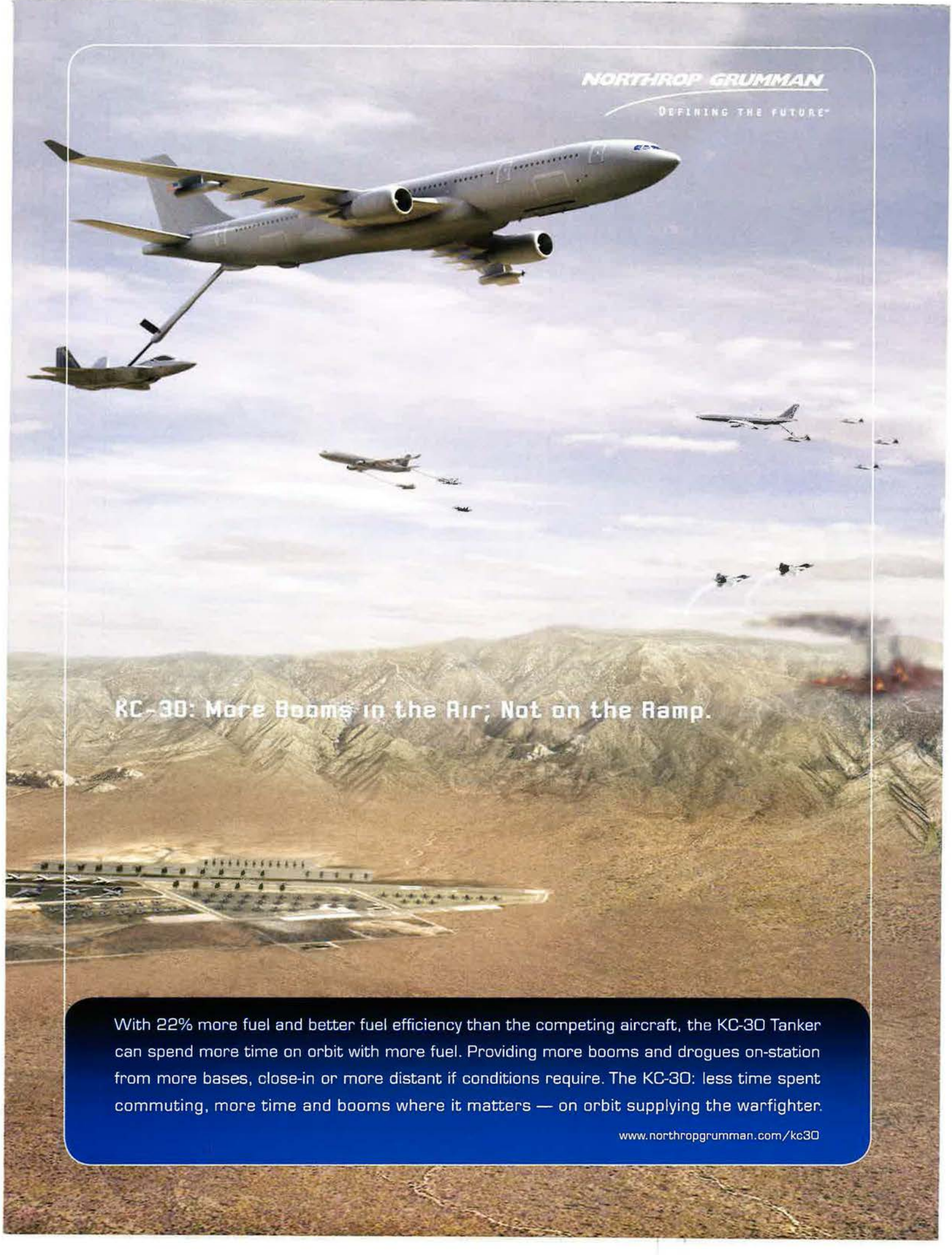
Designed by Charce Vought ★ built by Vought, Goodyear, Brewster ★ first flight May 29, 1940 ★ crew of one ★ P&W R-2800 engine ★ number built 12,571 ★ **Specific to F4U-1A:** max speed 417 mph ★ cruise speed 185 mph ★ max range 1,070 mi ★ armament six .50 cal machine guns ★ weight (max) 14,000 lb ★ span 41 ft ★ length 33 ft 4 in ★ height 16 ft 1 in.

### Famous Fliers

**Medal of Honor:** USMC Maj. Gregory Boyington, USMC 1st Lt. Robert M. Hanson, USMC 1st Lt. Kenneth A. Walsh (all WWII); USN Lt. (j.g.) Thomas J. Hudner Jr. (Korea) **Notables:** Lt. Cmdr. John T. Blackburn, Navy Cross (WW I), USMC Capt. Jesse G. Folmar, MiG-15 killer (Korea), Charles Lindbergh (WWII).

### Interesting Facts

Built longer (12 years) than any piston-engine fighter ★ called "Whistling Death," "Hose Nose," "Bent Wing Bird," "U-Bird," "Sweetheart of Okinawa," "Ensign Eliminator" ★ flown by Lindbergh, as civilian, in Pacific War ★ used by Honduras, El Salvador, in 1969 "Soccer War" ★ seen in 1970s TV series "Baa Baa Black Sheep," 2006 Clint Eastwood film "Flags of Our Fathers," and 1951 John Wayne film "Flying Leathernecks" ★ first Navy craft with flush-retracting landing gear ★ "state airplane" of Connecticut ★ used by France in Vietnam, Algerian, and Suez wars.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