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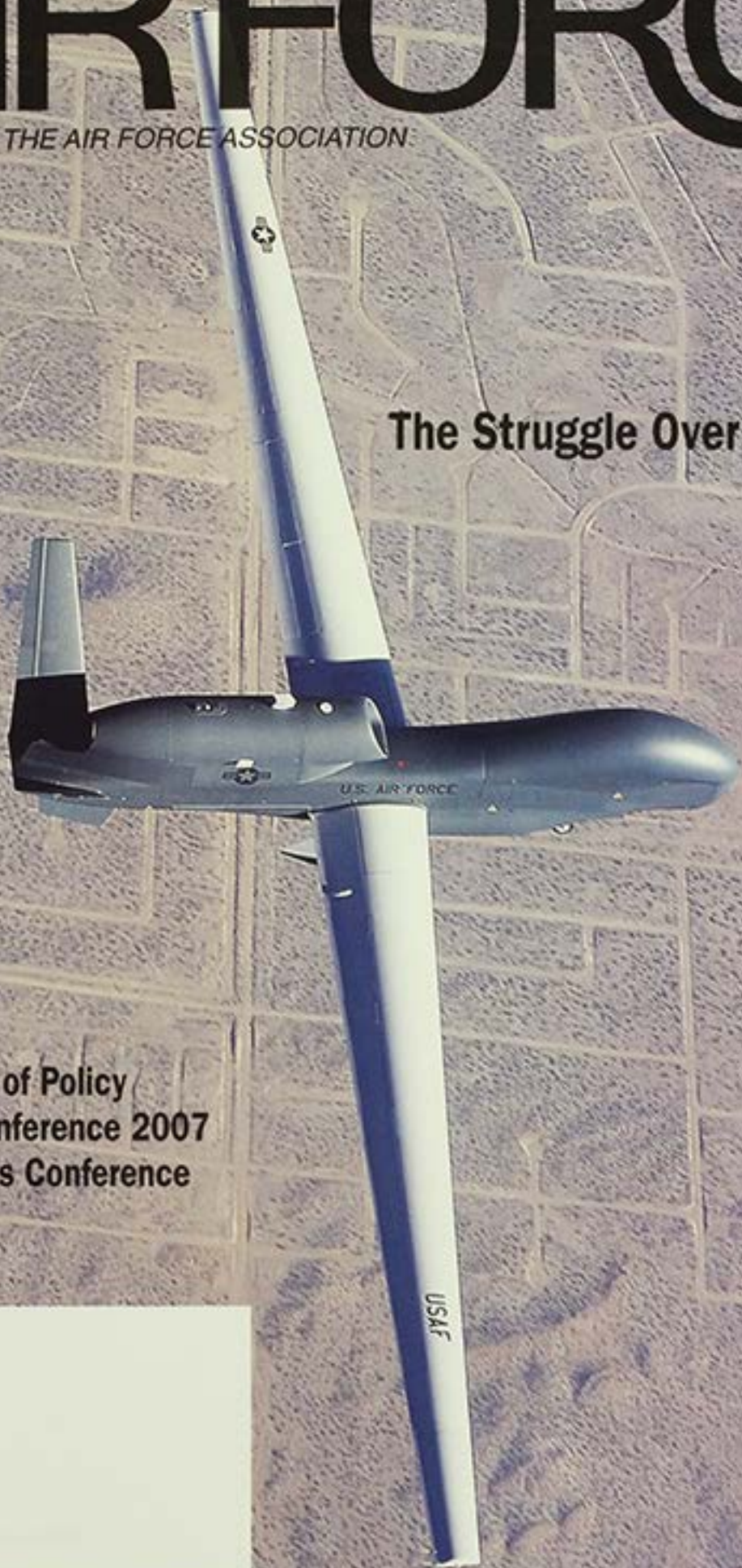
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JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

The Struggle Over UAVs

AFA Statement of Policy
Air & Space Conference 2007
Global Air Chiefs Conference





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About the cover: A Global Hawk unmanned aircraft flies over land under development for a residential area in the California high desert. See "The Struggle Over UAVs" p. 32. Photo by Northrop Grumman.

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By Robert S. Dudney, Editor in Chief

Net Force

The Air Force, having openly declared its intent to dominate cyberspace, is now getting blowback in Washington. This is strange, given that USAF is a pacesetter in the virtual world and lives or dies by what happens there.

USAF's cyber stature is not in doubt. It has waged cyberwar in three recent conflicts. It has signed out a new mission statement putting cyberspace on par with air and space as a combat domain. It has activated a provisional major command dedicated to cyber warfighting. It has poured billions into the mission.

For all that, its actions arouse concerns. What is USAF up to? Where is it going? The service clearly has a big stake in cyberspace, but many in the defense world fret about its aggressiveness.

Lt. Gen. Robert J. Elder Jr., commander of 8th Air Force and the service leader on cyberwar issues, reports that questioners often challenge him about USAF's motives and willingness to cooperate with other services and agencies. "They say, 'The Air Force put this [cyberspace] in its mission statement; do you think you own it?'" Elder notes.

To this, Elder has a ready response: "No, we don't own it." USAF does, however, have a deep interest in what goes on in this vast netted world of data banks, sensors, and command and control elements. That is precisely as it should be, and the Air Force should ignore the complainers and press on toward its goal.

That goal is hardly a military secret. In a May 23 speech, Secretary of the Air Force Michael W. Wynne stated, "In the future it will be vital that we ... dominate cyberspace."

The basis for this belief can be discerned in "Victory in Cyberspace," a study released in October for the Eaker Institute, the research arm of the Air Force Association. The author, defense analyst Rebecca Grant, expertly traces the development of cyber networks and how they largely define today's Air Force. She writes that, in the 1990s, cyber power advanced from being a limited, intelligence-based tool to an actual combat instrument.

Grant emphasizes that USAF relies on digitized information to power its

advanced combat systems and magnify targeting, attack, and other capabilities. "In fact, the Air Force's formation, over the past decade, of secure networks for expeditionary operations has become central to the way it fights," she says.

The flow of data to command and control networks or airborne battle networks is the fuel of USAF might in the physical world. Cyber networks make possible what is termed "cross-domain opera-

The Air Force should ignore the complainers and press on toward its goal.

tions." Simply put, execution of key tasks in "physical" air and space depends on "virtual" cyber functions.

Striking mobile targets, for example, would be impossible without networks in cyberspace to swiftly distribute images and signals.

Conversely, Grant warns, cyberspace looms as a potentially fatal Achilles' heel. The military—especially USAF—has entrusted more and more of its warfighting "valuables" to these networks, she says, in search of faster communications and data transfer. That has created vulnerabilities.

In Grant's estimation, any adversary who can impair access to cyberspace can greatly diminish the speed, range, and flexibility that USAF currently provides to a joint force commander.

The networks comprise physical, virtual, and cognitive "social" systems. If any fail, combat capability would suffer. Thus, writes Grant, "defending the ability to use established cyberspace systems that enhance the application of air and space power amounts to Job One" for airmen.

The Grant study suggests that, in a tactical sense, the bulk of USAF's work focuses on defeating intruders via detection and deflection, before they can paralyze cyber systems, alter stored data, or steal classified information.

Even so, effective defense of the networks requires offensive cyber weapons, too. These are among the most highly classified of instruments, but their use would be obvious. Elder told an Eaker Institute audience on Oct. 6, "We're

probably going to leave a little message that goes on the screen, that says, 'This computer network attack brought to you by the United States Air Force.'"

Former USAF Chief of Staff Gen. John P. Jumper, another Eaker panelist, likened the Air Force approach to dominance of the air through defensive and offensive counterair operations, noting that both are vital to success.

Still, Grant writes, three decades of experience suggests that cyberspace, with its multitude of public connections, never can be completely secured. That means the Air Force must prepare ways to continue fighting even when under virtual attack.

Claims of the critics notwithstanding, the Air Force wants as much help as it can get. It seeks to team with a large number of partners—military, civilian, law enforcement, commercial—in hopes of maximizing US defensive strength.

Example: USAF will fund 200 airman billets at the headquarters of the National Security Agency at Ft. Meade, Md. They will support NSA's network intelligence work in return for reciprocal NSA help in various areas.

The Air Force also seeks to establish a dedicated cyber unit in the Air National Guard in every state, Elder says.

In the end, though, none of these partners will be able to guarantee the security of USAF's access to cyberspace. The Air Force itself must take the lead.

We are proud of the Air Force for moving out and meeting this challenge head on. In a sense, USAF has consciously made itself dependent on cyber systems that can be attacked and defeated more readily than is the case with its physical systems. Thus, it is now up to the Air Force to make sure the dangers are kept in bounds. The Air Force is uniquely placed to master the challenge. The technology and techniques are available.

"It's time to get started," Jumper told the Eaker Institute audience. "It's time for us to organize ourselves and get started on this problem in a formal way.... This isn't about ownership. This is about starting down a path," at the end of which lies effective dominance of a critical new warfighting domain. ■



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Compass Call in Afghanistan

As an Air Force Association life member, I receive your magazine monthly. In your September issue, your article titled, "Watch on Afghanistan" [p. 46] caught my attention and I immediately turned the pages to read it. As I continued to read the article, I soon discovered again that pervasive bias that comes through in your magazine articles—a bias focused on fighter aircraft and their missions. More saddening is the omission of other critical aircraft, missions, and organizations at Bagram Air Base. In this article, you totally missed even mentioning the Compass Call mission and those who fly the EC-130s. What's so disappointing about your article is that the EC-130s have been in Afghanistan longer than most of the organizations you wrote about and, most likely, have recorded the most hours flown in-theater supporting crucial ISR missions. It would have been nice if you'd given credit (how about a paragraph at least?) to the mission and people who belong to Compass Call. Remember, they're your readers too!

Col. Ronald P. McCoy,
USAF (Ret.)
Yorktown, Va.

Air Force Century

[In reference to "The Air Force Century 1907-2007: List of Ten," September, p. 69]: I expect you will have many reactions to your lists of 10. Regarding key airplanes, I submit the B-24 Liberator as an important candidate.

Castle Air Museum, in Atwater, Calif., celebrated its 25th anniversary in 2006. When the museum was created, it inherited the traditions of the 93rd Bomb Group and its outstanding record in World War II. The B-24 made an immense contribution to victory in WWII. Castle Air Museum is proud to have one of the rare examples of the B-24 bomber at the entrance to the museum.

The B-24's greatest strength was its versatility and capacity to adapt to a variety of operations, including bombing, transport, submarine patrol, reconnaissance, and many special missions.

The B-24 Liberator participated in

many air battles over Europe with Eighth Air Force, resulting in the loss of thousands of airmen from 1942 to 1945. Jimmy Stewart flew 20 combat missions as command pilot in a B-24 with Eighth Air Force, and he was reported to say, "I think most of those who flew the airplane have a very soft spot in their hearts for the machine."

More than 19,000 B-24 aircraft were produced during World War II by many different manufacturers. This aircraft served in many theaters of war in a wide variety of missions and many airmen lost their lives in this aircraft. It is incredible that any vestige of the immense contribution of this aircraft to victory has almost disappeared. Today there are only two B-24s still flying and only a few available anywhere in the world on static display.

This historic aircraft is a proud symbol of victory for all who served in World War II. To celebrate its 25th anniversary, Castle Air Museum has recognized the B-24 Liberator's historic contribution with a special pin with the image of the aircraft at Castle Air Museum.

Col. Edward R. Nacey,
USAF (Ret.)
Atwater, Calif.

The September issue of *Air Force Magazine* is wonderfully done. It covers the whole 100 years of birth and growth of our air arm with the major individuals, machinery, and dates that allow us to follow its development from inception to today. The magazine is a keeper.

During World War II, I served in Europe. Like many men who worked with her, I fell

Do you have a comment about a current article in the magazine? Write to "Letters," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. (E-mail: letters@afa.org.) Letters should be concise and timely. We cannot acknowledge receipt of letters. We reserve the right to condense letters. Letters without name and city/base and state are not acceptable. Photographs cannot be used or returned.—THE EDITORS

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Letters

in love with the B-26 Martin Marauder, which was designed with short wings which were so highly weight-loaded that takeoffs and landings were necessarily at higher speeds than many pilots could handle. She had been described as the "Flying Prostitute" and the "Baltimore Whore" because she had no visible means of support. In addition, the Army kept changing features that added more weight to the plane that made it even worse. In fact, during flight training she was called names such as "B Dash Crash" and "One a Day in Tampa Bay."

Despite all of the problems she had in the air, she was not only beautiful, she had all of the qualifications the Army Air Corps wanted in a medium-size, lower altitude bomber that could travel at pursuit plane speed. The Glenn L. Martin Co.'s design won hands down in the bidding on the specifications of such a ship. Seven of the major aircraft companies had bid, and Martin was far ahead of its competitor.

The contract was approved on Sept. 20, 1939. Before any test flight, much less the start of production, was made, the Air Corps increased the order by 139 planes. Probably the first moniker she won was the "Flying Torpedo," because she had a very streamlined shape, the fuselage resembling a torpedo. Her flying problems began at the outset. But over the next two or three years, [we] learned that the fault was not in the design, but mainly in our failure to [ensure] that everyone who was responsible for putting the B-26 into the air and caring for her condition was as technologically advanced as she was. Until the planners, the mechanics, and the pilots learned why she behaved as she did, and then used her advantages, she was difficult. But when our people learned to handle her, she became a craft that did a tremendous job. She racked up a long list of aircraft firsts.

We who flew as her crew members learned to love her as the best. I was not a pilot. I had "washed out" of pilot training. My combat missions were flown as an armorer-gunner. Since we bombed in formation and bombardiers were needed only in the lead ships, I flew in her pretty Plexiglas nose and dropped the bombs on signal. We called ourselves "togglers." But I know that the pilots loved her, too. The pilots who stuck with her and became confident in her, deserve a snappy salute and thanks. To top it all off, she recorded the lowest combat loss record in the ETO, of any other bomber.

Jim Taylor
Norway, Maine

I enjoyed the article "The Air Force Century: Key Dates in Air Force History." I noticed that the advent of radar interceptions in fighter aircraft was not mentioned. [Too bad,] since this was the birth of our present day software for the fighter weapons systems.

I volunteered for the night fighter program in 1942 at Orlando, Fla. I later flew the RAF Beaufighter.

Maj. Rayford W. Jeffrey,
USAF (Ret.)
Cherokee, Ala.

Enlisted at Kasserine

A comment: Rebecca Grant's article "Up From Kasserine Pass" did not mention the role played by enlisted pilots.

The 316th Troop Carrier Group, with the 36th, 37th, 44th, and 45th Squadrons commanded by Jerome B. McCauley, a 1932 staff sergeant pilot, and a large majority of the air crews being enlisted pilots, arrived in the Middle East in November 1942, just after General Montgomery's British Eighth Army push from El Alamein began.

Ninth Air Force, under General Berton, assigned our 52 C-47s to support the British Eighth Army, which we did through Tunis. We were issued British uniforms, but wore American insignias. They also painted red, white, and blue squares on our aircraft tail so as not to confuse the RAF. This allowed the British press corps from Cairo, Egypt, to take pictures of us from a distance and inform the world that the Middle East was a total British show.

We enlisted pilots from Classes 42-F and 42-G flew as enlisted pilots in the 316th Troop Carrier Group supporting British General Montgomery's Eighth Army until the middle of February 1943 (three months), when the flight officers' rank finally caught up with us. We were later promoted to second lieutenants, over a year after graduating from flight school.

When General Patton made a bet with General Montgomery concerning reaching an objective, General Patton lost, and a C-47 was given to Montgomery, with Eddie Russell, Class 42-G Ellington, a former enlisted pilot, [assigned] to be his personal pilot.

The Air Force Enlisted Heritage Hall at Maxwell AFB, Gunter Annex, in Montgomery, Ala., has a very large biography of most of the enlisted pilots.

Brig. Gen. Edwin F. Wenglar,
USAF (Ret.)
Enlisted pilot, 1942-43
Francitas, Tex.

Excellent time line article on the history of the Air Force. But I question the caption on the picture of the Minuteman launch on p. 66. In the caption you state, "The Minuteman II version remains the backbone of the nuclear missile force." I disagree. Minuteman IIs were deactivated years ago. Currently the Minuteman III is the backbone of the nuclear missile force.

I was assigned to Minot Air Force Base, 740th SMS, in late 1970 and was one of the first group of Minuteman III missile combat crew commanders there. 91st SMS was the first missile wing to get the Minuteman III, AKA Minuteman modernized.

Lt. Col. Boyd C. Yaden,
USAF (Ret.)
Clackamas, Ore.

Chopper Requirements 101

[Regarding the article "The Struggle Over CSAR-X," September, p. 80]: I am a retired master Army aviator and instructor pilot with 22 years' experience in the planning and operation of helicopters. My last tour of duty was in Afghanistan as an aviation planner for the 101st Airborne Division, which conducted the air assault on al Qaeda and Taliban forces entrenched along the Pakistan-Afghanistan border during the Battle of Anaconda.

Over the past months, I have witnessed the protestations of the losing contractors on the Air Force's selection of the HH-47 as the winner of the CSAR-X competition for replacement of the Air Force's HH-60G combat rescue helicopters.

Having personally been involved with CH-47 in combat operations, and witnessed the saving of many lives by this versatile medium lift helicopter, I cannot sit by and watch the desperate political campaign to besmirch the capability of this well-proven combat helicopter to perform the combat rescue mission.

It is not an overstatement to say that the US would have not been able to successfully conduct combat operations in Afghanistan if it were not for the unique capabilities of the CH-47 helicopter. These advantages include combat proven survivability and unsurpassed payload and range performance, which, due to its tandem rotor configuration, can be maintained even at the high and hot environments specified in the Air Force CSAR-X requirement.

Some critics have pointed to the forced landings of two MH-47 aircraft during the Battle of Anaconda to suggest that this aircraft is somehow more vulnerable than its competitors in combat operations. To the contrary. I was directly involved with the Battle of Anaconda, [for which] I was awarded a Bronze Star, and can attest that rather

than a demonstration of vulnerability, the fact that both MH-47s were able to make controlled landings after being directly hit by anti-tank rocket-propelled grenades (RPGs) is firm testimony to their robust ability to take battle damage. The operational commanders sent these helicopters directly into harm's way, because enemy heavy machine gun fire was raining down on the 101st Airborne troops below, and no other helicopter could make the 10,500-foot insertion. While these MH-47s were able to take direct RPG hits and still make controlled landings, direct RPG hits on smaller helicopters, such as the HH-60s in Somalia, ended in catastrophic loss. None of the other candidate CSAR-X helicopters can claim anywhere near the HH-47's level of combat proven capability.

In addition to proven performance and survivability, the HH-47 also enjoys the tandem rotor's unique capability of being able to hover with its nose at any aspect relative to wind direction that the pilot chooses. This flexibility can be critical in recovery operations and getting into and out of difficult recovery areas as well as operating off of ships. Single rotor helicopters, particularly when they are being operated at their maximum performance capacity, are often restricted by their tail rotor control limits. This often requires pilots to keep

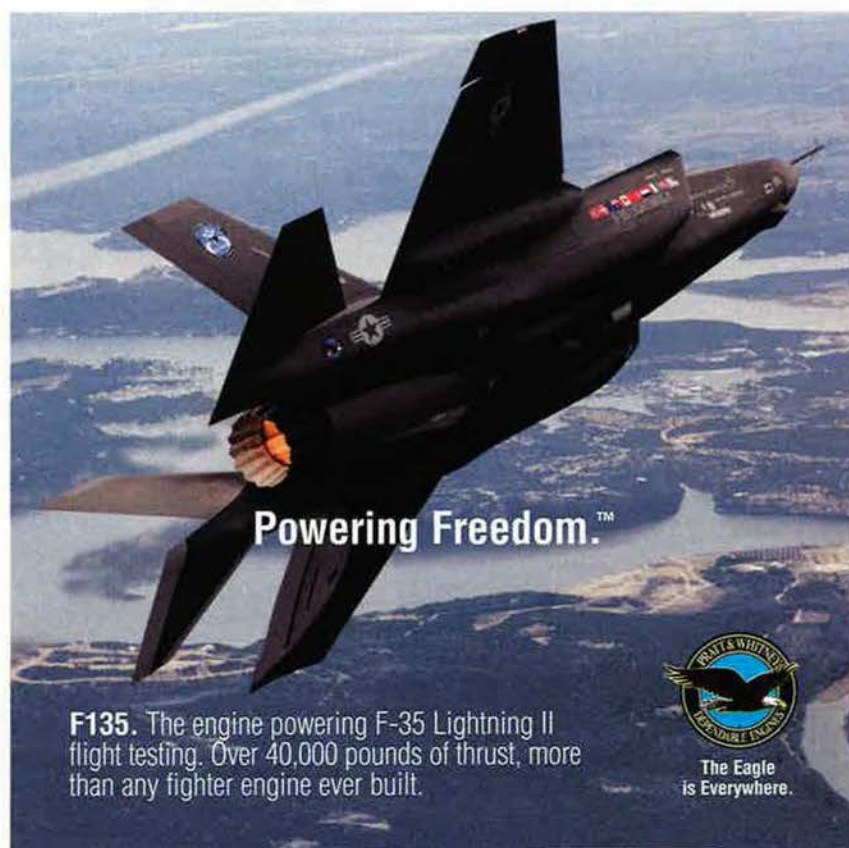
the single rotor helicopter's nose into the wind during recovery operations.

The tandem rotor CH-47 also enjoys a much wider center of gravity envelope. When operating in Afghanistan, I witnessed firsthand how critical the CH-47's tremendous flexibility in loading-unloading in combat conditions was, where crews did not have the time to tailor load outs to fit within narrow center of gravity envelopes typical of single rotor helicopters.

All of these attributes, coupled with the combat proven reliability of the CH-47 helicopter, has made the CH-47 the helicopter platform of choice for combat commanders not only in Afghanistan, but Iraq, Pakistan, Philippines, and many other areas where helicopters have been critical to combat and humanitarian relief operations.

Critics of the Air Force's selection of the HH-47 might concede all of the above, but still maintain that the HH-47 is not the best platform for the Air Force's CSAR-X requirement. Almost all the arguments I have seen put forward against the HH-47 are misinformed or unsubstantiated assertions. Following is my perspective on the most important ones:

Size does matter. The limited cabin size of the H-60 is in fact one of the principal reasons the Air Force chose not to simply buy new H-60s to replace



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the old ones currently being used for combat rescue. While larger cabin size is desirable, larger external size is not, because it can make it more difficult to load the helicopter onto strategic airlift platforms and can result in a larger landing footprint, limiting landing zone opportunities.

Downwash is an important feature of a helicopter's suitability for conducting combat rescue operations. If downwash is too high, it can negatively impact personnel on the ground or being winched up. Downwash velocities are a function of rotor disk loading, and the HH-47 of all the candidate platforms has the lowest disk loading. The CH-47 has been in operation for years, and the downwash velocities it generates are a question of fact that have been demonstrated in actual flight tests to meet the Air Force's CSAR-X requirements, even in the maximum velocity area where the two rotors overlap. In the areas where personnel will be hoisted or recovered, i.e., front door or rear ramp, the downwash velocities are substantially lower than required by the Air Force's specification. What is more, in real world operations,

the Army special operations' MH-47 routinely conducts combat insertion and extraction operations without difficulty. The CH-47 demonstrates on a daily basis the ability for personnel to routinely operate under and around the CH-47 without difficulty. Some have suggested that there is an issue with downwash turbulence caused by the tandem rotor configuration. This is absolutely preposterous. Tandem rotor helicopters have been performing combat rescue for decades. In fact in over water operations, where downwash is an important factor in not drowning the person being recovered, the US, Canadian, and other Navies, have been operating the CH-46 tandem helicopter in the combat search and rescue role for decades. To suggest that the tandem rotor down wash is somehow incompatible with combat rescue operations is totally at odds with decades of real world experience.

Brownout is a phenomenon that plagues all helicopters in desert and dusty terrain, and the CH-47, along with all other helicopters, has experienced its share of brownout mishaps. To suggest that this is somehow a problem unique

to the CH-47 is ridiculous. The CH-47 has been out fitted with an Army certified brownout system, and is proving itself operationally effective in brownout conditions on a daily basis.

Some critics have suggested that the HH-47 will somehow be less survivable than its competitors. I have not seen any data to substantiate this claim. To the contrary, the CH-47 is the only candidate platform with decades of actual combat experience. The CSAR-X HH-47 variant will have five gunners vice the required three, and significant payload margin so that each can carry enough ammunition to meet the Air Force's objective capability of 10 engagements per gunner. The latest versions of this platform being operated by Army special operations, the MH-47E and G models, as mentioned previously, are being used in combat assault operations on a regular basis, and have been doing so successfully over the past 10 years.

Finally, critics have discounted the superior range and altitude performance of the Chinook as a minor factor not worth consideration in the selection process, since the Air Force has C-130 refueling tankers and most of the globe involves elevations that are much closer to sea level. This position against the H-47 is the furthest from tactical reality. Our enemies specifically use remote higher elevation areas as a means of gaining "sanctuary" from our forces. In addition to Eastern Iraq and Afghanistan, a quick analysis of the areas where our forces are most likely to be deployed, like North Korea, Pakistan, and Iran reveal that, as with our present combat zones, range and elevation will no doubt play a significant factor in future conflicts. Selecting a less capable helicopter that depends on C-130 aerial refueling and cannot operate well at high altitudes adds significant operational risk and vulnerability to the rescue operation, not to mention cost.

The extraordinarily demanding mission requirements established by the Air Force for the CSAR-X platform require a "maximum performance" helicopter readily found in the combat proven attributes of the tandem rotor HH-47. The fact that the H-47 is already in service substantially reduces development cost and risk. Further, this platform already has a well established infrastructure supporting the Army and SOCOM H-47 fleets and as such responds to DOD policy encouraging commonality with other services to reduce the added logistics burden of service unique platforms. In light of these facts, the CSAR-X selection board would have been hard

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pressed to justify any selection other than the HH-47.

Lt. Col. Charles A. Jarnot,
USA (Ret.)
Milford, Kan.

Reader to Reader

This is in response to Lt. Col. Sid Howard's letter (September, p. 4) [*"Letters to the Editor: Well-postured?"*], which refers to "Comeback in the Pacific" by Executive Editor John Tirpak (July, p. 24), also "Overmatch" in the Pacific," (box, p. 26, same issue).

I agree with everything that Howard says about our continual drawdown of military forces, both air and naval assets in the Pacific. What did Congress call this back in the 90s? The "Peace Dividend." Also, I believe that in the same article [was news about] the F-15s that came from Elmendorf AFB, Alaska, to Kadena, Okinawa.

The AESA-equipped F-15Cs were so much more powerful that Kadena has decided to reduce its assigned squadrons from three to two. At some point, our pilots will be involved with a "target rich environment"—meaning that our enemies will outnumber us 20 to 30 to one. That "extra" squadron will be sorely missed by our pilots having to engage enemies at the rate of 20 to 30 to one.

No matter how good our F-22As or F-15Cs equipped with the AESA radar are or will be, we *must* maintain force levels that will allow for terms where we are closer to one to one with the enemy, not 20 to 30 against our one aircraft. This means that we will need greater numbers than we are now projecting to buy.

Congress, the Pentagon (DOD), and our Air Force need to have a deep understanding of this critical issue for our time. We cannot afford to let simple budgetary statistics and logic drive our strategy and procurement policy. We have a bow wave of costs that are coming due to replace and re-equip all of our services. We cannot afford to "win" future wars on the cheap.

Congress, the Pentagon (DOD), and our Air Force have debated hotly whether or not we should plan on fighting a one or two MRC [major regional conflict]—budget-wise, the best case scenario—when in reality, we need to be planning on fighting (prosecuting) a three to four (or more) MRC strategy. Additionally, thrown into the mix, we should plan on fighting three to four of them simultaneously or near simultaneously (worst case scenario). It is quickly becoming apparent that our future will entail something closer to the worst case scenario than the best case scenario.

That is what our future is more likely

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Letters

to hold for us. I believe in deterrence. Deterrence means that we must maintain more military than we think that we will need. Deterrence means that we must maintain more military than we can realistically "budget for." Deterrence means letting probable threats (strategy) drive the budgeting, not the limited amount of money that we have.

Because we have a history of letting budgetary concerns drive (down) the size of our military it goes a long way to prove to foreign nations that we have "no designs" on conquering and running the world (or their country). Economically it is a different picture (we do appear to be economic imperialists) and this is partly why we run into trouble overseas and accounts for most of our overseas military excursions (adventures).

Looking at our history, it would be easier to say about the American country and its people than any other country that we are LESS likely to want to invade and conquer a foreign country than almost any other nation on Earth.

The way to preserve the peace, our country, and freedom is through deterrence, plain and simple. I believe that Strategic Air Command's motto says it all: "Peace is our Profession." What did some killjoy write underneath the SAC sign standing outside the SAC base? "Peace is our profession, but war is our hobby." What the killjoy said may sound funny, but it is so true. It is precisely that stance, that attitude, and that posture that has worked and will work to keep us free.

By the way, thank you for providing the forum that you do. Special thanks is due to retired Lt. Col. Sid Howard for his timely and insightful letter about our "Comeback in the Pacific."

Timothy Forde,
Westfield, Mass.

Classics

I was excited to see the A-26 featured in "Airpower Classics" on p. 136 of the September issue of your outstanding magazine. The A-26 truly is an airpower classic. As I reflect back on flying combat missions in the Vietnam War, I believe that I had the privilege of being a member of one of the most unique combat units in American military history. In 1967-68, I flew 182 combat missions with the 609th Air Commando Squadron (renamed the 609th Special Operations Squadron in 1968) out of Nakhon Phanom RTAB, Thailand. Our call sign was Nimrods, and we primarily flew nighttime dive-bombing missions over the Ho Chi Minh Trail in Laos. We also flew missions in Barrel

Roll in northern Laos, and in North Vietnam and South Vietnam in areas adjacent to Steel Tiger and Barrel Roll. The aircraft we flew were the 40 rebuilt B-26Ks, called "Counter Invaders," and we flew those 40 aircraft in countless high-intensity nighttime dive-bombing missions until the remarkable "A-26 Invader" was withdrawn from combat service in late 1969.

Col. Roger D. Graham,
USAF (Ret.)
Acworth, Ga.

September Wrap-up

Your September issue is more than interesting. Two items in particular caught my attention. The first, a letter from my good friend Larry Benson responds to an article by Christopher Bowie on a hypothetical war with the Soviet Union [*"Letters: How the West Would Have Won," p. 10*]. In my opinion, the only time that there was a threat of war was in 1962, with the second Berlin crisis and especially the Cuban Missile Crisis. Once President Kennedy convinced Khrushchev that he would use force if necessary, it became a stalemate that would last for almost 30 years. I first came to USAF as a historian in 1962 as a result of the second Berlin crisis. At the same time, I began performing my Reserve active duty tours as an intelligence officer at both USEUCOM and various NATO headquarters, which I continued until 1989. After the end of the Cuban Missile Crisis, and for decades to follow, neither J-2 nor POLADs at these headquarters ever found any indication that the Soviet Union would invade Europe. True, they made a big effort in the Third World and the Mediterranean, but like al Qaeda in Anbar Province, they soon wore out their welcome.

The second item that caught my attention is the article by Rebecca Grant on air tactics during the North Africa campaign [*"Up From Kasserine Pass," p. 72*]. She gives due credit to Air Marshal Sir Arthur Coningham for his role in correcting the air war in Tunisia after the disaster at Kasserine Pass, but failed to identify him as the "RAF commander" who drafted Field Marshal [Bernard L.] Montgomery's definitive pamphlet on air support. As Vincent Orange wrote in his biography of Coningham, "Montgomery was much given to rejecting ideas and then promulgating them as his own" (p. 134).

One minor correction as it pertains to her story: French North Africa was not "German-held," although there were small German and Italian commissions

in Tunis, Algiers, and Casablanca. At that time, Vichy France was considered neutral under international law and retained sovereignty over its African possessions. As a final note, it is clear that the North African campaigns, their failures and lessons learned, provided absolutely vital training needed for air, ground, and naval forces to achieve victory in Europe. Had the American military leadership had its way in mid-1942, with a cross-Channel invasion either in late 1942 or 1943, it would have been a disaster.

Col. Robert L. Swetzer,
USAFR (Ret.)
Red Rock, Ariz.

Space Almanac

Regarding the "Space Almanac 2007" [August, p. 74]: Upon reaching the EELV performance statistics on p. 86, I noted a couple of errors. The Delta IV launch vehicle stage 2 engine, a P&W RL10B-2, has a thrust of 24,750 pounds, not 1,750 as indicated in the propulsion section. Secondly, the payload section lists the LEO capacity of up to 22,950 pounds, while in fact the heavy vehicle can lift approximately 55,000 pounds from the Eastern Range as noted in the Delta vehicle Payload Planner's Guide. While I recognize not many would catch (or find relevant) these errors, for those of us in the industry it matters.

Thanks for a great magazine!

MSgt. Mark Bender,
USAFR (Ret.)
Lakewood, Calif.


Photochart Correction

The September edition of *Air Force Magazine* featured a photochart depicting Air Force leadership, which incorrectly identifies Gary E. Payton as the acting undersecretary of the Air Force.


With the departure of Ronald M. Segal from the position of the undersecretary of the Air Force, and while the position is vacant, Michael W. Wynne will carry out all roles, responsibilities, and authorities previously assigned to the undersecretary.

Mr. Payton is the deputy undersecretary of the Air Force for space programs. He will assist Secretary Wynne with the oversight and execution of his Department of Defense executive agent for space roles and responsibilities, as well as the Secretary's roles and responsibilities as the senior acquisition executive and component acquisition executive for Air Force space acquisition programs. Mr. Payton will also have other duties as assigned.


Col. Michael G. Caldwell,
USAF
Deputy Director of Public Affairs
Pentagon




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Washington Watch

By John A. Tirpak, Executive Editor

**Wynne peers into the abyss; Skunked on UAVs;
When the nukes got loose**

Is USAF "Going Out of Business"?

The Air Force's attempts to fund replacement of its aged fleet by cutting personnel is failing, and if Congress and the White House don't provide an infusion of cash soon, the service will no longer be able to win wars, Air Force Secretary Michael W. Wynne warned.

Wynne, speaking in mid-September at a Washington, D.C., think tank, declared that the service's stay-within-its-topline bootstrap approach isn't arresting the aging aircraft problem, and the inventory age is still rising, from 23.9 years today to what is expected to be 26.5 years by 2012.

The Air Force's older fighters aren't up to defeating a modern air defense system or modern foreign fighters, Wynne said, and in a fight with Venezuela or Iran, such aircraft would probably be shot down.

"No fourth generation fighter would be allowed into war over Tehran or over Caracas, once they buy what the Russians are selling them," Wynne said. He noted that as far back as Operation Allied Force in 1999, only stealthy B-2s and F-117s were actually able to overfly the murderous air defenses around Belgrade, and foreign air defense systems have improved dramatically since then.

"If you as Americans want to be coerced, we're starting down that road," Wynne added.

A massive aircraft modernization effort was slated to begin in the mid-1990s, but was postponed due to the end of the Cold War, and then again by the wars in Southwest Asia. The Air Force can't wait any longer, Wynne said.

If the nation's adversaries believe the US is losing its ability to dominate the air, "they will kick our butts," he said flatly. "America's not funding us to be a large Air Force anymore."

Moreover, if sufficient numbers of fifth generation F-35s and F-22s aren't in service in two decades, the US will only be on a par with other countries that are aggressively pursuing their own fifth generation fighters, Wynne said.

"If we're in a fair fight, you [the American public] are in trouble," Wynne warned.

It was his idea, he said, to "voluntarily downsize and restructure our force, just like an industrialist would do, in order to gain the resources to recapitalize his asset base." The plan called for eliminating the equivalent of 40,000 full-time uniformed positions.

However, "it isn't working," Wynne admitted.

"What does that mean to an industrialist? It means you are going out of business. It is simply a matter of time." All that has been accomplished, he said, is to slow down the pace at which Air Force aircraft are racing toward their retirement dates.

"This can't go on," Wynne asserted. "At some time in the future, they will simply rust out, age out, fall out of the sky. We need, somehow, to recapitalize this force."

The KC-X tanker program is the Air Force's top priority, Wynne said, because his "greatest fear" is that the Eisenhower-vintage aircraft will simply start to crash. If that happens, they would either have to be kept flying—forcing USAF to "essentially accept that risk"—or be grounded, leaving the nation with only a few dozen 1980s-vintage KC-10s to refuel the nation's air armadas.

Northrop Grumman illustration



The KC-X (top) is shown here in an artist's conception.

He chided critics of the F-35, saying the US can't just—yet again—defer buying the state of the art and wait for the next generation of aircraft to come along. Wynne said the last time the Air Force did that, it wound up buying only 21 B-2s, which are touted by fighter critics as the best type of weapon to counter far-away China.

"How big do you think China is?" he asked.

Wynne also stumped for modernization of the US satellite constellation, pointing out that all of it will need replacement in less than a dozen years. China's test of an anti-satellite system this year, he said, was "a little message: 'Don't think you're safe up there.' Space is not a sanctuary anymore."

Wynne said the Air Force has now been at war for 17 years, that its people and equipment are wearing out, and that action must be taken at once to make the service well again.

He also warned that the nation can't afford to wait for the wars in Southwest Asia to end before beginning the process of rebuilding the Air Force. It has to begin now

because Wynne expects the current conflicts to continue until 2010, "and perhaps beyond."

UAV Executive Agency—Denied

The Air Force in September lost its second bid to become the Pentagon's executive agent for unmanned aerial systems. Deputy Secretary of Defense Gordon England instead ordered six other actions aimed at providing "common, joint, and operationally effective UAS programs."

England's order concludes a six-month campaign by

The Pentagon's acquisition chief is to work with the Chairman of the Joint Chiefs of Staff to develop ways to integrate unmanned aircraft into the Joint Capabilities Integration Development System. The acquisition chief is also to suggest ways to increase the number of companies that compete to develop and build unmanned aircraft.

Nuclear Safety Stand-down

The Air Force observed a safety stand-down on Sept. 14 to review its procedures regarding the handling of nuclear weapons, following the service's acknowledgment that it inadvertently flew nuclear-armed cruise missiles in August.

Air Force Secretary Michael W. Wynne traveled to Minot AFB, N.D., to personally express his concerns about the incident. A spokeswoman for Wynne said he made the trip to talk to the airmen involved, gain firsthand knowledge of the incident, and "to make sure this never happens again."

What happened was this: A number of AGM-129 Advanced Cruise Missiles were to be flown from Minot to Barksdale AFB, La., for retirement. They would be transported by mounting them on the pylons of a B-52H bomber. However, before the missiles were flown, their nuclear warheads were to be removed. Somehow, that didn't happen with about half the missiles, and the bomber flew with "live" nuclear weapons across six states to Barksdale. There, it sat on the tarmac for 10 hours before anyone realized it was loaded with nuclear warheads. The

mistake was not detected at Minot for hours.

The Air Force emphasized that the flight was uneventful, the weapons were not armed, and that no one was endangered in the incident.

"At no time was there a threat to public safety," an Air Force spokesman said. The B-52s involved were not scheduled to launch any weapons in exercises.

However, the service took the event very seriously, and moved quickly to relieve from duty several officers involved, including the munitions squadron commander, and to temporarily decertify the airmen involved from working with nuclear weapons until the incident has been investigated and explained.

Wynne appointed Maj. Gen. Douglas L. Raaberg, direc-

USAF Photo by SSgt. Tony R. Tolley



UAVs are at the center of a struggle.

USAF to claim leadership over unmanned vehicles that fly above 3,500 feet. (See "The Struggle Over UAVs," p. 32.)

The Air Force felt that it should be in charge of the unmanned craft in order to address a chronic shortage of reconnaissance vehicles, get better deals on buying them, and coordinate their operations to avoid midair collisions. The service also felt that the aircraft fit in with its fixed-wing intelligence-surveillance-reconnaissance mission and that it could integrate the ISR function of unmanned craft with satellites better than any other entity could.

Responding to England's order, the Air Force said through a spokesman that his ruling "does not represent an end state, in and of itself; rather, it is a beginning." The service went on to say that "while this is not the decision the Air Force sought," the UAS concerns raised by Chief of Staff Gen. T. Michael Moseley "are being addressed."

England ordered that "in lieu of" executive agency for USAF, a task force under the Pentagon's acquisition chief be set up to "coordinate critical UAS issues and to develop a way ahead" on the systems. This task force will consider aspects of UAS operations and then assign certain agencies various UAS-related tasks.

England assigned the Joint Requirements Oversight Council—which had previously agreed to give the Air Force executive agency—to take over the job of coordinating UAS training and operational employment.

Moreover, England directed that the Air Force and Army merge their Predator and Sky Warrior programs within a year. The craft, both of which are built by General Atomics, are to have a common data link, as well as common training and sustainment systems. The Air Force plans to evaluate two Sky Warriors, which differ somewhat from the Predator, and has said it would switch to buying the Army's version if it proves suitable to USAF needs.

USAF photo



B-52 bomber with AGM-129 cruise missiles.

tor of air and space operations at Air Combat Command, to lead the formal investigation.

After reviewing a preliminary Air Force report about the incident, Defense Secretary Robert M. Gates also asked Larry D. Welch, retired USAF Chief of Staff and former head of Strategic Air Command, to conduct a separate look into the matter. A Pentagon spokesman said Gates was not unhappy with USAF's own investigation, but wants Welch to find out if the incident reflects "a larger problem with regard to the security and transfer of munitions."

The Pentagon spokesman said the Secretary believes "an outside set of eyes may be additionally helpful to ... get a better sense of what went wrong and how to avoid similar mistakes in the future." Welch is president and chief executive officer of the Institute for Defense Analyses, but his inquiry will be performed under the auspices of the Defense Science Board.

The USAF spokesman noted that the mistake was discovered by airmen "during internal ... checks." He also maintained that it was an "isolated" incident. The transport of cruise missiles aboard bombers is routine and regularly scheduled, he said.

During the safety stand-down, personnel involved with handling nuclear systems throughout ACC reviewed "procedures, discipline, and attention to detail," a Minot spokeswoman said. She said she could not divulge the number of people who had been disciplined for deviating "from our extremely strict standard of proficiency." However, a Pentagon spokeswoman said USAF plans to release as many of Raaberg's findings as classification will allow. The Air Force did not say if he was working under a time limit.

The episode drew immediate criticism from Capitol Hill, where House Armed Services Committee Chairman Ike Skelton (D-Mo.) pledged to get to the bottom of the episode and urged the Defense Department to "strengthen controls more generally" on the nuclear inventory. Sen. Carl Levin (D-Mich.) and Sen. John McCain (R-Ariz.), the chairman and ranking member of the Senate Armed Services Committee, fired off a letter to Defense Secretary Gates insisting on an investigation by the Pentagon's inspector general.

Toward the Pacific "Quad"

The United States, Japan, and India, three of the largest Asian-Pacific region democracies, should work toward a more defined and collaborative alliance, but one that is loose enough to include other countries, both formally and informally, according to a recent think tank study.

The Center for Strategic and International Studies, in an August report, said there is "intense interest" among security and economic leaders from the three countries, as well as Australia, toward greater defense and economic cooperation in the Pacific. However, the leaders caution that the cooperation must be handled carefully, to avoid seeming to threaten China, or to give the impression that smaller countries in the region aren't wanted in the "club."

The report was based on a series of discussions sponsored by CSIS between June 2006 and July 2007. Panelists included security specialists, former military and diplomatic leaders, business leaders, and defense industry executives from all three countries.

The panelists found that the three countries "share common values" that represent a sound basis for military

USAF photo by TSgt. Shane A. Cuomo



Pacific airmen meet in a C-17 cargo hold.

and economic cooperation. They can help each other out by promoting openness and democracy in the Pacific, toward ensuring "that the emerging Asian economic and political architecture remains open and progressive." The group also suggested moving forward with a "quadrilateral consultative mechanism" that would include Australia.

The four countries worked well together in responding to the 2004 tsunami crisis, the group found, especially since the relief effort began with just the four nations but quickly expanded to include most of the countries in the region, under their leadership. That experience should be the template for future security cooperation, CSIS said.

All four countries have strong bilateral relationships that don't exclude having such relationships with China, the group noted.

Specifically, CSIS suggested that the group develop a "quadrilateral forum" which was proposed at a sidebar discussion held at the Association of Southeast Asian Nations (ASEAN) meeting in May.

"While the forum should be flexible in membership, and should focus on function rather than form, these four democracies can take the lead in establishing an agenda that reinforces a common commitment to open regionalism and raising the standards of governance and transparency." The group should "avoid dissuading potential partners by being too exclusive."

The end goal would be to "create a magnet that attracts other like-minded states, rather than a wall that drives them toward careful neutrality."

The panelists noted that the US-Japan alliance has "never been stronger," and that the recent agreements between the US and India on that country's nuclear power program have opened up a broad opportunity for closer defense cooperation.

India has since welcomed US companies to bid on large new military requirements.

India, Japan, Australia, and the US have also conducted a large joint naval exercise in the Indian Ocean this year.

President Bush and Australian Prime Minister John Howard signed an agreement in September that allows greater sharing of military secrets, hardware, and information between the two countries. The defense trade cooperation pact will "strengthen our already robust alliance," according to a White House statement. ■

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Aerospace World

By Marc V. Schanz, Associate Editor

Airman Killed in Afghanistan

An airman assigned to Aviano AB, Italy, died Sept. 4 in a noncombat incident in Bagram, Afghanistan—the location of Bagram Air Base.

MSgt. Patrick D. Magnani, 38, of Martinez, Calif., was assigned to the 31st Medical Support Squadron at Aviano, where he served as a medical equipment technician. He was an 18-year veteran of the service.

The Pentagon said the circumstances surrounding his death are under investigation.

Accident Claims Airman's Life

An airman was killed at Davis-Monthan AFB, Ariz., on Sept. 12 when he was struck by a forklift, the Air Force said.

A second airman was injured in the mishap, which occurred near the James H. Doolittle Combined Air Operations Center at the Arizona facility.

MSgt. Melvin Peele, 50, of Baltimore, was walking with his wife, MSgt. Lisa Peele, when both were struck.

Lisa Peele was taken to a Tucson, Ariz.-area hospital with non-life-threatening injuries.

Melvin Peele was a member of the 612th Air Communications Squadron, 12th Air Force. Davis-Monthan officials said the accident is under investigation.

Kunsan Pilot Awarded DFC

An F-16 pilot assigned to the 35th



On Sept. 18, the 60th anniversary of its birth, the US Air Force received top billing in New York City's Times Square. The NASDAQ stock market and Reuters news service donated display space for Air Force graphics throughout the day.

Fighter Squadron at Kunsan AB, South Korea, was awarded the Distinguished Flying Cross for extraordinary achievement in Iraq.

The awardee was Capt. David Anderson, a 35th FS flight commander assigned to the 524th Expeditionary Fighter Squadron at Balad AB, Iraq, from September 2006 to January 2007.

On Nov. 16, 2006, Anderson responded to a "troops in contact" call east of Baghdad. Insurgents, who were near American troops and firing from behind a berm, had pinned down US forces. Anderson, though critically low on fuel, rolled into the fray at extremely low level with his 20 mm cannon blazing.

Anderson unleashed all of the gun's 510 rounds, killing the six enemy fighters, one of whom had been in the process of setting up a 60 mm mortar.

Lawmakers on C-130 Dodge Fire ...

A C-130 carrying a Congressional delegation came under fire in August as the aircraft departed Baghdad Airport. The crew quickly deployed countermea-

Barksdale Gets Cyber Command—At Least for a While

Barksdale AFB, La., is the official interim home of Air Force Cyber Command, Air Force Secretary Michael W. Wynne confirmed to civic leaders in Shreveport, La., in September.

The announcement was a pleasant surprise to the 700 guests assembled for an Air Force 60th anniversary celebration. Regional leaders had been campaigning to make the base the permanent home of the new command, which has been developed at Barksdale under the auspices of Headquarters, 8th Air Force, also located there.

Wynne first announced the creation of the command last November at a Washington defense symposium. It has been built around the 67th Network Warfare Wing.

In his comments to the group, Wynne praised the efforts of 8th Air Force chief Lt. Gen. Robert J. Elder Jr. to bring the new organization to fruition.

Although Wynne said Barksdale will be Cyber Command's interim home, USAF officials said its location there may not be permanent. However, facilities and equipment are being installed at Barksdale to support the mission.

Other locations vying to be the organization's permanent home include Offutt AFB, Neb., Beale AFB, Calif., Langley AFB, Va., and Lackland AFB, Tex.

tures and took evasive action, and no one was hurt.

Aboard the aircraft were Sen. James Inhofe (R-Okla.), Sen. Mel Martinez (R-Fla.), Sen. Richard Shelby (R-Ala.), and Rep. Robert Cramer (D-Ala.).

According to a statement from US Central Command, the aircraft's crew observed surface-to-air fire immediately after takeoff and engaged in a series of evasive maneuvers while dispensing flares. The Hercules completed its flight and sustained no damage.

Insurgents regularly take shots at airlifters during missions in theater, according to Air Mobility Command. In 2006, the command recorded 215 similar events.

... While MC-130 Takes Hits

An Air Force MC-130 was hit by rifle fire during a September flight over Mali, but no airmen were injured on the mission, which was to deliver food and water to Mali troops.

The aircraft, which was deployed from the 67th Special Operations Squadron at RAF Mildenhall, U.K., returned to the Mali capital of Bamako with minor fuselage damage, *Stars and Stripes* reported. The crew was in the country as part of an exercise called Flintlock 2007, when they were asked to fly supplies to Mali troops surrounded by armed fighters at a base in the Tin-Zaouatene region, near the border with Algeria.

The attack was believed to have been perpetrated by indigenous Taureg rebels who have been fighting the Mali government for several years, according to US European Command officials. The rebels are not linked to al Qaeda or related groups.

World War II Airman Identified

An Army Air Forces second lieutenant missing in action since World War II was identified in September by the



A B-1 Lancer from Dyess AFB, Tex., takes off from Ellsworth AFB, S.D., in September. Ellsworth temporarily housed 20 of the Dyess bombers and more than 500 airmen while the runway at the Texas base underwent repairs.

Pentagon's POW/Missing Personnel Office.

The remains of 2nd Lt. Harold E. Hoskin of Houlton, Maine, were identified through DNA analysis of remains collected during an excavation in the Yukon-Charley Rivers National Preserve in Alaska. The remains were returned to his family and were buried in Arlington National Cemetery near Washington, D.C., on Sept. 7.

Hoskin was one of five crewmen aboard a B-24 that was lost near Fairbanks, Alaska, on Dec. 21, 1943. The aircraft was on a cold-weather test mission.

One crewman returned to Fairbanks more than two months later, having survived that long in the Alaska wilderness. He reported that the Liberator went down after losing engine power.

The site was located, and two sets of

remains were recovered, but Hoskin's were not among them. The missing remains were recovered during a 2006 investigation of the area.

Will Guard Units Get F-35?

The House Armed Services Committee wants the Air Force to look at replacing F-16s and F-15s that have been withdrawn from the Air National Guard with F-35s when the new fighters become available.

In the Fiscal Year 2008 defense authorization bill, the panel directed the USAF and ANG leadership to jointly study the desirability and feasibility of acquiring F-35s for Air Guard units that conduct homeland defense air patrol sorties. The committee wants a response from Air Force Secretary Michael W. Wynne by October 2008.

The Air Force has said that Air Guard units will eventually fly the newest fifth generation fighter, but formal plans were expected to be drafted closer to the F-35's in-service date of 2012.

Chief Announces New Associates

Several new active-associate units were announced in September, at an event that also saw the redesignation of a historic fighter squadron.

At a ceremony at Maxwell AFB, Ala., Chief of Staff Gen. T. Michael Moseley confirmed the redesignation of the 160th Fighter Squadron of the Alabama Air National Guard, renaming it the 100th FS. The 100th was a Tuskegee Airmen squadron of World War II fame; the renaming preserves the unit's heritage in an operational squadron. The unit flies F-16s from Montgomery Regional Airport (Dannelly Field).

The Air Force will also create an ac-

Hack-Suey at the Pentagon Is Latest Whodunit

Somebody hacked into a Pentagon computer network in June, and while China denies it was behind the attack, it remains the leading suspect.

First reported by the *Financial Times* in September, the Pentagon confirmed that in June it shut down part of a computer system that served the office of Secretary of Defense Robert M. Gates. However, the Pentagon did not accuse China. The network was reportedly down for more than a week while attacks continued. As of September, the amount of data compromised or downloaded was still being assessed.

The *Times* cited unnamed senior US officials saying the attack came from the Chinese People's Liberation Army, and that most of the information obtained was probably "unclassified."

The Chinese Foreign Ministry denied any involvement, adding that China opposes criminal activities that undermine computer networks.

While the Chinese have regularly probed US networks, Pentagon officials said the June penetration raised eyebrows because the attack demonstrated they were capable of disrupting systems at critical times.

Senior Air Force officials have said that China appears to be developing proficiency at cyber warfare, and is one of its leading practitioners. Chinese military doctrine calls for that nation to seek asymmetric countermeasures to American military superiority, and specifies disruption of US networks and sensor systems as a key way to do it.

"Father of All Bombs" Turns Up in Mother Russia

Russia announced the successful test of what it described in September as the world's most powerful non-nuclear explosive, dubbing it the "father of all bombs."

The nickname was a dig at the US Air Force's biggest non-nuclear weapon, the Massive Ordnance Air Blast weapon, or MOAB, known unofficially as the "Mother Of All Bombs." Russian media reported the new weapon is four times more powerful than the MOAB.

Col. Gen. Alexander Rukshin, a deputy chief on the Russian military's General Staff, said testing has shown the new weapon is comparable to a nuclear weapon in its effect but doesn't cause the fallout and radioactivity associated with nuclear weapons.

The bomb reportedly contains 7.8 tons of high explosives, as opposed to the larger MOAB which features more than 8 tons of explosives. Russia claims the new weapon—which, like the MOAB, is described as a "thermobaric" explosive—is four times more powerful because it uses a new and more efficient type of explosive. The weapon's blast radius (990 feet) and the temperature at the epicenter of the blast are reported to be twice that of the American weapon.

tive association with the 187th Fighter Wing—which includes the 100th FS. The wing will keep flying the F-16 but will also incorporate active duty airmen into the unit's operations.

Lichte Takes Command at AMC

Gen. Arthur J. Lichte assumed command of Air Mobility Command on Sept. 7, taking over from Gen. Duncan J. McNabb, who is now the Air Force's vice chief of staff.

During a change of command ceremony at Scott AFB, Ill., Lichte said he would keep "raising the bar" at AMC and plans to visit all of the command's bases in the next several months before putting together a plan for his tenure. However, he said he will push for recapitalization of obsolete aircraft, especially with the KC-X program.

He has previously served in a number of positions in AMC and at US Transportation Command headquarters.

Ramstein Was Terror Target

Major terrorist attacks on Ramstein AB, Germany, and other targets were foiled by German police in September.

German police raided more than 40 residences across the country on Sept. 5, gathering computers and evidence after an investigation that lasted six months.

German federal prosecutors said three men were arrested, two German citizens and a Turkish resident of Germany who had been under surveillance for months before the raids.

During the investigation, recorded phone calls and the suspects' movements led authorities to believe that targets included Ramstein and Frankfurt Airport.

The three were apprehended in a vacation home north of Frankfurt, where stocks of hydrogen peroxide, chemicals, and detonators were found.

German authorities said the three suspects belonged to a German cell of the Islamic Jihad Union, a radical group based in Central Asia that has claimed responsibility for suicide bombings in July 2004 near the US and Israeli Embassies in Tashkent, Uzbekistan.

Boeing Gets \$1.1 Billion Contract

Boeing received a \$1.1 billion contract in September to keep fixing KC-135 aerial refueling aircraft, the Air Force announced. Pemco, the loser in the KC-135 maintenance contract, protested the award in late September. The KC-135 is expected to serve another 20 years, as the service brings a new tanker into the inventory. A winner in the KC-X competition, in which Boeing is a competitor, is expected this winter.

Boeing's contract covers programmed depot maintenance for more than 200 KC-135s for the next 10 years. Each aircraft gets the depot treatment every five years or so, and receives detailed inspections, repairs, maintenance, modifications, repainting, and supply chain services.

The maintenance will be performed at Tinker AFB, Okla., as well as at Boeing's support systems site in San Antonio and a facility in Missouri.

The company said it has reduced the time each aircraft spends in depot by 19 percent, helping to reduce costs by about 15 percent per aircraft.

Selective Availability No More

The Pentagon said in September that it will no longer buy Global Positioning System satellites equipped with "selective availability" features.

"Selective availability" means DOD can degrade the accuracy of signals



The 51st Fighter Wing, Osan AB, South Korea, has revived the Korean War-era checkerboard tail. The new old markings are part of an official Air Force heritage program.

US Air Force via Robert F. Dorr



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MISSION REQUIREMENTS.**

In the Air Force, "Community Basing" Makes a Comeback

A program that stations active duty airmen in towns with an Air National Guard location but no traditional base is being expanded, Air Force Chief of Staff Gen. T. Michael Moseley announced in September.

Expansion of the "community basing" program is among a number of new Total Force initiatives. Moseley said the initial test location will be with the Vermont Air National Guard.

Part of the Air Force's old Future Total Force concept, the initiative was conceived in 2005 between the Air Force and the Vermont Air National Guard's 158th Fighter Wing, based at Burlington Airport. Airmen lived in the local community rather than on a military installation and trained with experienced Air Guardsmen to learn F-16 maintenance on the unit's fighters.

In September 2006, Lt. Gen. Craig R. McKinley, commander of the Air National Guard, said the experiment would end due to the Air Force's manpower cuts, despite the program "working magnificently."

Earlier this year, Moseley was pressed by Guard supporters in Congress on the program's status and confirmed that the Air Force was committed to the program but was still deciding on the right grade structure to do it, as personnel throughout the service were being reduced in number.

to non-US military users. The feature, which resides on existing GPS satellites, hasn't been used since 2000.

The declaration coincides with solicitation of contractors to build the next generation GPS III constellation.

Millions of individuals and businesses worldwide depend on GPS for navigation and timing, the Air Force said.

The purpose of selective availability was to maintain an ability to degrade the GPS signal in case a hostile power tried to use it to conduct precision attacks on US forces or installations. The Air Force did not say whether it now has other ways of denying this advantage to an enemy.

Reserve OTS Moves to Maxwell

As of October, all Reserve officer candidates not going through the ROTC program attend Officer Training School at Maxwell AFB, Ala.

The consolidation was announced by Gen. T. Michael Moseley, Chief of Staff, in September. Previously, Air Force Reserve Command trained its officers at Maxwell and McGhee Tyson Airport, Tenn., at the I.G. Brown Training and Education Center.

Under the earlier scheme, only rated officer candidates attended OTS. The first class of rated and nonrated AFRC officer candidates was to begin at Maxwell on Oct. 11.

Air Force leaders said the consolidation was justified since AFRC had secured enough OTS class seats to accommodate all of the command's line officer candidates.

Maj. Gen. Charles E. Stenner Jr., assistant deputy chief of staff for strategic plans and programs, said the Air National Guard is also considering moving its commissioning program to Maxwell, but has yet to decide on the matter.

CV-22 Makes Ship Landings

Air Force pilots flying the CV-22 tilt-rotor special operations aircraft made their first practice landings on Navy warships in August.

The aircraft and crews of the 8th Special Operations Squadron landed on and took off from USS *Bataan*.

The two-day training exercise ran from Aug. 13 to 14 and featured day and night landing operations as well as dry runs on land. Pilots said the operations were different from what they were used to, since ship landings involve more hovering than speedy assault landings.

After completing the daytime landings and takeoffs on the ship, the crews returned to land and practiced night landings with marine instructors who have experience with the MV-22, the Marine Corps version of the aircraft.

India Shops American

India has invited six aerospace companies—including Boeing and Lockheed Martin—to offer aircraft to meet a requirement for 126 new fighters, worth as much as \$10 billion.

The proposed buy would be one of the largest defense purchases in India's history. Bids are due by March 2008, but the date of an award hasn't been fixed yet.

Among the aircraft India is considering are Russia's MiG-35, Sweden's JAS-39, the French Dassault Rafale, Lockheed Martin's F-16, Boeing's F/A-18, and the Eurofighter Typhoon. The Eurofighter is produced by a European consortium that includes British, German, Italian, and Spanish companies.

The announcement states that the first 18 fighters will be built outside India, but the remaining 108 will be produced in India under license.

The competition comes only months after Congress approved the sale of six C-130Js to India, among other equipment, in a deal worth more than \$1 billion.

Arizona ANG Gets Predators

The Arizona Air National Guard is the latest official operator of the Predator killer scout unmanned aircraft. Its 214th Reconnaissance Group, based at Davis-Monthan Air Force Base, activated with the aircraft in August.


Members of the Arizona ANG have been flying the aircraft over Iraq and Afghanistan since July, before the 214th RG's official activation on Aug. 29.

The unit will acquire its own dedicated aircraft, and they will be based at Ft. Huachuca, Ariz., according to Guard officials. The unit will grow

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 **BOEING**

from about 75 personnel to more than 120. The ANG plans to bring about a dozen Predators to Arizona, and split pilots and support personnel between Davis-Monthan and Ft. Huachuca, near the city of Sierra Vista.

U-2, Global Hawk Training Merge

The 1st Reconnaissance Squadron at Beale AFB, Calif.—the U-2's formal training unit—absorbed the mission of the 18th RS in August, Air Combat Command said. The 18th has been training operators of the Global Hawk unmanned recce aircraft, which is to eventually replace the U-2.

The merger of the two units is designed to build more understanding of both aircraft and increase mission capability of U-2 and Global Hawk pilots, ACC said. The old units did a good job, but there was not enough crossover, and squadron leaders are hoping to have more versatile intelligence-surveillance-reconnaissance aircrew members as a result.

The consolidation comes as the Global Hawk training pipeline expands significantly. In October, students in the course increased 50 percent, from 24 to 36. Classes are also stepping up from six a year to 12. In 2009, the course is expanding to 48 students a year.

New Missile Project Begins

The Pentagon launched a competi-

Senior Staff Changes

NOMINATIONS: To be Lieutenant General: Ted F. Bowlds, Edward A. Rice Jr.

CHANGES: Lt. Gen. (sel.) Ted F. Bowlds, from Cmdr., AF Research Lab, AFMC, Wright-Patterson AFB, Ohio, to Cmdr., ESC, AFMC, Hanscom AFB, Mass. ... Brig. Gen. Paul F. Capasso, from Cmdr., 81st Tng. Wg., AETC, Keesler AFB, Miss., to Dir., C4 Systems, Africa Command, Stuttgart, Germany ... Gen. Kevin P. Chilton, from Cmdr., AFSPC, Peterson AFB, Colo., to Cmdr., STRATCOM, Offutt AFB, Neb. ... Brig. Gen. Ronnie D. Hawkins Jr., from DCS, Comm. Info. Sys., Multinational Force-Iraq, CENTCOM, Baghdad, Iraq, to Dep. Dir., Policy, Planning, & Resources, Office of Warfighting Integration & CIO, OSAF, Pentagon. ... Brig. Gen. Ralph J. Jodice II, Special Asst. to the Vice C/S, USAF, Pentagon, to Asst. Dep. Undersecretary of AF (Intl. Affairs), Office of the Undersecretary of AF, Pentagon ... Brig. Gen. Richard C. Johnston, from Cmdr., 86th AW, USAF, Ramstein AB, Germany, to Dir., P&P, USAF, Ramstein AB, Germany. ... Brig. Gen. (sel.) Frederick H. Martin, Cmdr., 305th AMW, AMC, McGuire AFB, N.J., to Dep. Dir., Ops & Log., Africa Command, Stuttgart, Germany ... Brig. Gen. Michael A. Snodgrass, from Dir., P&P, USAF, Ramstein AB, Germany, to C/S, Africa Command, Stuttgart, Germany ... Brig. Gen. (sel.) Steven J. Spano, from Dir., Comm. & Info., USAF, Ramstein AB, Germany, to DCS, Comm. Info. Sys., Multinational Force-Iraq, CENTCOM, Baghdad, Iraq.

SENIOR EXECUTIVE SERVICE CHANGES: Margaret LeClaire, to PEO, Mobility, Special Ops. Center, Acq. & Log., SOCOM, MacDill AFB, Fla. ... Douglas L. Loverro, to Exec. Dir., SMC, AFSPC, Los Angeles AFB, Calif.

tion to develop a common successor to the multiservice Maverick and Hellfire air-to-ground missiles. The Air Force may adopt the missile, although it is not among the services funding the project.

The Joint Air-to-Ground Missile is to be able to hit both line-of-sight and non-line-of-sight targets, and may employ some combination of laser, infrared,

electro-optical, or millimeter-wave radar seekers.

The Pentagon believes a joint effort will answer all the services' needs for a weapon to equip helicopters and unmanned aerial vehicles. A large production run is also expected to keep unit costs down.

Lockheed Martin won a contract to develop the Joint Common Missile in

News Notes

■ Air Force Reserve Command has beaten its 2007 recruiting goal, signing up more than 8,000 people as of Aug. 28. This marks the seventh consecutive year the command has surpassed its recruitment goals. Lt. Gen. John A. Bradley, AFRC commander, said that, in 2008, the command will create 7,000 new positions as a result of mission changes.

■ The Air Force in September temporarily moved 20 B-1B bombers and about 550 airmen from Dyess AFB, Tex., to Ellsworth AFB, S.D. The move allowed repairs to 6,600 feet of runway at Dyess. The work should be completed this month.

■ Testing has concluded on a new F-16 upgrade that will give the fighter far greater ability to send and receive data. The Extended 1553 Data Bus improves the transfer using broadband. Greater throughput is needed now that F-16s are carrying targeting pods that allow them to act as surveillance aircraft.

■ The Kansas Air National Guard's

184th Air Refueling Wing flew its final KC-135 mission in September, ending more than 60 years of flying missions for the unit. The tankers have gone away due to the 2005 BRAC round. In October, the 184th ARW became an intelligence wing, specializing in computer systems security and satellite surveillance monitoring.

■ The Defense Threat Reduction Agency has set up a shop at Eglin AFB, Fla., as of September. One of the 2005 BRAC decisions was to speed up the fielding of new systems by merging some related technical facilities and capabilities. DTRA has partnered with Eglin agencies on a number of fuze, warhead, and weapon systems projects. It's working on thermobaric weapons, such as the Massive Ordnance Penetrator.

■ Several units at Kadena AB, Japan, have been trained in small arms to supplement the base's security forces. The "selective arming program" provides weapons and training to non-SF airmen

to protect squadron resources. The initial units included the 18th Communications Squadron, the 18th Civil Engineer Squadron, the 18th Logistics Readiness Squadron, and the 18th Maintenance Operations Squadron. Training included reporting attacks, setting up entry control points, and self-protection.

■ The California Air National Guard ended its presence in Costa Mesa, Calif., in September when the 222nd Combat Communications Squadron transferred north to Beale Air Force Base. The unit is now part of the 222nd Intelligence Squadron.

■ In the aftermath of Hurricane Felix, which devastated Nicaragua in September, the Air Force aided US Southern Command's relief efforts. A nine-member team from Joint Task Force-Bravo flew from Soto Cano AB, Honduras, to Nicaragua on Sept. 5 to assess storm damage. On Sept. 8, the command dispatched an Air Force C-130 from Homestead ARB, Fla., to Puerto Cabezas, Nicaragua, with 25,000 pounds of US-donated sup-

David Lee "Tex" Hill, 1915-2007



David Lee "Tex" Hill, one of the famed Flying Tigers, a flying ace, and American hero, died Oct. 11 at the age of 92.

Hill, born in 1915 to missionary parents in Korea, grew up in Texas. He graduated from Austin College in 1938 and was determined to be a military aviator. Rejected by the Army Air Forces, he signed up with the Navy, and after winning his gold wings in 1939, became a dive bomber pilot, flying from aircraft carriers.

In 1941, Hill left the Navy to join the American Volunteer Group, later known as the Flying Tigers, which flew air defense and attack missions for nationalist China under the command of Claire L. Chennault. Hill began flying combat missions

in January 1942, and, within three weeks, was an ace. He shot down a total of 12 Japanese fighters before the AVG was merged into the USAAF in July 1942. The aerial victories of the Flying Tigers were a huge morale booster at a time when it seemed the Japanese advance was unstoppable.

Upon the disbanding of the AVG, Hill was one of only five Flying Tigers officers who accepted direct commissions into the AAF, becoming a major and commanding the 75th Fighter Squadron, part of the new 23rd Fighter Group. He led both fighter sweeps and ground attacks that delivered body blows against Japanese forces. He sometimes led these attacks despite being desperately ill with malaria.

Hill returned to the US for a stint as head of a test unit at Eglin Field, Fla., but accepted Chennault's request to return to China in October 1943 as commander of the 23rd FG. In that role, he shot down six more Japanese fighters and sank at least two ships. He also led the first air attack on Japanese-held territory—Formosa—since the Doolittle Raid.

All told, Hill was credited with 18.25 victories in World War II, six of them with the AAF. He returned to the US in 1944, to assume command of the 412th Fighter Group, the AAF's first jet fighter unit. In 1946, he left active duty, but joined the Texas Air National Guard, becoming, at 31, the youngest brigadier general in its history, as commander of the 58th Fighter Wing. Hill's adventures in World War II were recounted in the book *"Tex" Hill: Flying Tiger*.

2004, but the Pentagon wants to incorporate technologies that have developed since then. The Army said contractors have proposed "fundamentally different acquisition strategies" for the new weapon.

F-35 Test Cuts?

To reverse a drain on "management reserve" funds in the F-35 program, Lockheed Martin has proposed cutting two aircraft from the fleet of 14 in the flight-test phase.

The management reserve is an amount of money held back to deal with unexpected setbacks and technical delays—typically between five and 10 percent of a program's development cost. By some estimates, the F-35 program needs to find about \$600 million to restore the reserve to the levels at which they should be for the current stage of the program.

Such reserves exist to avoid the necessity of constantly asking Congress for additional funds to keep a program going. Savings are plowed back into the reserve to deal with shortfalls in other areas.

The original reserve for the F-35 was about \$2 billion, but has been drawn down to about \$400 million.

To find extra funds, Lockheed Martin wants to eliminate two aircraft that would have been dedicated to testing the fighter's extensive avionics and electronic warfare systems. It believes it can perform the tests more efficiently

plies—including sheeting, hygiene kits, and wool blankets.

■ Pratt & Whitney's Rocketdyne division has demonstrated a new technology that could help pave the way for hypersonic engines. The company demonstrated a small-scale combustor operation for a dual-mode ramjet engine. The engine technology is being developed with Lockheed Martin and is known as the Falcon Combined-Cycle Engine Technology Program. Testing began in November 2006 and concluded in early September, with the combustor achieving operability and performance at speeds from Mach 2.5 to 6.0.

■ Airmen, sailors, and soldiers participated in US Southern Command's PANAMAX 2007 exercise in late August and early September, part of joint training efforts to better secure the Panama Canal. The air element of the exercise included more than 250 airmen with 12th Air Force, Air Forces Southern, and the 612th Air Operations Group. The exercise included civilians and military forces from

20 participating countries from across Central and South America.

■ US and German airmen at Buechel AB, Germany, participated in the NATO Strike Evaluation in early September. Weapons loaders from the 702nd Munitions Support Squadron teamed up with German Fighter-Bomber Wing 33 airmen based at Buechel. The teams jointly worked 12-hour shifts to secure equipment and munitions at the base and screened personnel coming and going from the exercise.

■ Instructors and trainers from the 12th Flying Training Wing at Randolph AFB, Tex., were recruiting among F-16 pilots at Cannon AFB, N.M., in late August. They wanted to entice some of the fighter pilots, whose F-16s are going away, to come to Randolph and be instructors in the T-6 Texan II, which replaces the venerable T-37 Tweet. Wing officials said they want more fighter influence in the pilot training environment.

■ Boeing has successfully assembled and integrated all the flight hardware on

the first Global Positioning System IIF satellite, the newest element of the GPS constellation. Boeing is under contract to build 12 of the satellites for Air Force Space and Missile Systems Center. The new payload features improved signals for aviation. Boeing technicians are now preparing the satellites for environmental testing that will confirm their design and mechanical integrity.

■ The Air Force will stand up a new Global Logistics Support Center headquarters at Scott AFB, Ill., in FY 2008. The GLSC will serve as the Air Force's supply chain manager, co-located with supply chain operations at Scott. The organization will focus on deployed operations, integration of supply chain functions, care and feeding of personnel, and coordination of all tasks in and out of the center. Once the initial location is operating, center functions will be dispersed to other centers as well, at Hill AFB, Utah, Langley AFB, Va., Robins AFB, Ga., Tinker AFB, Okla., and Wright-Patterson AFB, Ohio. ■

Operation Iraqi Freedom—Iraq

Casualties

By Oct. 11, a total of 3,816 Americans had died in Operation Iraqi Freedom. The total includes 3,809 troops and seven Department of Defense civilians. Of these deaths, 3,114 were killed in action with the enemy while 702 died in noncombat incidents.

There have been 28,171 troops wounded in action during OIF. This number includes 15,549 who returned to duty within 72 hours and 12,622 who were unable to return to duty quickly.

Air Strike Kills Terrorist in Nineveh Bombing

A US air strike on Sept. 3 killed a terrorist thought to be behind a series of truck bombings in northern Iraq that killed more than 400 people in August.

Abu Mohammed Afri, a leader of al Qaeda in Iraq, was spotted while driving in a remote area about 70 miles southwest of Mosul. Both he and his driver were killed by a fixed-wing air strike after being identified by associates and detainees, according to a statement from the coalition forces.

Afri was reportedly the planner of a series of truck bombings that leveled a neighborhood of Iraqi Yazidis—a minority religious sect that is neither Muslim nor Christian—in Nineveh Province on Aug. 14.

Clash With Insurgents Leads to Air Strike—14 Killed

American and Iraqi special forces fought with Shiite militiamen in western Baghdad on Sept. 6, later calling in air strikes that killed at least 14 people.

Working on an intelligence tip, US and Iraqi forces raided the city's Washash neighborhood looking for a suspected terrorist cell linked to attacks on police units and sectarian killings, officials with Multi-National Force Iraq said. When troops entered the area, they came under fire from more than a dozen militia members on roofs.

Troops returned suppressive fire and directed air strikes onto targeted buildings against some of the gunmen who were organizing the small-arms fire against the friendly forces.

US officials said that four buildings were damaged, including two enemy strongholds that sustained major damage.

Operation Enduring Freedom—Afghanistan

Casualties

By Oct. 6, a total of 446 Americans had died in Operation Enduring Freedom. The total includes 445 troops and one Department of Defense civilian. Of these deaths, 259 were killed in action with the enemy while 187 died in noncombat incidents.

There have been 1,652 troops wounded in action during OEF. This number includes 649 who were wounded and returned to duty within 72 hours and 1,003 who were unable to return to duty quickly.

Air Strikes Kill 45 Taliban

After a joint Afghan-American patrol was attacked with rocket-propelled grenades on Sept. 12, US airpower rolled in on the attackers. Forty-five Taliban fighters were killed. The action took place in the southern Afghan province of Uruzgan.

After the initial attack, Afghan soldiers cleared Taliban fighters from firing positions in the village of Aduzay. Air Force aircraft responded, destroying several fighting positions.

NATO's International Security Assistance Force issued a statement saying that insurgents increased attacks during the Muslim holy month of Ramadan last year and could do the same this year. The Ramadan period began on Sept. 12.

on a converted 737, the Cooperative Avionics Test Bed. The "CATbird" has wing-like protrusions on its nose that simulate the nose and wings of the stealthy F-35. Extensive diagnostics and other tools on board can assess all aspects of avionics performance.

The F-35 joint program office would have to approve the change.

Lockheed Seeks Price Stability

American and international F-35 partners were to meet in September to nail down just how many F-35s each will

buy. The objective of the meeting was to establish a firm core production number, to establish a baseline price per aircraft, which is largely driven by the quantity produced. Until now, international orders outside those of Britain have not been counted in the F-35's official cost analysis.

Lockheed Martin officials said they were not pressing any of the eight partner countries to commit to firm orders, but to state for the record their planned threshold and objective requirements.

With commitments for more than 100 aircraft through at least 2011, Lockheed officials said they can stabilize the per-unit cost of the aircraft.

CSAR-X Decision by Year's End ...

The Air Force plans to resolve all issues regarding the combat search and rescue helicopter competition by the end of the year, Secretary Michael W. Wynne said in September.

Speaking at a Capitol Hill event, Wynne said USAF would reopen bidding on the CSAR-X program. The program was initially awarded to Boeing, which offered its HH-47 Chinook, but after two rounds of protests by losing competitors were upheld by the Government Accountability Office, Wynne agreed to start over.

Air Force acquisition officials are making contact with all vendors involved and Wynne believes that the process will go "much quicker" the second time around.

... But More Tanker Delays

A winner in the KC-X aerial tanker replacement competition may not be selected by the end of this year, as had been hoped, Air Force Secretary Michael W. Wynne said in September.

Wynne told a Capitol Hill symposium that the KC-X choice may slip into January 2008 or later, owing to the desire by the Air Force to make sure the choice is as "protest-proof" as possible. The Air Force has seen two high-profile programs—the CSAR-X (see above) and the Joint Cargo Aircraft—delayed by protests, and hopes to avoid such a situation on the KC-X.

The KC-X is the Air Force's No. 1 acquisition priority. Wynne said he's anxious to get the program under way because the service's aged KC-135s are so plagued with age-related problems that they could be grounded at any time, without warning. Wynne said his biggest fear is that the type would suffer a serious, fleetwide problem, forcing the service to either accept the risk of continuing to fly them or rely solely on a few dozen KC-10 tankers, which are themselves nearly three decades old. ■



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Today USAF is confronting problems on a scale rarely, if ever, seen since it was officially established on Sept. 18, 1947. The depth of concern about this state of affairs was evident in somber addresses and presentations of senior service leaders who appeared at the

Air Force Association's annual Air & Space Conference Sept. 24-26 in Washington, D.C.

In these presentations, one top Air Force official after another called unusually strong attention to a list of roadblocks threatening the service's future health. They go well beyond the

fact that USAF has been in a shooting war for 17 years.

First, they noted, the Air Force can't seem to keep vital aircraft modernization on track for more than a few months at a time. The service is bedeviled not only by a funds shortage but also by snarls of legal red

The Future Is on the Line

At AFA's Air & Space Conference, leaders warn USAF could lose its edge.

By Adam J. Hebert, Executive Editor

Capt. Tony Bierenkoven exits his F-15 after a demonstration flight at Kingsley Field, Ore.

tape generated by industry protests and legal challenges. Meanwhile, the average age of aircraft—at present, 24 years—continues to rise.

Equally troubling is Congress' continuing refusal to let USAF manage its own aircraft inventory in a way suited to getting the most capability for the

least expense. Lawmakers have for years banned retirement of hundreds of old and cantankerous aircraft. Such moves have protected jobs in home districts, but maintenance costs have soared.

The Army and Marine Corps are set to grow substantially, creating new



demands on USAF which are as yet unspecified but are sure to be great. Even so, the Air Force is having trouble reclaiming more than 5,000 airmen diverted from their "core" Air Force tasks to "ground force taskings" in Iraq, Afghanistan, and elsewhere.

On the political front, Air Force leaders say, the benefits of airpower are largely "assumed" by Washington policy-makers, who seem to lack all conviction about the need periodically to renew this national resource.

Short. Very Short.

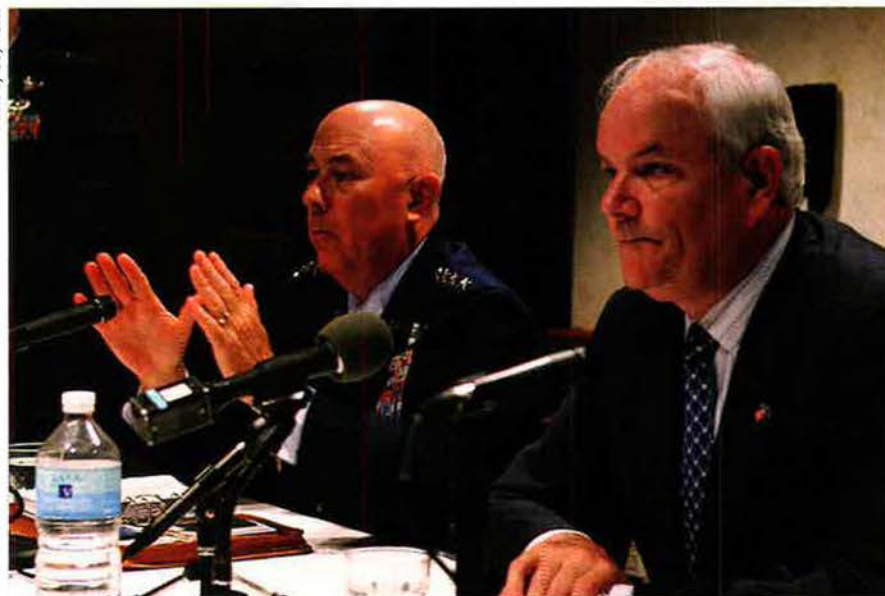
Compounding all of these problems is a chronic lack of funding needed to equip the force with modern aircraft and other weapons, recruit and retain high-quality airmen, and train and supply these forces to a high degree of readiness. Officials said the Air Force program is short by \$20 billion a year. The Air Force's recent plan—that is, cut thousands of troops to free up money for equipment—has come a cropper. Savings have largely vanished into higher fuel costs and other expenses.

Speakers at the AFA conference insisted that the service possesses a plan to meet its future needs. However, these leaders were unanimous on one key point: Many of the threats of future Air Force health are beyond the service's powers to control or even influence. If the service is going to prepare itself for the future, it will need outside help—and soon.

This point was hammered home by Secretary of the Air Force Michael W. Wynne. Observers, Wynne noted, need look no further than the Global War on Terror to see how airpower can be taken for granted. He pointed out that, in Iraq and Afghanistan, forces on the ground are taking the bulk of the casualties and consequently gaining the lion's share of national attention, but the nation should ponder for a moment what the war might be like without air dominance.

"If you wonder why not being attacked from the air is important, ...

Photo by Guy Aceto



Many aspects of USAF's plan to meet future needs are out of its control. Chief of Staff Gen. T. Michael Moseley (l) and Secretary Michael Wynne spoke of the difficulties.

you can ask the Taliban," said Wynne. "They know what happens when you lose control of the air."

Wynne was referring to the devastating late 2001 air effort that decimated regular Taliban forces in Afghanistan in just a few weeks.

Bluntly put, the war would be much uglier—and deadlier—without the Air Force. Air strikes can precisely destroy targets without putting soldiers at risk. Hundreds of lives are being saved by airlifting supplies so that trucks are not exposed to improvised explosive devices in Iraq and Afghanistan.

But there is something the Air Force is doing "potentially even more important" to the war than delivering bombs. USAF is preventing the enemy from massing, Wynne said.

"I guarantee you that if airpower were not there, it would be an entirely different war." Instead of taking on groups of 10 or 20 enemies that employ hit-and-run tactics, land forces would instead be battling groups numbering hundreds or thousands. With the Air Force controlling the skies, however, large enemy formations would be quickly spotted and wiped out.

With air dominance, a "fair fight" on the ground only comes about through poor planning, Wynne said. "It means the air operations center was not alerted, and it probably means airpower was not called in in a timely fashion."

The Air Force needs to defend this advantage, but its modernization plans

take years to develop. The War on Terror is not being fought with the F-22 or the F-35, noted Gen. Ronald E. Keys, then commander of Air Combat Command—it is being fought with the F-15s and F-16s USAF invested in some 30 years ago.

Similar investment is needed now to meet the threats the nation will meet in future decades.

"The argument always devolves into, 'Should you have P-51s or should you have F-22s.' That's the wrong argument," said Keys.

"You need the right tools," added Moseley.

Every airman should be able to go

into combat with the assumption that his aircraft will be able to dominate the enemy "in short order," said Wynne. "I'm saying in the most direct way I can: Invest today or we risk not being able to dominate the air or the ground in the decades to come."

Ready or Not

Moseley offered a recent event to illustrate what happens when recapitalization lags. An Air Force Special Operations Command Pave Low helicopter was destroyed in a hard landing in Florida Sept. 7. Two airmen received non-life-threatening injuries.

Six MH-53s have been lost to accidents, and the rest average 11,000 flying hours—an enormous number for a helicopter as large and heavily used as the Pave Low. There is a good chance that "the last MH-53 sortie will actually be flown in combat," which Moseley said would be "a fitting final mission."

The much-delayed CV-22 Osprey will be assuming parts of the mission currently performed by the MH-53. But the CV-22 is not yet operational, partly because so few are available. Therefore, Moseley said, USAF is considering deploying CV-22s to the war zone before they are technically considered operational.

The Air Force is actually fortunate in the case of the MH-53—a successor aircraft is in the pipeline and the service is free to retire the elderly airframes. This is not the case with much of USAF's inventory, as a variety



SrA. Phillip Larson preflights a B-1B. The War on Terror would be dramatically different without the Air Force, but top leaders say its contributions are taken for granted.

USAF Photo by MSgt. Scott Wagers



The F-35 Joint Strike Fighter will consume a large share of USAF's acquisition dollars in future years, making it a likely target for cost-cutters.

USAF has actually cut flying hours to pay operations bills, and the cuts appear to have gone too far. "It turns out that over a period of time, we've ... degraded some aircrews' ability to drop live weapons," said Johns.

The Air Force needs to get those flying hours back up in 2009 and 2010 because there is a "wow factor" the first time a pilot feels a live weapon come off the rail, he said. In the real world, "we don't have time for a 'wow factor.'"

Severe Disconnects

The Air Force is looking for creative ways to save money partly because the much-touted plan to cut 40,000 airmen as a way to free up funds for modernization has largely been a bust. In fact, depending upon how the ongoing expansion of the Army and Marine Corps plays out, USAF may need to raise its end strength once again. It may need to include hundreds or thousands more airmen with ground force units.

Thousands of airmen are also tied up performing in-lieu-of taskings for the ground components—jobs such as interrogator and combat convoy driver that do not have Air Force equivalents. This created its own strains.

"About 18 months ago, ... we became aware of some severe disconnects with the way the in-lieu-of training was happening," said Gen. William R. Looney III, head of Air Education and Training Command.

The Air Force needed a better grip

of Congressional restrictions force the service to keep hundreds of C-130s, B-52s, C-5s, and other aircraft in the active fleet. This is an enormous financial drain and forces the sustainment of aircraft that perform missions the Air Force feels can be better performed by newer systems.

"I fear that the MH-53 story ... will only repeat itself with increasing frequency as this inventory continues to age," said Moseley. Old aircraft are "harder and more expensive to maintain" and they are "significantly less combat-capable" than the new systems, he said.

"Give us the freedom to manage our inventory and lift the restrictions on retirements," Moseley said in a meeting with reporters. This is but one place in which the service is looking to reduce or adjust its spending.

The service is also getting hammered by fuel prices. Each \$10 increase in the cost of a barrel of oil drains the Air Force's topline by \$665 million. Air Force Materiel Command is leading a hard push toward alternative fuels for this reason.

AFMC has "had some success using process improvements to increase aircraft availability, so the next target is cost savings," said Gen. Bruce Carlson, AFMC commander.

"We've simply got to find a way to bring down cost, so we can contribute to the huge aircraft and weapons system recapitalization problem we have in the Air Force," Carlson said.

The Air Force needs to balance capac-

ity and capability, said Lt. Gen. Raymond E. Johns Jr., USAF's deputy chief of staff for strategic plans and programs, (A8) on the Air Staff. For example, a given amount of money could buy a fleet of F-86s or a single F-22.

The F-86s would offer a lot of capacity, but little relevant capability. That is of "very little use," Johns said. Alternately, one F-22 would offer "phenomenal capability, but no capacity."

A combination is needed, which is why the Air Force is pursuing both the Raptor and the lower cost F-35—which will still offer capabilities not present in today's legacy fighters.



SSgt. Kevin Harvey and A1C Amanda Hicks, weapons loaders with the 494th Aircraft Maintenance Unit, load AMRAAM and Sidewinder missiles onto an F-15E.

USAF photo by MSGT. Shaun Withers



An F-15E receives final checks before a mission in Southwest Asia. Moseley cautioned that breakdowns may be more common as USAF's oldest fleet ever gets even older.

on what its airmen were being tasked to do, where they were headed, and whether they were getting the proper training. The predeployment and assignment problems have largely been fixed, Looney said, but USAF is now working under the general assumption that "in-lieu-of" tasking is not going to go away."

The service is an average of \$20 billion a year short of its funding requirements, and cannot afford to cut any more airmen. Johns said the Air Force will be unable to meet its Quadrennial Defense Review-mandated goal of organizing around 86 combat wing equivalents without a cash infusion, beginning with \$9 billion in Fiscal 2009, increasing to about \$28 billion in the out-years. Current budgets will leave the service with 78 combat wing equivalents, he said—eight short of the projected requirements.

The service's modernization programs have been on rocky ground. A look at USAF's top five modernization priorities shows the struggles the service is in.

At the top of the list is the need for the next generation KC-X tanker, a program that has been delayed for years after a variety of snafus and controversies. Now, said Gen. Arthur J. Lichte, the new head of Air Mobility Command, an easy-to-imagine scenario could result in the Air Force flying Eisenhower-era KC-135s until 2082. All it would take is an industry protest and a reduced buy, ordered by Congress. The service expects to pick the winner of the KC-X competition early next year.

Second on USAF's priority list is the next generation combat search and rescue helicopter, CSAR-X. The service awarded this program to Boeing's HH-47 a year ago, but the other competitors contested the decision, and USAF has reluctantly decided to reopen the competition. In the meantime, the old HH-60s currently called on to recover downed airmen inch closer to a forced retirement.

Space systems recapitalization is third on USAF's priority list. Here the programs do appear to be coming along as planned, though the recent Chinese anti-satellite shot has shown that space assets are more vulnerable than ever before.

Fourth on USAF's list is the F-35 fighter, which will likely become a

target for Congressional, Defense Department, and Air Force cost-cutters once the program ramps up and annual acquisition costs begin to increase.

Finally comes the "2018 bomber," which Carlson said will probably have to be fielded through a block approach if the aggressive in-service target date is going to be met. Keys said the full-up version of this bomber will likely be "the C model."

The Future of C-17s?

The modernization difficulties don't end there, however. In late September, the Joint Cargo Aircraft program was still held up in protest after the initial contract was awarded to the C-27J team, led by L-3 Communications. The protest was later resolved in L-3's favor.

Strategic lift is in a quandary as well, after the Air Force declared that the C-5's Reliability Enhancement and Re-engining Program had gone way over budget. Cost estimates have ranged from \$8.8 billion to \$17 billion for the 111-aircraft RERP, which is supposed to deliver a 10 percent increase in reliability.

Wynne noted in a meeting with reporters that if the higher cost estimates turn out to be correct, C-5 RERP would have the same net result as buying 11 very expensive new airlifters.

The uncertainty also affects the C-17 line, which is still in production, but perhaps not for much longer. The Air Force has a validated need for 292 strategic airlifters—either C-17 Globemaster IIIs or modernized C-5s.

USAF has expressed an interest



Boeing and Northrop Grumman—whose KC-X proposal is illustrated refueling an F-22—are competing for USAF's next generation tanker business.

Northrop Grumman illustration

Total Force

The Air Force's reserve components seem to have emerged from their recently turbulent days in solid shape. They are actively supporting combat operations worldwide, recruiting and retention numbers are near targets, and the Air National Guard and Air Force Reserve Command are moving full force into new, enduring mission sets.

ANG chief Lt. Gen. Craig R. McKinley illustrated how the Air Guard will be transforming in the upcoming years. In 2006, 44 percent of the ANG was dedicated to flying, 40 percent to expeditionary combat support missions, and six percent was in new Total Force Integration missions—such as unmanned aerial vehicle operations.

By 2025, the ratios will shift as the Guard continues to reorganize and retire old fighter aircraft. The projection is that 36 percent of the Air Guardsmen will be flying, with 33 percent in ECS missions, and 18 percent performing new TFI operations by then.

The command is falling about one percent short of its end strength goals, but McKinley seemed less than concerned. The target is 107,000 Air Guardsmen, and the component had 105,892 airmen on its rolls. The Guard will not lower its standards just to fill out a few more positions, McKinley said.

In the Air Force Reserve, the command has been an active part of the War on Terror for years, and is no longer a strategic reserve.

Lt. Gen. John A. Bradley, AFRC chief, said 61 percent of Reservists have mobilized for the War on Terror. For example, one fighter squadron deployed four times in six years—a frequency Bradley described as “reasonable.”

Recruiting and retention are solid in AFRC, said Bradley. The command does not feel that its airmen are getting burned out. “Volunteerism” remains high, and Bradley said he is likely to lose more personnel because of Base Realignment and Closure actions than because of dissatisfaction resulting from overwork.

in retiring 30 of the oldest Galaxies and buying a like number of C-17s, but is currently barred from retiring the C-5s and does not want to spend money on Globemasters that could be spent on new tankers. By press time, the future mobility strategy was far from clear.

The way ahead for military space has become clear, however, thanks to China's recent ASAT test that destroyed a decommissioned Chinese satellite. This action, which Gen. Kevin P. Chilton described as “irresponsible,” also provided some clarity for Air Force space priorities.

Even more than air superiority, the ability to dominate space is “not guaranteed,” said Wynne. “It is not a birthright.” He said, “If they destroyed one of theirs, they can probably destroy one of ours.”

The test was a “wake up call” announcing that America's military space systems are not safe, Chilton said, adding: “Now we know clearly where we need to invest our dollars.” What is needed is better space situational awareness. “The last thing we need is [to deal with] more debris up there.”

The Air Force has no shortage of newly contested domains. Cyberspace is another. “The new American way of war has become virtually dependent upon cyberspace,” Wynne observed. “Virtually all of our information and reconnaissance communications flow through this domain,” as do the links

at Barksdale AFB, La. (The permanent home for the command was still to be determined.)

Lord, who has spent much of his career as a military communications systems officer, has been serving as director of Air Force cyberspace transformation and strategy at the Pentagon.

Lt. Gen. Robert J. Elder Jr., commander of 8th Air Force, said cyber operations are not an abstraction; they are a real part of Air Force operations today. He said current cyber missions include countering remotely controlled IEDs in Iraq; conducting electronic warfare from air and ground platforms; defeating terrorists' use of the Global Positioning System and satellite communications; and preventing radar and navigational jamming.

“We are being attacked in the cyber domain all the time,” Elder said. “This



Boeing will soon begin shutting down C-17 production, but USAF has yet to decide whether to expand its buy or refurbish its C-5s.

for aircraft and precision weapons guidance.

The provisional Cyber Command will defend this domain. “The age of cyber warfare is here,” said Wynne. The Air Force's cyber troops need “a warrior look,” he added, because “our opponents are already committed” to war in the electronic domain.

Cyber Operations Real and Now

Wynne announced at the conference that Maj. Gen. William T. Lord would lead the provisional Cyber Command

is not something we will do next year or the year after that. This is stuff we're doing now.”

One by-product of 17 years at war is that there are now airmen who were lieutenants when Operation Desert Shield began in 1990 and who are now “arriving at the end of a 20-year career, never having been in a service that was not at war,” Wynne said. With no end to the war in sight, the Air Force faces a tough road ahead in its effort to posture itself for the next 17 years. ■



A Global Hawk unmanned aircraft flies over the California high desert. UAVs play an increasingly central role in USAF plans.

The Struggle Over UAVs

The drone war continues, and USAF will have much to say about the last four big topics.

By John A. Tirpak, Executive Editor

USAF photo by Bobbi Zapka

The Air Force's drive to organize the use of unmanned air vehicles among the armed services, twice denied by Pentagon leaders, is not over, but the compelling problems that caused the push in the first place are now receiving the attention needed, USAF leaders said in September.

They also drove home the point that UAVs, once considered a novelty, have now become of central importance across the active and reserve components, which are organizing and building policy and operations around these pilotless aircraft.

Addressing AFA's Air & Space Conference in Washington, D.C., held in September, top USAF officials said they're satisfied—for now—with Deputy Defense Secretary Gordon England's recent decision not to make the service the Pentagon's executive agent for UAVs (See "Washington Watch: UAV Executive Agency—Denied," p. 13). They said England's approach could, in fact, pave the way for eventual executive agency for the Air Force, by directing interservice cooperation that USAF alone might have had a hard time enforcing.

"I think this moves us in that direction," Air Force Secretary Michael

W. Wynne told reporters at a press conference. England's directives that the services work toward pulling their diverse UAV efforts together "actually would have been harder" to accomplish if USAF had been made executive agent at this point.

"To ... promulgate such a standard, it's easier if you are in the Office of the Secretary of Defense," Wynne said.

Gen. T. Michael Moseley, Chief of Staff, told reporters that "I'm not unhappy" with England's decisions. He added, however, that "there is a series of steps to be taken, and we're making progress."

In a panel discussion with most of the Air Force's four-star generals, plus the heads of the Air National Guard, Air Force Reserve, and Air Force Special Operations Command, Moseley elaborated that the UAV executive agency issue is a book with four more chapters to be written.

The first, he said at the conference's Four-Star Forum, is to develop a pan-services concept of operations for the use of UAVs in a combat theater. Such a plan is being developed by the Air Staff in concert with Air Combat Command, and will soon be presented for joint consideration.

The second step is to get the services' acts together with regard to acquisition of the craft themselves as well as standardizing ground stations, connectivity, networks, bandwidth, and other interoperability issues, Moseley said, to avoid the costly mistake of having systems that can't communicate across service lines. He said it is an issue that has vexed him since his days as commander of Central Command Air Forces—as air boss of Operation Iraqi Freedom in 2003—and through his tenure as vice chief and Chief of Staff.

"That part is what we've addressed with OSD" through the pitch to be executive agent, Moseley explained.

The third aspect, he continued, is the issue of "airspace control, deconfliction, ... how to operate manned and unmanned systems in the same airspace, to get maximum effect ... from all users, but also maximum desired effect

from the assets that are deployed." The Air Force still insists that all UAVs be made "deployable" to answer the unquenchable demand for the intelligence-surveillance-reconnaissance products they provide.

Lastly, Moseley said, is the thorny issue of air defense, an issue he said was discussed at length during the concurrent Global Air Chiefs Conference.

"The proliferation of [unmanned aerial] systems creates a little bit of a challenge which will grow to be a much bigger challenge," Moseley said, since many UAVs are small, and may be indistinguishable from cruise missiles or other hostile systems, no matter how benign their mission.

ISR Unity Needed

Going forward, the first priority, Moseley said, will be to create the standardized tactics, techniques, and procedures which will flow from a joint-service CONOPS. He noted that Joint Forces Command in Norfolk, Va., will referee such an effort, and is located coincidentally near ACC headquarters at Langley AFB, Va., and Army Training and Doctrine Command, which will have to cooperate to build the new scheme. The CONOPS will not just be about UAVs, however, but will encompass ISR, and therefore will detail the relative roles and contributions of UAVs within that broader context.

Lt. Gen. David A. Deptula, deputy chief of staff for ISR and who is heading up the ISR CONOPS effort

for the Air Force, also spoke at the conference, and said that "we need to bring some unity to all ISR pieces for the combatant commanders." At the moment, the myriad pieces of ISR, for all the services, are "operating independently," which defeats the desire for a unified strategy.

As getting a CONOPS is the Air Force's highest UAV issues priority, the service's requests in this regard "are being met," Moseley said.

Still to be defined are joint requirements for unmanned air vehicles and the demand for full-motion video, which is the main product of most medium-altitude UAVs such as the Air Force's Predator and the Army's Sky Warrior, both built by General Atomics.

To underscore the demand for UAVs, Moseley noted that the MQ-1 Predators have been deployed from Nellis AFB, Nev., since 1996, "and we have never brought them back." The aircraft have never participated in operational readiness inspections or Red Flag exercises or any normal activities to develop their full potential, because there have never been enough of them to be spared for such routine activities, he said.

Before executive agency is discussed again, Moseley said there's "more work to be done" with regard to "demonstrating competency" and "defining requirements" among other things.

Gen. Ronald E. Keys, then commander of ACC, told fellow panel member Moseley, "I'm less happy than you are" about England's directives on UAVs.

The Joint Requirements Oversight Council—a committee of all the service vice chiefs—had recommended that the Air Force be named UAV executive agent.

"Now we're turning it over to another committee," Keys said. "And a committee has often been described as a cul-de-sac, down which good ideas are lured and then quietly strangled."

Keys said that one service should be put in charge of UAVs and held "accountable" for working out a coherent scheme for buying and using them.

"We're in a ridiculous situation now," Keys said, "where we've probably got a thousand UAVs downrange [with] various kinds of systems, and the control systems are not compatible, the data systems ... are not compatible, and we need to bring order to that."

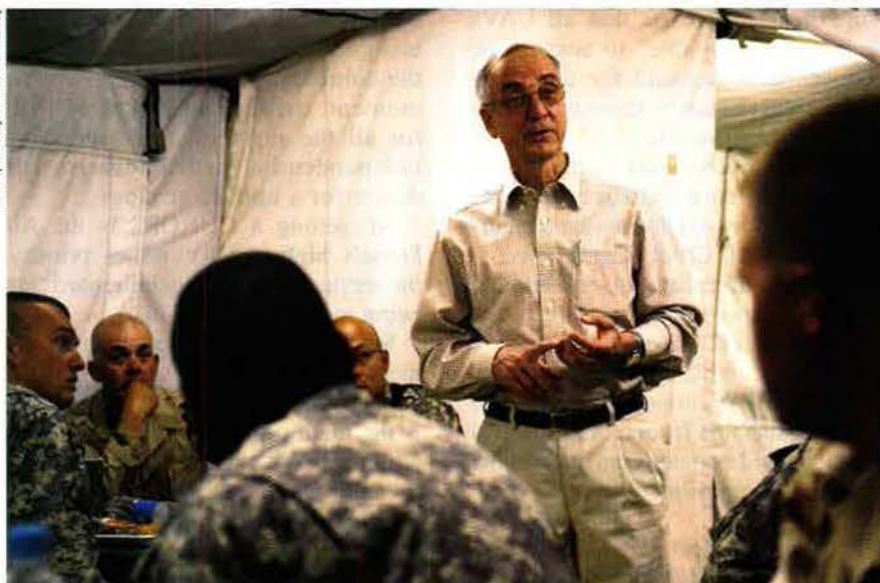
He added that too many of the systems flying in combat are feeding information "to a single person" in-



USAF photo by MSgt. Steve Horton

Capt. Richard Koll and A1C Michael Eulo, pilot and sensor operator, check out the health of a Predator that has just taken off from Balad AB, Iraq.

DOD photo by Cherie A. Thurlby



Gordon England, deputy defense secretary (standing), withheld UAV executive agency from the Air Force, leaving control in the hands of various committees.

stead of broadcasting it over a network that all can see and use.

"We have got to move away from that kind of approach," Keys asserted.

The Air Force has criticized the Army for wanting to tie UAVs directly to ground divisions, saying that when the divisions are not deployed, their UAVs will be idle—a situation unconscionable when the demand for UAV products is so high.

At a meeting with defense reporters in Washington shortly after the AFA conference, Army Secretary Pete Geren said the Air Force's view "makes sense if we were fighting a conventional war, but doesn't sit well on the kind of conflict we face today." The unmanned aircraft need to be controlled close to the soldier in the field, he said, to answer the soldier's immediate needs. The Army wants to give control to the soldier in the fight, he said.

However, Geren said he's optimistic about the direction the issue is taking, saying he and his service Chief of Staff, Gen. George W. Casey Jr., have met with Moseley and Wynne and "I don't think we're as far apart as it appears" from some of the press coverage of the controversy.

Keys said that the Air Force and Army—both buying a variant of the Predator from General Atomics, which has limited production capability—"essentially are competing for production of the UAVs. That's not good. I think we're getting charged twice."

Wynne, in the press conference, said that "we're behind schedule on Predator.

... We would like another 100, at least, of Predators, so we're hoping we can get together [with the Army] and have an orderly approach to General Atomics ... and come down with a general-purpose vehicle that meets both of our needs." Moseley picked up the thread and added that the company has a limited amount of engineering, test, and production people, and that they need to be focused on a smaller number of airframes to keep production at adequate levels.

There is urgency in the issue, Keys said, noting that there is likely no one in charge at Central Command who knows the whereabouts of any given ground patrol, or where the next convoy

is headed. It's essential that UAVs fly ahead of these ground units, to provide them with vital intelligence about "the things that need to be seen, before they drive into an ambush." An executive agent, he said, would ensure that "we connect all these things, ... so we get the right information to the right guy at the right time."

Partnering Around Global Hawk

Without pointing fingers at any other service, Keys observed that "we've all got good ideas, ... but they're just not compatible good ideas."

Gen. Paul V. Hester, head of Pacific Air Forces, noted that high-flying Global Hawk unmanned ISR craft are a central element in a novel scheme of engagement with friendly countries in his theater of operations. Hester said that in 2009, the first of several Global Hawks will bed down on Guam, and PACAF is in discussions with a number of countries on jointly using the aircraft to meet common needs. Partner countries might provide sensor payloads for the aircraft or provide places where Global Hawk can land and refuel. The aircraft could monitor critical sea lines of communication, like the Strait of Malacca, through which much of the world's oil supplies pass and which is plagued by piracy.

Partnering around the Global Hawk may be a way "to solve problems early, instead of waiting until later, when we have our guns drawn," Hester observed.

In a press conference, Hester said that Singapore had asked that Global



Above, the Block 20 version of the Global Hawk is rolled out at Northrop Grumman's Antelope Valley, Calif., plant in 2006.

Northrop Grumman photo

USAF photos by Dennis Rogers



Center, which he said has just published a UAV "flight plan," describing "every type of system being used, the types of missions, the frequencies—all the deconfliction mechanisms we'd like industry, academia, and our nations to grab onto."

He predicted an ever-greater usage of UAVs, as a less-expensive alternative to manned aircraft for endurance-type missions such as signals intelligence. He also sees a high correlation between the experience of developing and fielding of UAVs with their manned counterparts. The UAVs will "follow the same evolution that manned" aircraft did.

With a hint of envy mixed with pride,

Hawk land at its big military-civilian airport, but the US declined because it felt the time was not right to bring the aircraft down through heavily trafficked international civil airspace.

The Global Hawk will largely replace the manned U-2, which is mainly conducting ISR flights over the Korean peninsula, he said. Hester would like to have Predator-type UAVs, for more "short range" operations to which the Global Hawk is not suited. For operations like the 2004 tsunami relief, Predators could be easily and rapidly deployed aboard C-17s, which have recently bedded down in Hawaii.

For the international partnering to work, though, Hester said, "you have to have an executive agent" to speak with a unified voice for US operators of UAVs.

Gen. William T. Hobbins, commander of US Air Forces in Europe, said there



At top, an Air Force Academy cadet is briefed on the ground terminal used by battlefield airmen to communicate with UAVs like the Raven, above.

are "17 nations that are flying UAVs" in his theater, and that there are 157 types of the aircraft either flying or in development there.

Hobbins is the executive director of NATO's Joint Airpower Competency

Hobbins said NATO has "a standardization bible" for UAVs "that they live by." He feels confident NATO partners will "use the standards they developed ... in ... the collection, process, exploit, dissemination areas for imagery."

Air Combat Command handed off a squadron of Predators to Air Force Special Operations Command earlier this year, and Lt. Gen. Michael W. Wooley, AFSOC commander, praised Moseley and Keys for making the assets available.

Wooley said that while finding the enemy was easy during the Cold War, finding the enemy today is like finding a "needle in a haystack of needles." That's why the full-motion video offered by UAVs "is so very, very important" and indispensable for the special ops mission.

The unmanned aircraft are "protecting the ground team, ... able to surveil a location and give current intelligence to a team, as they go in." The robot craft tell the special ops units which way the doors swing open, whether

EADS photo



A German concept demonstrator, the "Barracuda," shown above, is plain evidence that other nations are aggressively pursuing UAV technologies.



The latest version of the Global Hawk is the RQ-4B, shown above. USAF has invited Pacific allies to partner in the use and exploitation of Global Hawk data.

there's anyone on top of a building, and whether a helicopter can land on it, Wooley explained. They also watch to see if anyone's coming, and peek around the riverbed or "over the next ridge" looking for enemies.

"All of those things, the Predators are bringing to the fight," Wooley said.

In addition, the UAVs are collaborating with gunships and making them more lethal and survivable. Gunships used to have to make several passes over a target area to be sure of a target and get the right firing solution, Wooley said, but the Predators pass information to the gunship en route.

This approach is "lowering [the gunship's] vulnerability as it comes in for the first orbit, and more often than not, [it] can take a shot on the first orbit."

Wooley said AFSOC is "very excited" about this synergy of gunships and UAVs.

He added that AFSOC's Predator unit has been "in a constant surge" since it stood up. "That has us concerned, and there's no letting up." He said the more UAVs that can be provided to offer full-motion video, "the better off we'll be."

The Air National Guard is in the midst of a "transformation" to its 21st century form, and UAVs are a central element of that process, according to ANG Director Lt. Gen. Craig R. McKinley.

He noted that the Guard is transitioning from fighters, tankers, and lift aircraft to the UAV mission in many places, including "units in California and North Dakota, Arizona, Texas, soon into New York, and also Nevada." McKinley said, "It's a nice match, when

you lose a platform like the F-16, to transition those pilots and those maintenance people—highly experienced people—into this new system."

A New Way to Look

He also said the Guard will be looking to "partner with civilian universities and create centers of excellence so our citizen-airmen can bring those skill sets to this very challenging and rewarding mission."

US Northern Command chief Gen. Victor E. Renuart Jr. noted that UAVs are essential to the unfolding scheme of obtaining better situational awareness around and within the United States, and he pitched for a more rapid effort to overcome objections to operating UAVs in civilian airspace.

The unmanned aircraft offer a new way to "look over the horizon," Renuart said, allowing NORTHCOM to look far across the Atlantic and Pacific Oceans and "help us pin down where a maritime threat may arise."

The Navy is pursuing a Broad Area Maritime Surveillance program and variants of both the Global Hawk and Predator are vying for the job.

Renuart said he's "taking advantage of the versatility and flexibility" of UAVs by using them to help the US Customs and Border Patrol agency and the US Drug Enforcement Administration control "illicit trade and trafficking across our borders." Using UAVs in this way is something NORTHCOM is working to "mature" every day, he said.

"Critically important to this is that we have standardized procedures, ... standardized networks, that we have data

systems that are common across a variety of domains," Renuart asserted. "We don't have that today." Although there have been some steps toward standardization, "we have to continue that."

Whether employed in homeland defense or deployed overseas, "we've got to ensure that the data systems all work, and I may need to push that [UAV-derived] picture to a fire chief, as opposed to a fire team."

He concluded by noting that many of the visiting air chiefs have solved the issue of operating UAVs in civilian airspace in their home countries, but "we haven't."

"There's real hesitancy to let unmanned systems fly around in our national aviation system. Unfortunately, that's a fear based on myth, not ... on the reality and ability of great airmen to control these systems and integrate them across our national airspace systems," Renuart said. He predicted a "lot of work to do in that regard," and promised NORTHCOM would be at it "every day."

The civilian airspace situation will be especially important as more Guard units begin flying the UAVs. They will need to be allowed to overfly populated areas and in normal air traffic corridors for training, and especially be able to respond quickly in domestic natural disasters. In the aftermath of Hurricane Katrina, Predators were used to search for survivors and assess damage, but their sensors were lashed to the tops of tall buildings in the affected area, because they had no permission to fly there.

The dependence on UAVs is likely to grow. Air Force Space Command chief Gen. Kevin P. Chilton (now commander of US Strategic Command) noted that adding more ISR capability to high-flying UAVs is one way to decrease the threat from enemy anti-satellite systems. Having a robust ISR architecture that uses air-, ground-, sea-, and space-based assets reduces the value of developing an ASAT such as one demonstrated by China earlier this year. Redundant systems reduce the chance of knocking out a significant chunk of US ISR capabilities with a single well-aimed shot.

Chilton also said he and ACC have decided to let ACC be in charge of "near space" UAVs that may stay aloft for weeks at a time. Chilton said such systems "aren't really near space," since they fly at altitudes that are still "only about a quarter of the way" to orbit.



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The Command



CMSAF Rodney McKinley addresses the command chiefs forum. Other panelists were (l-r) CMSgts. Mark Luzader, Jonathan Hake, Gary Coleman, Troy McIntosh, and Lewis Monroe.

Photo by Chris Cross Photography

By Peter Grier

The Air Force's mission crystallizes on the flight line, where one finds a combination of pilots, ground crew members, maintainers, plus much more. Every airman contributes to USAF's combat power, and "should have that warrior ethos, and be proud of it," said CMSAF Rodney J. McKinley.

McKinley, a guest speaker at AFA's 2007 Air & Space Conference, appeared at a forum on enlisted issues with five command chiefs from Air Force major commands and the Air Force District of Washington.

Airpower "takes the person in finance," said McKinley. "It takes the person in supply. It takes the person delivering fuel. It takes the people building the bombs, and the people loading the bombs. It takes the crew chief."

No matter where you work in the Air Force, every job is applicable to its mission, he emphasized.

The forum provided enlisted personnel from the field an opportunity to put questions to top noncommissioned officers. And if the queries were any guide, the enlisted force's interests are as varied as their jobs, which often take airmen away from the Air Force and into the joint world.

"It's all about relationships," said CMSgt. Lewis E. Monroe III, command chief for AFDW.

Today, there are airmen assigned to the professional military education

schools of the Navy and Army, pointed out CMSgt. Mark R. Luzader of Air Education and Training Command. "The Air Force each day operates more and more in a joint environment," said Luzader.

McKinley added that from his point of view it is important to stay in touch with airmen who are away from their service on assignment. When he sends out general e-mails to the Air Force, McKinley forwards them to the senior enlisted advisors at combatant commands.

"Even though someone is serving in a COCOM we still have to keep them up to date about what's going on in their Air Force so that when they come back they won't be behind the power curve," said McKinley.

Questioned about the addition of physical fitness test results to the new enlisted performance report (EPR), the chiefs defended the move as necessary.

CMSgt. Gary G. Coleman, US Air Forces in Europe command chief, said he was angered by comments in a re-



USAF photo by SSgt. Eric T. Sheller

No matter what the job or where, USAF personnel should have the warrior ethos. Here, SSgt. Anthony Hyland (l) and TSgt. Eric Brennon check an F-117 at Langley AFB, Va.

Chiefs Speak



The interests of the enlisted force are as varied as their jobs.

cent story on the subject in a military publication. The airman in question said he thought the new emphasis on physical fitness was a “joke,” because all he had to do was stroll from his air-conditioned tent to his air-conditioned work area.

Fitness at the Forefront

“It really bothers me that we still have people—especially technical sergeants—in our Air Force who do not see the value of being physically fit,” said Coleman. “The fact that we document it is long overdue.”

On the other hand, younger airmen now see fitness as a corollary of wellness, said CMSgt. Jonathan E. Hake, chief at Air Force Materiel Command.

Wounded personnel recover more quickly if they are healthy, added Hake, and exercise and fitness can give airmen a quality of life boost. “Don’t do it so you have a ‘pass’ mark on your EPR. Do it rather so you have the energy and stamina to enjoy life,” he said.

Plus, a more active force might save health care dollars.

The Pentagon spends billions on Tricare. McKinley said, “If we become a healthier, more fit Air Force, that is going to reduce that Tricare cost.”

New virtual promotion notifications were perhaps the hottest topic. Most of the command chiefs admitted that they, too, at first were put off by the Air Force’s decision to post promotion results online, ending the traditional practice of allowing commanders or first sergeants to convey the news.

“I was one of those who thought the Air Force was really falling apart, getting away from all the things about who we are,” said Monroe.

But upon reflection, Monroe realized that in reality most service personnel did not find out about promotions

via face-to-face communication from higher-ups. Instead, colleagues or mentors leaked the news as soon as they found out.

“Your commander was usually the last to know you had been promoted,” said Monroe, to laughter from the audience. “We know it’s true.”

McKinley said that he recently had eaten lunch with 17 chief master sergeants who were “emotional” about this subject. But when asked whether their squadron commander had passed

else,” said McKinley. “I would just ask that if you are the supervisor of someone who is going to get promoted or if you give advice to a commander, that . . . this does not release us of the responsibility for face-to-face communication and congratulations,” said Hake.

Asked about the new unified military command for Africa, USAF’s Coleman said Air Force leaders have yet to decide whether AFRICOM will be supported by a new numbered air



TSgt. Donnie Gallagher (l) scans for IEDs in Iraq. The command chiefs said airmen on joint assignments should be kept informed on what's going on in their own service.

along the news of their last promotion, the truth came out.

“As a matter of fact, almost all 17 of them, they had not found out about their promotion to master, senior, or chief sergeant from their commanders. They had found out from somebody

force or whether air support will come from USAF.

“All of those options are still on the table,” said Coleman.

From an organizational point of view, Africa is a daunting assignment, he said. There are only six regional

USAF photo by SSgt. Raymond Mills

USAF photo by SSgt. Stiane Cuomo



Airmen inspect and refuel an A-10 in Iraq. "What makes our enlisted force great is the people we recruit and the training," CMSAF Rodney McKinley told the conference.

airlines that are considered safe to fly, for instance. If you are in the center of the continent—say, in Niger—and want to fly to South Africa, the best way to get there is to fly all the way back to Paris for a connection.

Plus, Africa is just flat-out huge. The United States, Europe, and China would fit comfortably within its boundaries.

Shave the Gaps

"It's a very dynamic continent, a very dynamic area that's going to require an air component that is robust and has tremendous capability," said Coleman.

Questioned about ancillary training, the chiefs said that on the whole they were pleased that it was being scaled back.

"We're working very hard on ancillary training," said McKinley. The Chief of Staff wants to limit it to 90 minutes per year.

Such training has always been a headache for the reserve components, for the obvious reason that it takes up a larger percentage of time on duty for part-time airmen than it does for active duty personnel.

"Ancillary training requirements—we are ecstatic that they are drawing those down," said CMSgt. Troy J. McIntosh, command chief for Air Force Reserve Command. "We recognized a long time ago that the ancillary training requirements were actually



Avionics technicians discuss repairs to an F-16. Midlevel NCOs have vast responsibilities, but there is a 10-year gap in their professional military education.

preventing us from training in our core competency."

The command chiefs also appeared eager to close the lengthy education gaps an airman faces between professional military education milestones such as Airman Leadership School, the NCO and Senior NCO Academies, and the Chiefs Leadership Course.

"I have big concerns in this area," said McKinley.

Currently the average time in service for an airman attending Airman Leadership School is four-and-a-half years. The next time that individual would likely reach a PME milestone is after 14-and-a-half years, when the airman is due to attend the NCO Academy.

"That is a 10-year gap for what I consider the two most important grades in our Air Force, that is, staff sergeant and tech sergeant," said McKinley.

Those are the midlevel NCOs that are out doing their jobs, turning wrenches, while at the same time shouldering responsibility for the upkeep, mentoring, and discipline of younger airmen.

"But a lot of times we put no leadership tools in their toolbox for a 10-, 12-year gap," said McKinley. "We've got to fix it."

Attending ALS at the four-and-a-half year mark is fine, said the Air Force's top enlisted chief, but perhaps the NCO Academy should come at around the

10-year in-service point.

Similar shaving of the gaps between subsequent PME milestones might then cure the overall problem.

"What makes us different from other services in other countries is our enlisted force," said McKinley. "And what makes our enlisted force great is the people we recruit and the training and especially the PME we have—so we want to make sure we're giving PME at the right time." ■

Peter Grier, a Washington editor for the Christian Science Monitor, is a longtime defense correspondent and a contributing editor to Air Force Magazine. His most recent article, "Names for Our Unknowns," appeared in the July issue.

USAF photo by MSGT. Scott Waggers

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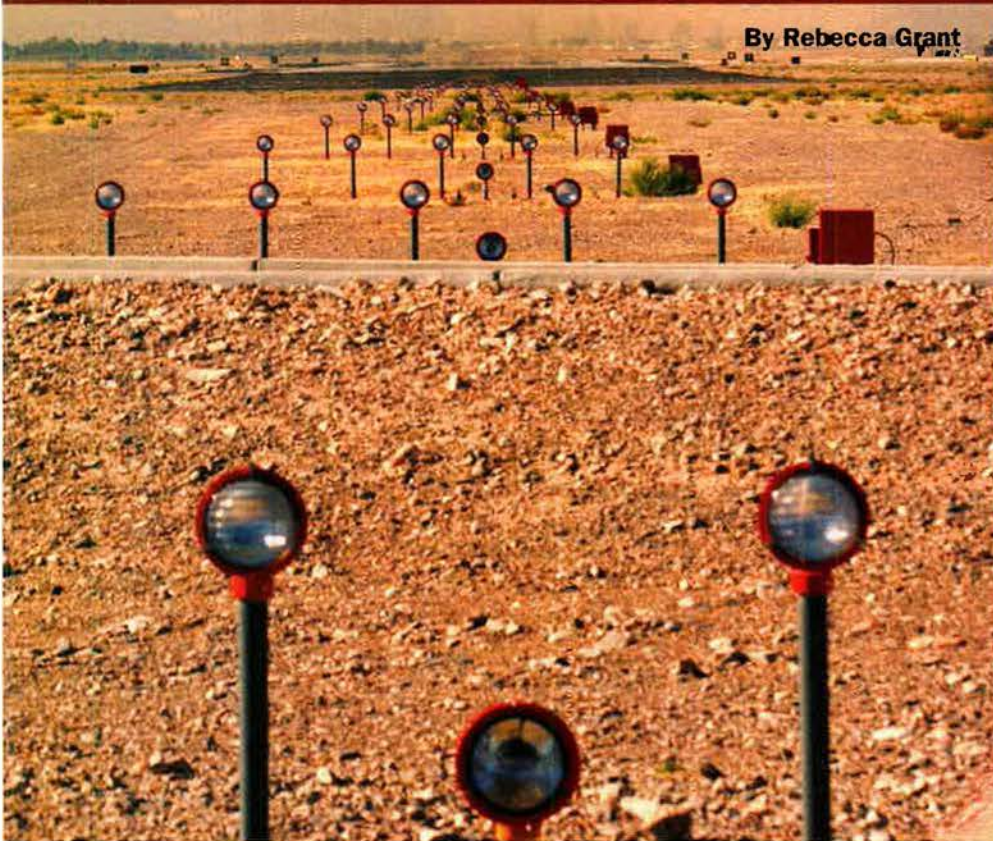
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The mix of range, payload, and networked sensors may well bring radical new results.

When Bombers Will Be Decisive

By Rebecca Grant



bombers once again are decisive?

Both history and daily experience suggest the answer is yes. The 21st century concept for a new bomber will mix range and payload with networked sensor architectures in radical new ways, with radical new results.

The first evidence comes from the historical record. No matter what the circumstances, the range and payload of bombers have repeatedly been top commodities.

America's first bombers were two-seat observation biplanes converted to carry bombs. They flew bombing missions beginning in the summer of 1918, but they never got the chance to be decisive before the armistice of Nov. 11, 1918. Still, Allied plans for the offensive in 1919 had called for massive bombing campaigns.

Later, the sleek monoplanes of the 1930s began the dedicated concentration on maximizing range and expanding payload. Bombers such as the B-17 and the B-24 consciously traded speed and agility for distance and weapons load. In World War II, many aircrews died because their bombers had these characteristics, but British and American bombers were the only weapons capable of striking directly at Nazi Germany for the first several years of the war.

There was no doubt at the time that bombers were decisive. It took just two—on Aug. 6, 1945 and Aug. 9, 1945—to deliver the atomic bombs that ended World War II.

Range and payload continued to deliver a decisive edge in Cold War campaigns. Bombers struck interdiction targets in Korea. They provided close

No mission is more emblematic of the Air Force than the long-range bomber mission, that unique assignment to hold at risk any target anywhere on the face of the Earth. This is the lethal combination of range and payload that the Air Force regards as its birthright.

USAF, says Gen. T. Michael Moseley, its Chief of Staff, is "a unique entity in the American military" because it must be able to find, watch,

and destroy anything on the surface of the Earth.

For all this deeply held doctrinal commitment, though, the Air Force bomber inventory is at an all-time low. Fighters have dominated theater operations since the 1991 Gulf War as their precision bombing capabilities have grown exponentially, and have arguably dominated USAF thinking since the end of the Vietnam War.

Will there ever be a future in which

USAF photo

air support and bombed Hanoi heavily during the Vietnam War.

After the F-117 stealth aircraft made its combat debut in Operation Just Cause in 1989 in Panama, the F-117s, F-15Es, and F-111s reached tremendous levels of effectiveness with laser guided bombing in Operation Desert Storm in 1991. Still, range and payload mattered. B-52s flew from Barksdale AFB, La., to launch cruise missiles at key targets in Iraq during the opening hours of that air campaign.

A total of 68 B-52Gs went on to fly 1,035 sorties against strategic targets and another 527 sorties against battlefield interdiction targets such as Iraqi artillery, armor, and infantry units. The ordnance they delivered accounted for 30 percent of the coalition's total tonnage.

Yet soon thereafter, range and payload slipped in priority. In 1997, the B-2 program was halted.

The "procurement holiday" of the 1990s hit bombers hard. In the 10 years since the decision was made to truncate

cadres have greatly favored the use of fighter forces with precision weapons. On very few occasions did adversaries present targets beyond the reach or survivability limits of the fighters.

During that time, canonical planning scenarios such as war on the Korean peninsula and another fight with Saddam Hussein's Iraq were gamed as combined-arms operations, where short-range forces were highly effective. Neither placed undue or unique demands on long-range forces. In both, for example, carrier aviation was able to make a weighty contribution despite its range limitations. The huge increase in capability from integration of precision weapons took care of whatever the models demanded.

Force structure and investment plans absorbed those priorities. "The backbone of the air fleet, which had been the heavy bombers and ICBMs, ... decreased dramatically in numbers and importance," noted historian Phillip S. Meilinger.

Of course, there were exceptions.

percent of the total tonnage during the beginning of Operation Enduring Freedom in the fall of 2001.

Far Greater Distances

Defense analysts Steven M. Kosiak and Barry D. Watts, a former director of program analysis and evaluation at the Pentagon, recently wrote for the Center for Strategic and Budgetary Assessments that "in future wars, US aircraft may have to operate at far greater distances than they have in the recent past."

A new appreciation for the bombers emerged during the ongoing operations when B-52Hs and B-1s proved the value of turning range into loiter time, allowing the aircraft to stay overhead with large weapons loads to support varied ground operations.

On missions in 2004 and 2005, it was common for aircraft to drop just one weapon, or none at all. By the fall of 2006, strikes increased as larger formations of Taliban fighters emerged in Afghanistan. One B-1 crew told of releasing eight 2,000-pound Joint Direct Attack Munitions, plus six 500-pound bombs, on a single mission that fall.

The work of the bomber crews drew Army accolades. Army Maj. Gen. Benjamin C. Freakley praised Air Force bombers—and the B-1 in particular—for their work in Afghanistan. Freakley singled out the B-1 because the "Bone" can carry a bigger payload, loiter longer, and get anywhere in Afghanistan "in minutes" at dash speed.

The historical record—and daily events—strongly suggests that the future will throw in more challenges that call for long range and a heavy weapons payload as part of the mix.

Currently, the Air Force has more than 2,300 fighters but less than 200 bombers. That ratio reflected the needs at the end of the Cold War. But does it provide the basis for future needs in both warfighting and deterrence?

The Air Force has answered the question in a way by repeatedly accelerating its plan to develop and field a new bomber, which now has a target date of being ready for squadron service in 2018.

There's another wrinkle. The days of fighters (or bombers, or unmanned systems) operating alone are over. In 21st century scenarios, all these platforms will need to share information and achieve a tactical dependence to get the job done. Heavily defended airspace will present challenges that call for platforms to work together in new ways.



Photo via National Archives

Opposite page: A stealthy, long-range B-2 bomber takes off from the Nellis AFB, Nev., runway. **Above:** Four World War II B-24 Liberators fly in formation.

bomber modernization, the Air Force has not come up with a way to begin a new bomber program, even as many of the B-52s from the early 1960s and B-1Bs from the early 1980s have been retired.

Not since World War I has USAF's force-structure balance been tipped so dramatically toward short-range force structure.

Air operations over the last two de-

A big one came in NATO's Operation Allied Force in 1999. Tough targets in Serbian territory could only be reached by the B-2 bomber, which made its combat debut by flying directly from its base in Missouri. The B-2 successfully struck heavily defended fixed targets and mobile targets such as an SA-3.

Afghanistan presented another showcase for range and payload. B-1s and B-52Hs ended up dropping about 70



Left, Maj. Jeffrey Marcotte, 40th Expeditionary Bomb Squadron, stabilizes his B-52 aircraft as he prepares to take on fuel from a KC-135 Stratotanker. Below, a B-52H from the 2nd Bomb Wing, Barksdale AFB, La., takes off during an operational readiness inspection.



There's an inexorable image dating back to World War II of bomber formations conducting long-range missions all alone. Even when the P-51 at last provided fighter escort with legs, the Mustang tactic was not to cling to low group or high group, but break away to challenge and chase German fighters.

The B-2 missions over Serbia in 1999 briefly returned the bomber to lone wolf status. NATO fighters pinned down Serbia's last MiGs, and EA-6B jammers worked to protect the skies. However, on target approaches the B-2 crews counted on their own resources and skillful mission planning.

Bombers in 2020 scenarios will not be lone wolves. They will be part of a wolfpack.

It's an evolution in strike operations that is already under way, underpinned by the networked force. Strike platforms are being modified with data links that share status, images, combat tracks, chat, and even voice.

The net result is an air battle network that adds up to far more than the sum of its parts. Each platform in the 2020 air battle will be able to draw from both on- and off-board sources to securely share information.

New fighters such as the F-22 and F-35 are being built with many of these advanced capabilities. An F-22 may spot "red" Su-30s at several points, thanks to its exceptionally high volume air search radar. As the F-22s move to attack, they can pass that picture to bombers, marking out the "safe" corridors for operations or

redirecting the more vulnerable aircraft to defensive tactics.

No More Lone Actors

No doubt it will take time and practice to hone the tactics. However, US airmen excel at finding better ways to blend new ingredients into situation awareness. They will also have plenty of ways to do it in advance. Widespread use of simulation on the F-35, for example, has already demonstrated new tactical options for the many customers for the aircraft—all before any Joint Strike Fighter deliveries have been made.

The "2018 bomber" will be stealthy and will boost the Air Force's ability to take that network deep. This is a new sight picture for the Air Force. Up through the F-22, today's platforms were built with a big emphasis on what the aircraft itself could do. Until recent years, the F-22 was seen as yet another lone actor—with its deep stealth, it

would cross-communicate only to other nearby F-22s.

Perhaps the ultimate example of solo warfare was the F-117. Difficulty with fitting the F-117 into a future network battlespace was part of the reason why the Air Force decided it was time to retire the groundbreaking stealth warbird.

On the other hand, older systems—from B-52s to Navy and Marine Corps F/A-18s—that can incorporate network enhancements are keeping their jobs even in a world decades removed from their original roles.

Just what will the wolfpack and its bombers be doing deep in enemy territory in the 2020s? It will be a mix of missions, such as supporting special operations forces. However, the main mission will likely be hunting mobile targets.

Mobile targets range from most-wanted terrorists in SUVs to road-mobile missile launchers. A representative

target is the mobile surface-to-air missile.

All these targets share two vexing traits. They are important to the enemy, often carrying key capabilities or weapons, such as anti-satellite missiles. Also, when under threat, they can scoot out of most weapons' blast zone in just a few minutes.

The ability of mobile targets to relocate limits options for attacking them. Standoff weapons incur two penalties. First is their time of flight. Subsonic or low Mach weapons cannot count on a clean hit on most types of mobile targets. The target may relocate under normal procedure, or it can move in response to missile detection. Either way, unless the weapon can track or be redirected to the target after release, it is likely to miss.

A second problem is that glide weapons—or even cruise missiles launched at a distance—may slow too much as they approach the target, and could be shot down themselves.

Killing mobile targets requires taking minutes out of the kill chain. One way to do that is by bringing the weapon and the platform closer in. Behind the SAM belts, there will be high priority, mobile targets assigned to the air component. These are the prime turf for a penetrating, long-range bomber.

This is exactly where the current force structure of the Air Force falls short.

Plans for a 2018 bomber call for rebalancing the force. Currently, the only candidate for hunting mobile targets in defended airspace is the B-2. However, the fleet of 16 combat-coded B-2s does not provide enough long-range force structure for the highest-threat scenarios.

The Air Force's stealth bomber fleet is simply not big enough to provide sustained attack over several days—even assuming no combat losses or damage to cut into sortie rates. Consider the numbers. Assume the Air Force can put all 16 combat-ready B-2s in forward locations for a major campaign. If the bombers flew 12-hour missions, with only 12 hours turn time, commanders would struggle to keep two B-2s operating over a target zone.

That's hardly the kind of persistent attack an air commander requires when mobile targets are on the loose.

The Air Force has judiciously invested in the B-2, making it an exceptionally capable aircraft. Next up are plans to integrate Link 16, the secure

USAF photo by MSgt. Michael Ammons



An F-22 releases a GBU-32 Joint Direct Attack Munition over the Utah Test and Training Range, Hill AFB, Utah.

battle channel in use by fighters and other aircraft for several years. B-2s with Link 16 will truly enter the networked force, further increasing their relevance.

Onward To Mach 6

Airmen also need to develop the next generation of advanced weapons. One of the bomber's most decisive features in the 2020s may be hypersonic weapons. True hypersonic aircraft—transiting Mach 6 or greater—have remained stubbornly out of reach.

Experiments with hypersonic weapons, however, are yielding results.

The Defense Advanced Research Projects Agency, the Office of Naval Research, and others have kept hypersonic research simmering over the last several years with a series of weapons-scale programs.

One, known as Hypersonic Flight Demonstration (HyFly), has been developing a high-speed, long-range hypersonic air-breathing test vehicle. The HyFly demonstrator combines a rocket-like booster with a dual combustion ramjet engine. Tests and simulations have suggested the cruise missile-like demonstrator could reach speeds of Mach 6 and strike a target 400 miles away in less than five minutes.

If HyFly passes its fall 2007 tests, it could grow into a valuable contribution to the bomber arsenal. Together,

a penetrating bomber and hypersonic weapons could help master the “time of flight” problem that gives mobile targets an opportunity to scatter and escape.

Still, no matter how sophisticated the upgrades, nothing changes the fact that the Air Force has only a handful of stealthy bombers.

Despite the current shortfall in “tails,” waiting until now to begin a new acquisition program has had some advantages.

Since the B-2 began development 30 years ago, the major defense contractors have made significant advances in everything from materials, to engines, to avionics, to manufacturing techniques. These have primed the US aerospace industry's ability to deliver a sophisticated new bomber.

Joint commanders more than a decade hence will count on the Air Force to be able to hunt and destroy the most vital targets, deep in the interior of any potential adversary. Nations such as China, Iran, and Russia all benefit from “strategic depth” that complicates targeting within their borders. Maintaining the ability to strike anywhere, at any time, is a critical part of the conventional deterrence equation.

Possible future adversaries cannot feel as if they are invulnerable, and the next generation bomber should eliminate any confusion about that. ■

Rebecca Grant is a contributing editor of Air Force Magazine. She is president of IRIS Independent Research in Washington, D.C., and has worked for RAND, the Secretary of the Air Force, and the Chief of Staff of the Air Force. Grant is a fellow of the Eaker Institute for Aerospace Concepts, the public policy and research arm of the Air Force Association. Her most recent article, “Up From Kasserine Pass,” appeared in the September issue.

The E-3 AWACS aircraft are back in the desert, this time with new missions.



USAF photo by SSgt. Matthew Hannen

The Sandbox Sentries

By Marc V. Schanz, Associate Editor

In May 2003, after the initial phase of Operation Iraqi Freedom, all Tinker Air Force Base E-3B Airborne Warning and Control System aircraft returned home to Oklahoma. These AWACS aircraft, pride of the 552nd Air Control Wing, had certainly been hard-used. They had just spent 13 straight years forward deployed in the Middle East.

According to Col. Lori J. Robinson, 552nd commander, the deployed crew members flew in support of operations Desert Shield, Desert Storm, Northern Watch, Southern Watch, and Iraqi Freedom, spanning the period 1990-2003. It was common for airmen to put in 200 days per year of temporary duty assignment, Robinson noted.

Now, the Sentries are back in the sandbox. Earlier this year, the AWACS returned to Southwest Asia. For the airmen of the 552nd, however, the E-3's return to desert duty was not

a replay of things past; rather, it was the opening of a new chapter for the constantly evolving mission of this remarkable aircraft.

During the past few years at Tinker, the wing's airmen tried to get back into training and apply the lessons of their recent experience in the desert. "We wanted to start all over again, and get back into the books hard," Robinson said. "We sat back and said ... let's look at what we did in Enduring Freedom, in Iraqi Freedom, and in Kosovo. ... What are the things we think we'll be doing in the future?"

A theme from the combat operations was that air defense and surveillance missions—which had long been the mainstay of the fleet's history—were giving way to new missions such as air-to-ground management. These new missions comprise, for example, involvement in close air support, combat search and rescue, and the linking of

air and space operations centers with a wide array of intelligence-surveillance-reconnaissance aircraft.

Now back in Southwest Asia, aircrews and maintainers are adjusting to the demands of supporting a new, more congested battlespace than existed in 2003.

"This aircraft works a lot with deconflicting, particularly in the desert with tankers and UAVs," said CMSgt. William Lick, a veteran AWACS operator with more than 15 years in the E-3. "There's a lot out there that needs to keep from running into each other now."

In CAS environments, the Sentry helps coordinate the critical "kill boxes" for assisting aircraft coming to the scene. "The thing we have that is so great is that radar," said Robinson. The ability to see the battlespace is "almost unequalled."

The iconic feature of the AWACS

is the rotating radome, about 30 feet wide and six feet thick, perched 11 feet above the fuselage. The radar contained within provides a picture from the surface of the Earth up to the stratosphere, and boasts a range of at least 250 miles for low-flying targets and even farther for targets at medium to high altitudes.

In addition, thanks to data links, the E-3 can transmit the radar picture to the coalition air commander in the combined air and space operations center—allowing commanders to see what the aircrew sees and promptly act on it.

During the 1980s and 1990s, the E-3 was tasked on deployments to several crises and combat operations—from Saudi Arabia during the Iran-Iraq War to Panama.

“Prior to 1991, it was mostly combat type operations,” said Lt. Col. Randy Reynolds, the 552nd director of staff. After Desert Storm the mission began to change, with the advent of advanced air operations centers. “If we can get

ment that allowed an unequalled view of the battlespace. From the start, the Sentry fleet was a critical asset, using its radar and sensors to gather and disseminate information on airborne targets.

A Host of New Missions

A key to North American Aerospace Defense Command’s efforts to get a better radar picture and early warning against Soviet bombers probing the continent, the E-3 can also control packages of US and allied aircraft. It later successfully transitioned to support counterdrug interdiction efforts off South America and supported combat operations from Iraq to Serbia and back to Iraq again.

The platform has seen its introduction into a host of new mission areas—from Noble Eagle patrols after 9/11 to its debut as a platform to coordinate humanitarian operations in the aftermath of Hurricane Katrina. In 2005, after the hurricane tore through the Gulf Coast, AWACS was part of the

use those assets to get to the right places,” Reynolds said. Aircrews directed military and civilian assets to find survivors. The experience was tough, but AWACS crews assisted with more than 600 rescues.

While the airborne early warning and air defense missions remain the hallmark of the aircraft, its missions and concepts of operations have evolved significantly in the years since Desert Storm.

“What AWACS started out to be for NORAD was very much oriented towards air defense. It’s a testimony to this wing that we haven’t stayed there,” said Maj. Greg Kent, the director of operations for the 552nd Training Squadron. “We’ve had to become a lot more innovative.”

Especially since its return to the desert, AWACS crews now serve as a piece of a larger network. “Being at 3,000 feet with lots of radios is a good thing for a lot of guys on the ground,” Reynolds said. The wing focused on developing the ability to branch out



USAF photo by Margo Wright

Facing page: An E-3 AWACS takes off during a sandstorm in Southwest Asia. Left: Mechanics at Tinker AFB, Okla., work on a radar dome atop an E-3 AWACS aircraft.

up there and present a [command and control] or a radar picture [for the joint commander], we’ll do it,” he added.

The E-3 was delivered first to Tinker, 30 years ago, as a follow-on to the EC-121 Constellation. The powerful rotating radar was built upon a modified Boeing 707 airframe packed with complex sensor and tracking equip-

ment that allowed an unequalled view of the battlespace. From the start, the Sentry fleet was a critical asset, using its radar and sensors to gather and disseminate information on airborne targets.

“It was a bit of a challenge to do this the first time,” recalled Reynolds. Sentry crews worked with Coast Guard units and civilian authorities to coordinate hundreds of rescue crews searching for survivors.

“Our challenge was to separate and

and become part of the larger military communications network. This takes constant practice.

On one recent training flight, Capt. Mike Conlee of the 960th Airborne Air Control Squadron looked at his instruments and announced to his flight crew that they had reached cruising altitude.



USAF photo by Margo Wright

Left: Sheet metal mechanic Edith Clemons buffs corrosion from the body of an E-3 AWACS undergoing depot maintenance at Tinker. Below: An AWACS aircraft prepares to land at Korat AB, Thailand, during Exercise Cope Tiger in 2002.



USAF photo by TSgt James E. Lotz

This E-3 mission would take the crew over the Rocky Mountains, as far as the Great Falls, Mont., region, said Conlee, the mission's pilot. The sortie would monitor aircraft along the route and get in some rare practice jamming time with a B-52 equipped with electronic warfare pods.

Mission crew commander Maj. Raymond Lewis looked at one of the dotted orange lines on his readout—the range and bearing toward a target.

Other crew members posited that it might be a B-52. Capt. Jim Siebert—the air surveillance officer—confirmed a B-52 had just come off a tanker refuel. He put out a call over the radio for "Chill 22" from "Goliath"—today's mission call sign. Moments later, the pilot of the B-52 confirmed his presence and began to set up for electronic attack drills. Chill 22 was 150 miles west of the AWACS, Siebert confirmed. He called the crew on the radio. "Chill 22, hit us with what you've got."

Soon after, the crew confirmed they were getting hit with a Doppler probe from jamming pods. Red lines dashed across the surveillance screens as the

aircraft turned south trying to pick up the bomber and get a good bearing on it. After 20 minutes, the crew signed off. The BUFF had tried to jam the Sentry's radar, Siebert reported, but the crew got a good track on the bomber and quickly triangulated its location.

Looking at the faded pea-green consoles and the large trackball cursor devices, it seemed not much has changed since the 1970s. Yet despite appearances, the program has begun its largest upgrade yet. When complete, the AWACS fleet will be able to better perform its mission while also networking with other aircraft and ground commanders.

Results Every Day

Capt. Fred Hixon, with the 552nd ACW's requirements shop, said the upgrade will help bridge the technology gap with the rest of the force. He noted the Block 30/35 upgrades from the mid-1990s—which included more processing power, new tactical information links, electronic support measures, and upgraded GPS—remain very operator intensive. Much of this

is because a lot of the aircraft's electronics remain 1970s vintage.

"There is a lot of 'fighting the jet' rather than using the information," Hixon said.

The Air Force seeks commercial off-the-shelf hardware and software to replace the all-but-dead JOVIAL language airmen must use in the current configuration. Certain video constraints and throughput limitations will be eliminated.

The Block 40/45 fleet upgrade is currently in testing. The first flight was conducted in July 2006, equipped with new mission computing hardware and software and upgraded radar equipment, navigation, and communications systems. The program is scheduled for limited rate production in 2009 and full production in 2012.

MSgt. Shane Fry, the combat support flight chief for the 552nd Computer Systems Squadron, believes the new software and architecture will make a huge difference to young airmen who will be training to maintain the complex computers on the aircraft.

"We've got a bunch of kids who are working on systems where the Game Boy they have at home is far more advanced than what they are working on now," he quipped. Kent agreed, noting the tactics that wind up being used by operators begin with the airmen maintaining the computers and electronics.

"Some of the jobs I've had, I've felt disconnected from the mission in a way," Fry said. "Here, that's not the case; I see my work and the results every day."



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The Vis Military

The artwork in those famous Po
offbeat view of Soviet forces.

**SOVIET
MILITARY
POWER**

This painting of a remarkably crowded battlespace—DOD's conception of a Soviet combined arms army on the march—appeared in the first Soviet Military Power booklet (Inset), which was released in September 1981.

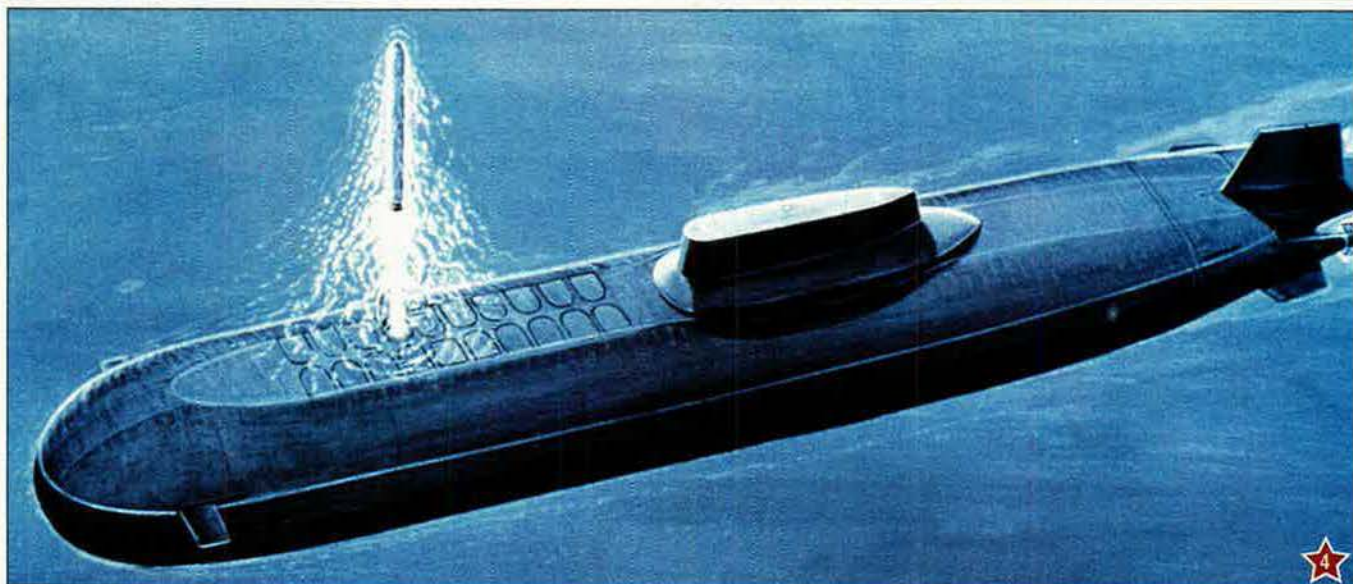
ions of "Soviet Power"

tagon booklets provided an



On Sept. 29, 1981, Secretary of Defense Caspar Weinberger unveiled a 99-page booklet titled *Soviet Military Power*. The Washington Post noted it "paints an awesome portrait of the USSR as a military machine." The Post was not just figuratively but also literally correct; SMP boasted actual paintings depicting Soviet weapons and forces. Many readers puzzled over these images; it was said that, to shield sensitive sources, DOD had doctored some of them. Whatever the truth, the colors, composition, and perspective did often impart an unusual feel to the paintings. We hereby offer a look at some of the images from the earliest years.

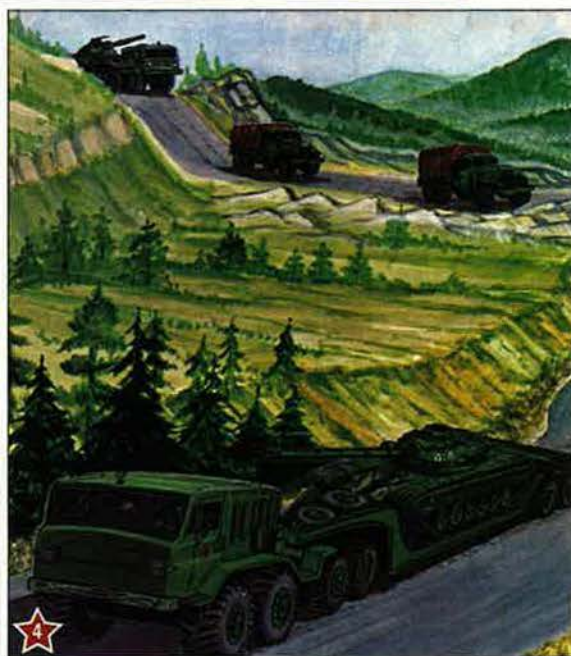
I11 Then-new Su-25 Frogfoot attack aircraft, equipped with 30 mm cannon, rockets, bombs, and missiles. **I21** Postulated Soviet space shuttle preparing to deliver personnel and equipment to a manned space complex. **I31** A 203 mm self-propelled gun capable of firing a nuclear round. **I41** New 25,000-ton Typhoon strategic ballistic-missile-firing submarine.





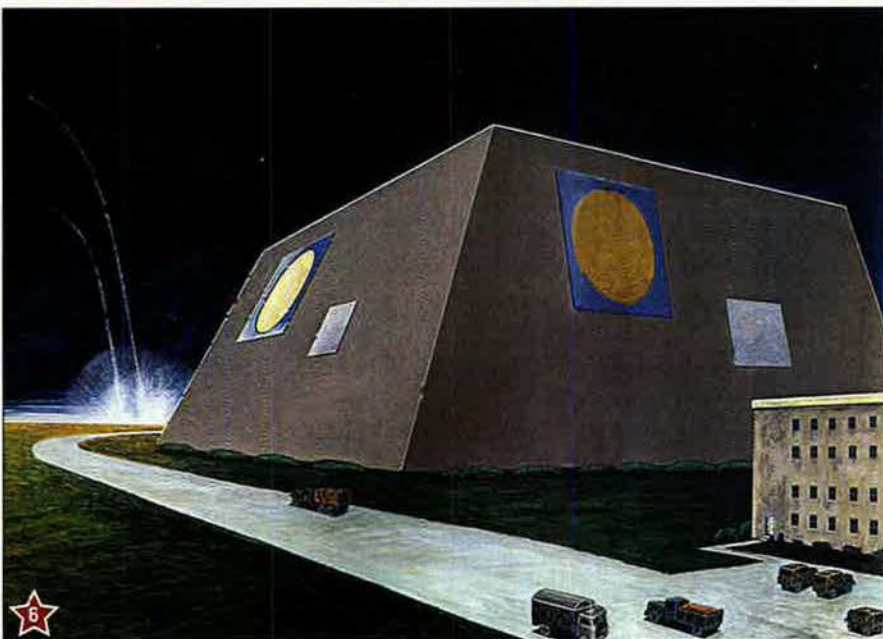
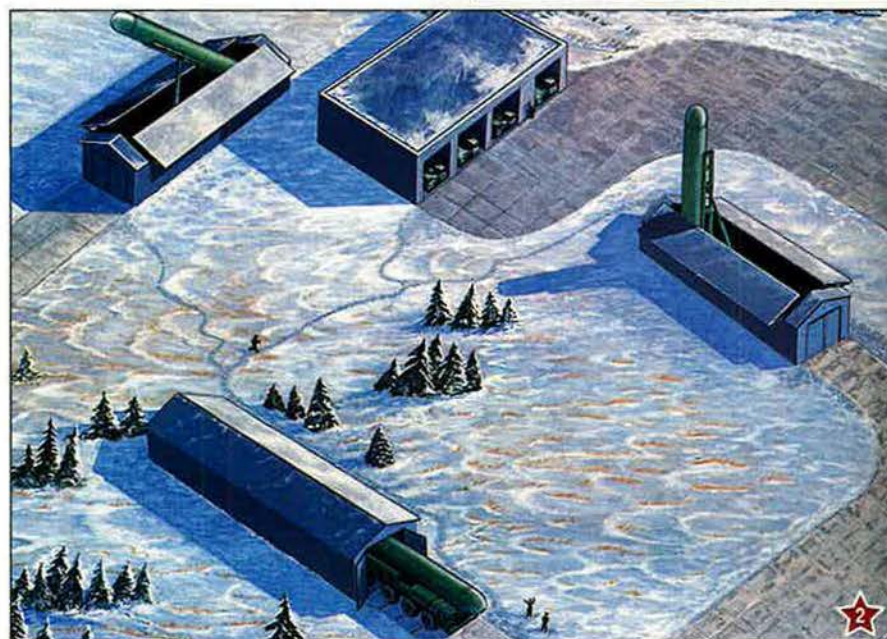
111 Submarine-launched SS-N-21 nuclear cruise missile over what appears to be a city. 121 MiG-29 Fulcrum fighter (airborne) above Su-27 Flanker fighters on an austere Soviet base. 131 Orbital anti-satellite weapon attacking a space-based target with "a multipellet blast." 141 MAZ-537 heavy equipment transporters hauling main battle tanks to the front.

The distinctive paintings found in Soviet Military Power were produced by Defense Intelligence Agency artists using classified images, including satellite images, along with other data. DIA used the artwork for classified reports and official briefings. The artists produced about 150 paintings expressly for Soviet Military Power.



In the 1980s, DIA employed as many as five artists. They worked at DIA's Illustrations Department, located at Arlington Hall Station in Arlington, Va., a 10-minute drive from the Pentagon. In 1984, they moved to the Defense Intelligence Analysis Center at Bolling AFB, D.C.

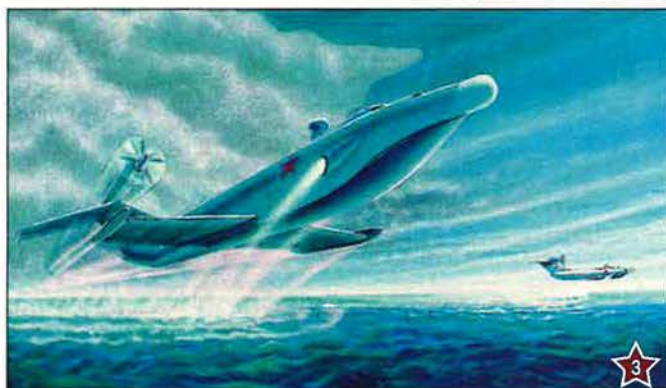
11 Future Tyuratam Space Assembly and Launch Complex, able to launch a space shuttle and heavy-lift and medium-lift vehicles. **12** Three mobile, single-warhead SS-25 ICBMs in their concealment sheds at a remote site. **13** Tanks riding on pontoon bridges and other river-crossing equipment. **14** New Gazelle anti-ballistic missile interceptor rising from silo in a defense complex. **15** A 10-warhead SS-18 ICBM blasting out of its underground launcher. **16** Pushkino anti-ballistic missile radar, a phased array sensor in a structure 120 feet high and 500 feet wide.

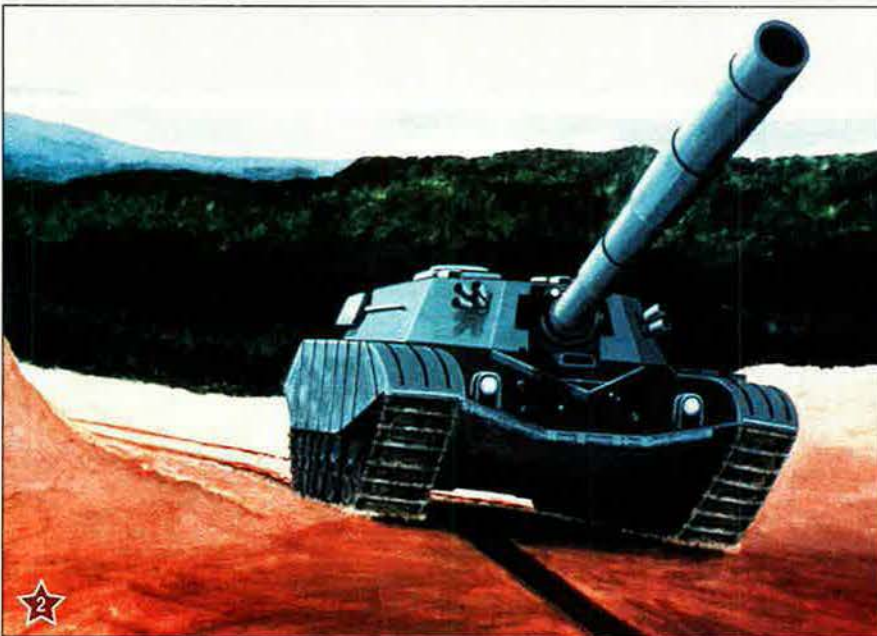




111 A mobile, three-warhead SS-20 intermediate-range nuclear missile after launch from its transporter. 121 Il-76 Candid heavy airlifter trailing paratroops and air-dropped tanks. 131 "Orlan-class" wing-in-ground effect aircraft. 141 Tu-160 Blackjack strategic bomber after launch of a nuclear-tipped AS-15 cruise missile.

DIA has said that its artists and analysts would cooperate closely to produce a rendering of a particular weapon system. The paintings often reproduced a classified photograph that, because of security restrictions, could never be put in the public domain in its original form. Still, many of the paintings themselves were stamped "secret" and have only recently been declassified.

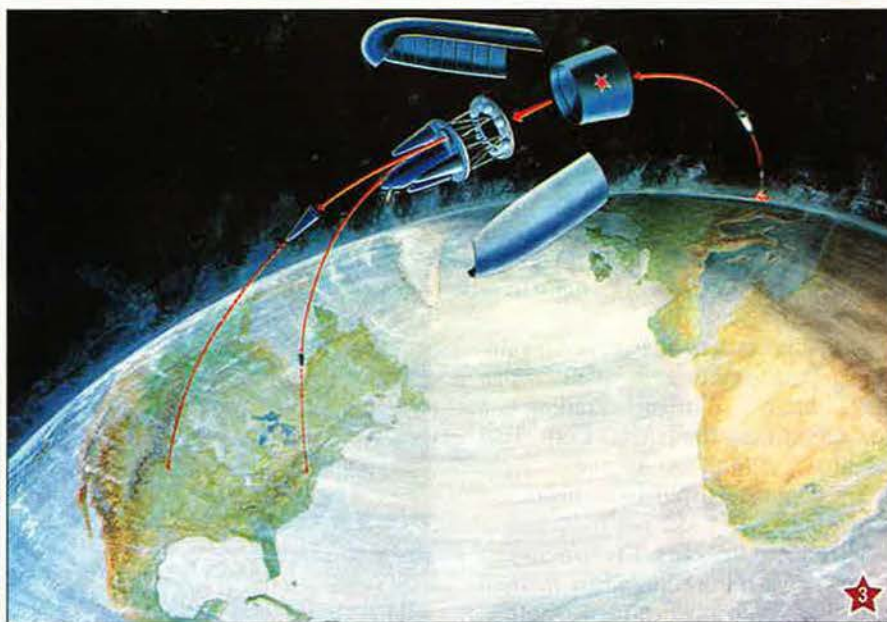
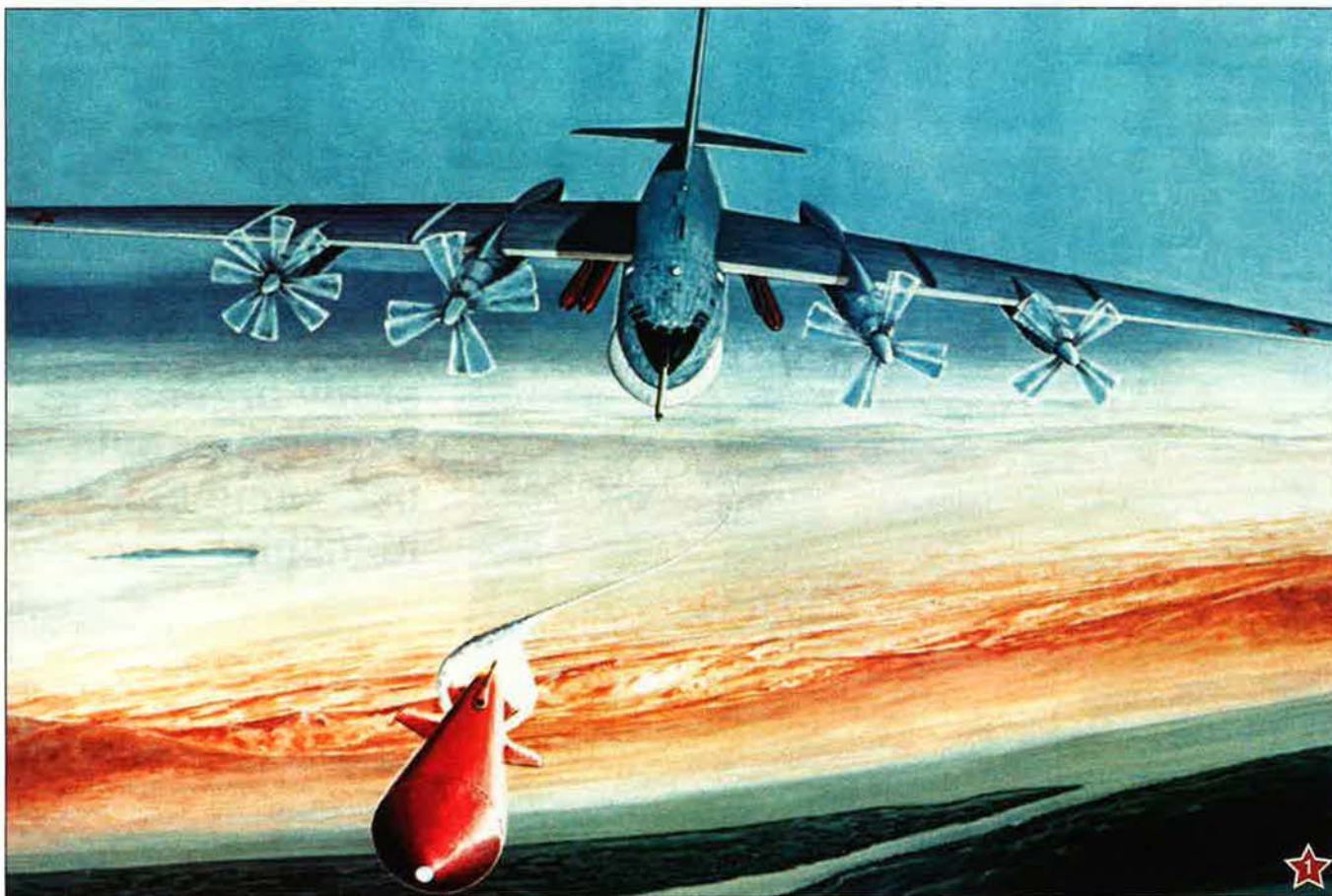




111 Tu-22M Backfire theater bomber, a swing-wing, turbofan powered aircraft capable of conventional or nuclear attacks. 121 The Soviet Army's experimental T-80, said to be the third of a new class of tanks with "markedly improved firepower, armor, and motility." 131 Two models of the Mi-28 Havoc, the USSR's newest attack helicopter. 141 Two An-124 Condor heavy-lift transport aircraft, largest airlifter in the world, operating from what appears to be a remote airfield.

The Pentagon each year printed about 200,000 copies of Soviet Military Power, providing a key outlet for DIA artists. By the 1990s, old-fashioned paintings had given way to computer-generated graphics.





111 Tu-95 Bear H strategic bomber releasing one of its four underwing AS-15 nuclear-tipped cruise missiles. 121 Galosh anti-ballistic missile interceptor ascending from its fixed launch site near Moscow. 131 ICBM warhead separating and releasing its multiple, independently targetable re-entry vehicles toward US targets. 141 Theoretical Soviet space plane carrying out an offensive anti-satellite mission.

All of the more than 1,000 DIA paintings have been stored. They are now treated as historical artifacts and are maintained in the DIA's Military Art Collection. ■

THE MILITARY MEETS MADISON AVENUE



US Army photo by Sgt. Jeremiah Johnson

A new RAND study argues the Pentagon could use some salesmanship.

By Peter Grier

Left: Sgt. 1st Class Dain Christensen places an anti-terrorism flyer over graffiti in Mosul, Iraq. Below: Army 1st Lt. Bryan Flynn discusses with market shopowners plans to build a new police station.

WINNING the hearts and minds of the people of Iraq and Afghanistan has not been easy for the US military. Anti-American sentiment is rife in much of the Muslim world, and local adversaries busily spread propaganda about fictional US perfidy. Occasional US missteps have not helped.

Still, there may be a resource for gaining support from local populations that the US has not yet tried, according to a new report from the RAND Corp. That resource is ... Madison Avenue.

Yes, commercials, advertisements, and marketing.

The country that can get its own citizens to pay for water in a bottle and radio from a satellite—both products used to be free; only the transport mechanism has been added—ought to be able to do better in promoting its point of view. There are many commercial techniques the Defense Department might try, from “branding” to market segmentation to the careful courting of local “influencers.”

Business marketing practices “provide a useful framework for improving US military efforts to shape indigenous audience attitudes and behaviors,” concludes RAND’s report, grippingly titled, “En-

AP photo by Antonio Castaneda



listing Madison Avenue: The Marketing Approach to Earning Popular Support in Theaters of Operation.”

To many in the military, the idea of selling counterinsurgency operations as if they were Coke Zero might seem a little counterintuitive.

What would that entail? The Geico gecko in battle rattle? (“My job is saving you from extremists. I love my job!”)

Rounding up recruits in Sadr City for a focus group to probe local attitudes toward American actions could prove difficult. Troops are trained to engage in combat,

not ad campaigns. War is an inherently violent activity on which it can be difficult to put an attractive gloss.

Madison Avenue's relevance for military operations is limited, of course. Ad campaigns do not require armored vehicles. Business executives are not rotated in and out of a theater of operations every 18 months. Corporate leaders are worried about next quarter's stock price—not Iran.

Furthermore, winning over skittish civilian populations in a war-torn region where some people are trying to blow you up requires many skills not taught at Wharton.

As RAND insightfully observes, "Many facets of US operations fall outside those anticipated or experienced by the US business community."

For instance, the report notes that attacks against symbolic targets offer "unique shaping opportunities." In other words, exploding statues of Saddam can be a good thing.

Still, comparing military practices to business ones can provide a useful perspective, argues RAND. It is not as if the US is now doing a terrific job of wooing indigenous populations.

"To secure the peace in Iraq and Afghanistan and ultimately win the Global War on Terrorism, the United States must conduct more effective and better-coordinated campaigns to shape local attitudes and behavior," state the study's authors.

"The traditional kinetic focus of US military operations often jeopardizes communication-based shaping efforts."

But in recent campaigns, the military already has tried some unusual techniques to better understand, and sway, civilians.

The Army has sent anthropologists into the mountains of eastern Afghanistan in an attempt to learn more about what locals think and need. In Baghdad, some brigade commanders have discovered that handbills condemning insurgent violence can themselves be an effective weapon.

And there are key similarities between commercial marketing practices and military efforts to "shape" noncombatants, argues the RAND study. Businesses want customers to buy their products, while the military seeks popular support for anti-insurgent efforts. Businesses seek to instill brand loyalty. The military seeks to burnish the image of America.

"At the most basic level, both [business and military] efforts have as their objectives a change in behavior," says the RAND study.

Business and marketing executives

consulted by the RAND authors recommended a number of corporate tactics that military information personnel might try. Among them:

- Update the US Military Brand. In business, a brand is the sum of the emotions and associations evoked by a corporate name. To most consumers, "Volvo" means safe, expensive automobiles. "Starbucks"

particular, might need to adopt a branding strategy that reflects this hard-and-soft duality, according to the RAND study authors. They suggest a slogan coined to encourage foreign tourism in the US: "We will help you."

"The 'helping' promise may be a positioning message applicable to the military," says the report. "It provides



As commander of the 101st Airborne Division, then-Maj. Gen. David Petraeus met frequently with local leaders in Iraq.

means tasty overpriced beverages served in well-decorated stores. "Ralph Lauren" is the clothing that people in Volvos wear while drinking Starbucks coffee.

Careful Branding

But brands are not permanent. "Buick" used to have associations of upward mobility; now it is often seen as the car your retired grandfather used to drive. "Fels Naptha" used to be a big name in laundry soap.

As the RAND study notes, adaptation is the key to survival in maintaining market leadership. And right now the US military brand might benefit from some refurbishment.

"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," says the report.

That brand identity, built up over decades since the beginning of World War II, is based on force of might. Like all good brands, it is simple and clear. But counterinsurgency campaigns rely on more than force. They also involve deftness of touch in dealing with civilians, the encouragement of political reconciliation, and other nation-building activities.

The US in general, and the military in

an intent for US forces that covers the application of combat power while also meeting the test for a range of other operations."

Branding must be done carefully, however. "A business' brand is hurt when it overreaches," RAND avers, "as was the case when BIC, the maker of disposable pens, attempted to launch a line of BIC-branded perfumes." Not exactly a problem the military is likely to face, but perhaps the point is valid.

- Ensure Military Actions Reflect Brand Image. The US military—particularly Army and Marine Corps ground forces—function very much like a service firm when it comes to stability operations. Military personnel are just providing stability and hope for the future, instead of a flight to Omaha or advice on updating a home wireless network.

And as every service firm knows, the quality of your brand crucially depends on the quality of the daily interactions between your employees and the public. Rudeness or incompetence can counteract millions of dollars' worth of advertising in a moment.

Accordingly, military leaders might conduct what the RAND study calls an

"internal branding campaign" to ensure that personnel engaged in the counterinsurgency mission understand "on- and off-brand behaviors."

Just as the update of the brand itself should avoid undue emphasis on the use of force, so the internal branding exercise should emphasize the softer side of the stability mission.

"The military should imbue its soldiers from the very first day of basic training with the understanding that befriending local populations and using force indiscriminately can be just as great a military achievement as overwhelming employment of firepower," says the study.

Perhaps the military should award battlefield medals for actions that serve counterinsurgency interests but do not necessarily involve killing terrorists or blowing things up, suggests RAND. (This could lead to some interesting explanations: "I got this one for drinking tea with a tribal sheikh!") Infantry units on patrol might include personnel authorized to pay compensation on the spot for collateral damage to structures or vehicles.

Military leaders might also want to reconsider tactics that emphasize protection of US troops over openness and contact with local populations.

"The United States should develop doctrine, conduct training, and promote leaders who support a balanced approach to stability operations," says the study. "The default condition of 'full battle rattle' and multiple-vehicle convoys should be re-evaluated frequently during each mission."

■ **Segment and Target US Military Customers.** "Target" in this sense does not involve the aiming of weapons. Rather, the military could better figure out exactly who the civilians it is trying to woo are, what they are like, and what sort of marketing approaches might appeal to them.

The study cites ExxonMobil research as an example of this approach. In one recent large-scale project, the oil firm divided its customers into five groups: Car Buffs, who drive more than 25,000 miles per year and buy premium gas with a credit card; Loyalists, moderately high income customers who frequent certain brands and stations; Speedsters, upwardly mobile Gen Xers who live in their autos and purchase lots of snacks; Soccer Moms, who shuttle around town and buy gas where it is convenient; and Price Shoppers, who have tight budgets and little brand loyalty.

Crunching their sales data, Exxon executives discovered that Car Buffs and Loyalists made up only 38 percent of the

population—but represented 77 percent of the firm's potential profits. The decision to orient ads toward these two groups was an easy one.

Diehards, Skeptics, Bandwagons

Similarly, the US military cannot expect everyone in a local population equally to accept its presence and activities. Notional divisions, according to RAND, might include Diehards, who will be adversaries no matter what; Skeptics, who tend to oppose the US; Uncommitted; Reformers, who see the US presence as an opportunity to press local change; and Bandwagons, who are enthusiastically pro-American.

Winning more support for US actions may not quite be like raising sales of premium gas and Chex Mix at an Exxon QuikMart. But market research might, say, convince the US to focus communication efforts on the Uncommitted, Reformers, and Bandwagons, says RAND.

"Ultimately, segments will serve only as a general guide for operations and communication," says the study. "Unlike a business that sells only a single product to a particular segment, coalition forces will likely make numerous policy and operational decisions, each of which will have a particular impact on popular acceptance of coalition forces."

■ **Focus Communication Campaigns.** Few marketing executives have ever made vice president by approving haphazard ad buys that feature many different themes and run at midnight on the shopping channel because that was when time was cheapest.

Similarly, the US military will gain few friends from an undisciplined and unfocused communication campaign.

First, goals should be clear. RAND uses the hypothetical example of a campaign to increase tips about insurgent activity from Iraqi civilians. Such an effort might reasonably set a benchmark of increasing such intelligence tips by 50 percent.

Second, the campaign should emphasize benefits that potential customers might value. Ordinary Iraqis might be more likely to turn in extremists if they are reminded that this action could reduce crime and violence in their own neighborhood.

Third, costs—as measured by time, effort, and energy to provide the tip—should be as low as possible. Perhaps the US could proffer free text-messaging software so residents can text tips anonymously. Or ground troops on patrol might simply request tips from citizens they pass.

"In the tip program paradigm, all US ground personnel ... must understand

their roles in accepting intelligence from the indigenous population," say the authors. "These forces must similarly make themselves more approachable to civilians, learn and apply discreet collection methods so as not to jeopardize the lives of informants, and uniformly express appreciation for assistance."

■ **Achieve Customer Satisfaction.** Customer satisfaction is a concept that applies to military stability operations as much as it does to flat-screen TV purchases, in RAND's eyes.

"The degree to which they are satisfied with the various aspects of force presence will be a critical determinant in their decision-making," says the RAND study.

Satisfaction is the result of two things: customer expectations going into a business encounter, and the actual experience. When expectations are high, the bar for performance is high, as well: At a Four Seasons hotel, one piece of burnt toast can turn a visit sour.

Ground forces are not in a business that requires turning down beds and leaving a chocolate on the pillow, but that does not mean they should not fulfill their promises.

"Managing indigenous expectations should be a hallmark of coalition force actions and messages," notes RAND.

Individual units cannot provide instant neighborhood security or provide electricity 24 hours a day. But they can try to complete house repairs, or other limited infrastructure work, on time. If unsure of a completion date, they should decline to promise one.

They should also listen to customer response, to make sure they are fulfilling real desires. That might not be easy. As RAND dryly notes, "The danger of walking door to door in a potentially hostile environment is one major impediment."

The US has built many schools the Iraqis do not need, according to one civil affairs officer quoted by RAND. Teachers and students do not show up, and extremists either occupy the buildings or blow them up.

"It happens time and time again; we give them something they do not ask for, they do not need, because it's something we can do," says the officer. ■

Peter Grier, a Washington editor for the Christian Science Monitor, is a longtime defense correspondent and a contributing editor to Air Force Magazine. His most recent article, "Names for Our Unknowns," appeared in the July issue.

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John McLucas left a deep imprint on the post-Vietnam Air Force.

Way of a Technocrat

By Lawrence R. Benson



John McLucas at work as Secretary of the Air Force.

In early 1969, Secretary of Defense Melvin R. Laird and his deputy, David Packard, were recruiting civilian executives to help oversee US military forces in the midst of the Vietnam War. Laird and Packard picked Robert C. Seamans Jr., professor of aeronautical engineering at MIT, to head the Air Force in the new Nixon Administration. Laird, Packard, and Seamans all wanted another technologically savvy leader to become undersecretary of the Air Force and—in a covert role—director of the National Reconnaissance Office.

Harold Brown, the outgoing Secretary of the Air Force, suggested John L. McLucas, president of the Air Force-sponsored MITRE Corp. McLucas, a World War II naval officer, had a doctorate in physics and previous Pentagon and industry experience.

McLucas got the nod. Arriving in March 1969, he went on to serve two Presidents and work with four Chiefs of Staff, later becoming Air Force Secretary. He played a key role in developing capabilities at the heart of today's Air Force. McLucas oversaw the development of the E-3 Airborne Warning and Control System aircraft, he sponsored the F-16 lightweight fighter, promoted unmanned aerial vehicles, and argued for highly advanced space systems. He fought for the Global Positioning System.

Throughout his career, the mild-mannered McLucas was proud of being a successful "technocrat"—a nonpartisan executive who combines scientific or engineering expertise with administrative acumen. The Air Force was entering a turbulent period. Among the many problems these leaders faced was the

need to cope with the growing Soviet military threat in a time of declining budgets and waning public support.

During the mid-1960s, the Air Force had turned much of its attention away from developing new weapon systems toward modifying existing equipment, including Navy aircraft and tactical missiles, to meet requirements for the war in Southeast Asia.

Some of the major acquisitions initiated during the early 1960s encountered embarrassing cost overruns and mechanical problems. Two were of special concern when the Seamans-McLucas team came on board: the F-111 fighter-bomber and the giant C-5A Galaxy transport. Laird is said to have jested that his three biggest problems were the Vietnam War, the F-111, and the C-5A.

The Air Force's new civilian leaders were determined to more successfully develop the next generation of weapon systems. McLucas was among Packard's most loyal disciples in his campaign to reform defense acquisition. Principles included "fly before buy," competitions between prototypes, realistic contracts, and carefully defined program milestones.

Working closely with the Air Staff and Air Force Systems Command, McLucas also encouraged the assignment of higher-ranking and longer-serving managers at system program offices, including the creation of "super SPOs" for the most important programs.

McLucas was impressed by the new systems the Air Force had on its wish list but was worried about how to pay the bills. In June 1969, he recommended that the Air Force stagger its major programs to spread peak contracting costs. His priorities were:

■ Early procurement of the F-X air superiority fighter, known to us now as the F-15, because it had manageable technical risks and was urgently needed.

■ Slowdown of the E-3 AWACS program by focusing on a careful evaluation of competing radars.

■ Full prototype competition for the A-X close air support aircraft, which became the A-10.

■ Careful refinement of system requirements for an Advanced Manned Strategic Aircraft, now known as the B-1 bomber.

McLucas' strategy was essentially realized with the sequential introduction of the F-15A, B-1A, YA-10, and E-3A during his next six-and-one-half years with the Air Force.

Of all the aircraft developed during the 1970s, the two that most involved

look down and track targets flying over land.

"Every time the radar contractors made an improvement, I was duly impressed with their ingenuity, but I was still cautious about trying to push the technology too fast," he said.

In May 1969, just two months after becoming undersecretary, McLucas set forth the basic acquisition strategy for the AWACS. With the radar the key technical item, the strategy called for a radar flyoff first, with non-radar work initially on the back burner. The Air Force decided to convert Boeing 707-320B aircraft into AWACS platforms, starting with two test bed models.

In addition to modifying the airframes, Boeing was selected as the prime contractor for integration of the various system components. McLucas had to

mission, supplanting the original primary mission of air defense.

During the next two years, four pre-production E-3As underwent a thorough systems integration and test program. This included two deployments to Europe and a realistic "free style" exercise against a formidable aggressor force to allay doubts about its survivability.

Gen. David C. Jones, who had been won over to the value of AWACS while commander of US Air Forces in Europe, led an active campaign for its acceptance after he became Chief of Staff. The Department of Defense authorized procurement of the first block of production aircraft in April 1975.

AWACS has gone on to become a tremendous force multiplier for the Air Force and NATO allies, proving itself repeatedly, as in the 1991 Gulf War when continuously orbiting E-3s controlled one of the most intense and successful aerial operations in history.

"Today's Air Force pilots," McLucas later remarked, "probably find it hard to imagine fighting a major air battle without E-3 Sentrys watching over them and the enemy."

McLucas would soon be the Air Force's highest-ranking advocate for what became the F-16 as well. He approved release of the remarkably short and flexible request for proposal on the Lightweight Fighter Program in December 1971. He endorsed an affordable "high-low mix" of fighters to match up with the Soviet Union's large inventory. He also foresaw the enormous foreign sales potential of a small high-performance fighter with a ground attack capability.

With top cover from the new Defense Secretary, James R. Schlesinger, and his deputy, William P. Clements Jr., McLucas pushed the Lightweight Fighter demonstration into a full-blown competitive flyoff between General Dynamics' YF-16 and Northrop's YF-17. To lay the groundwork for NATO procurement, McLucas put a Dutch lieutenant general on his source selection council.

McLucas picked the YF-16 in January 1975 and turned his attention to selling it to a four-nation NATO consortium made up of Belgium, Denmark, the Netherlands, and Norway, all of whom needed a fighter to replace their F-104s. Among the inducements: unprecedented co-production arrangements.

In May 1975, McLucas won his case; the European consortium's initial order of 348 aircraft marked the first of many foreign sales of the F-16.



Defense Secretary Harold Brown speaks at a news conference in 1980. Brown recommended McLucas for both USAF undersecretary and director of the NRO.

McLucas were the E-3 Sentry and the F-16 Fighting Falcon. Arguably, no single aircraft so revolutionized air warfare in the last quarter of the 20th century as did the E-3. "I still consider AWACS a technological tour de force," McLucas wrote several decades after first becoming involved with it at MITRE in the 1960s.

Radars at the Forefront

McLucas, having been a radar officer in the Navy during radar's early years, was intrigued with the revolutionary pulse Doppler technology that could

fight various attempts to reduce basic capabilities.

A painstaking evaluation of competing radars became a key factor in the program. Using a variety of aircraft as targets, a combined test force in Seattle evaluated two "brass board" versions of the system over several geographical environments, with Westinghouse winning the competition.

In January 1973 the program entered full-scale development. A high intensity air campaign over Central Europe emerged as AWACS' most important



The first E-3 AWACS rolls out of the Boeing factory on Feb. 1, 1972.

In both his NRO and Air Force roles, McLucas oversaw numerous unmanned aerial vehicle programs, ranging from advanced permutations of Ryan's venerable Firebee drone to more esoteric platforms such as Compass Arrow and Compass Cope. Some of them, anticipating future unmanned aerial vehicles, could operate autonomously, using rudimentary onboard computers.

In 1972 McLucas announced that USAF was on the verge of developing remotely piloted vehicles for some strike missions, suppression of enemy air defenses, radio relay platforms, and even air superiority combat. After McLucas left the Pentagon, the Air Force's RPV development slowed to a virtual standstill for 20 years.

At the same time, however, progress on precision guided munitions and air-to-ground missiles continued. "Unlike RPVs, which seemed to compete with manned aircraft, PGMs and AGMs enhanced their capability," he explained.

The space program that most captured McLucas' imagination was the Global Positioning System. He helped assure consolidation of separate Navy and Air Force navigation satellite efforts into a joint program under USAF management in 1973. He then worked to keep GPS funded despite questions about its military value.

In the January 1974 issue of this magazine, he predicted that the "virtually unlimited and largely untapped" potential of satellite navigation and position finding "offers revolutionary potential for blind weapon delivery, standoff systems, and—to a degree—the elimination of weather and visibility as major factors in military operations."

Carrot vs. Stick

McLucas also remained a passionate advocate for civilian uses of the Global Positioning System—as advertised by having the letters "GPS" displayed on his customized Virginia license plates.

Not all the challenges McLucas faced were technological—the end of Vietnam brought about the all-volunteer force. One of Laird's last acts as Secretary in January 1973 was to suspend the military draft five months ahead of schedule.

Although the Air Force had always been able to attract qualified enlistees, many worried that the "carrot" of higher pay being offered for the all-volunteer force might not be enough to replace the "stick" of being drafted into the Army. A survey of first-term airmen revealed that only 42 percent would have enlisted without having been vulnerable to the draft.

To assure the Air Force would meet its enlisted requirements, McLucas pushed for quality of life enhancements and educational opportunities. These included improving living conditions, better meeting of personal assignment preferences, devising a more impartial promotion system, and offering better technical training—to include awarding academic credit with the new Community College of the Air Force.

McLucas revealed his philosophy in these words: "There are some people

who will say you're wasting money educating all these people beyond where they need to be carried. ... When we turn people back out on the civilian economy, ... they'll do a better job for the country, and every dollar we invest [in them] is well spent."

When McLucas was "promoted" and sworn in as Air Force Secretary on July 18, 1973, Women in the Air Force (a separate administrative category known as WAF) plus those in the nursing corps amounted to only 2.7 percent of all active duty personnel.

In his acceptance speech, the new Secretary emphasized his philosophy on expanding equal opportunity. He announced an ambitious goal: "to increase the number of women by a factor of three in the next five years."

On Nov. 7, 1975, Defense Secretary Schlesinger presided at a farewell ceremony for McLucas at Andrews AFB, Md., where he gave a hard-hitting speech on the need for a stronger military. Because President Ford had just announced his decision to fire Schlesinger, this event drew national media attention.

When it was McLucas' turn to speak, he dropped a bombshell of his own. The Air Force "will soon open limited pilot duty to our women, who, while prohibited from participation in combat, can still serve us in transport activities and others," he said. Although the Air Staff had no plan in place to implement this fait accompli, McLucas was confident it would find a way.

The first group of USAF female pilots received their wings in September 1977. McLucas' unilateral decision upon departure—one of few made without consulting his military colleagues—was carried out as he had predicted.

After leaving the Air Force, McLucas served as an officer or consultant with more than 25 corporations, professional associations, advisory groups, and educational institutions. He continued to be involved with the Air Force until his death at 82, in 2002. Secretary of the Air Force James G. Roche presided over the interment of his predecessor at Arlington National Cemetery. A missing man formation of F-16s—the fighter that John McLucas had helped bring into existence—flew in honor overhead. ■

*Lawrence R. Benson retired as chief of the Air Force Historian's Pentagon Office in 2000. For more on McLucas, see his 2006 book *Reflections of a Technocrat: Managing Defense, Air, and Space Programs During the Cold War* (co-authored by McLucas, Benson, and retired Col. Kenneth J. Alnwick). This is Benson's first article for Air Force Magazine.*



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Air Force Association **National**



Michael Wynne, Secretary of the Air Force, Gen. T. Michael Moseley, USAF Chief of Staff, Lt. Gen. Soeung Samnang, Cambodia's air chief, and Robert Largent, AFA's Board Chairman, pay respects at the AFA Memorial Service on Sept. 23.

Convention 2007

By Tamar A. Mehuron Associate Editor

Air chiefs from scores of countries imparted to the Air Force Association's annual gathering a distinctively international flair, as AFA hosted the Global Air Chiefs Conference alongside its Air & Space Conference and Technology Exposition, following AFA's National Convention. The kaleidoscope of events took place Sept. 22 through Sept. 27 at the Marriott Wardman Park Hotel, Washington, D.C. The chiefs were joined by hundreds of AFA delegates who gathered for the National Convention Sept. 22-23, and were among the nearly 6,300 attendees who participated in the Air & Space Conference, and viewed the 135 aerospace exhibits in the Technology Exposition, Sept. 24-26.

Joining the crowd, for the third consecutive year, were students from USAF's Air Command and Staff College, Maxwell AFB, Ala. AFA hosted them at the Air & Space Conference and Technology Exposition. The Class of 2008, some 315 students, attended the conference's workshops, speeches, and briefings. Their participation was made possible by a grant from Boeing, which also underwrote Tuesday's breakfast and dinner. Accompanied by faculty members, the students arrived Sunday, Sept. 23, and stayed through Wednesday, Sept. 26. They

Continued on next page



Photos by Guy Aceto



Above, Joseph Sutter, AFA Vice Chairman of the Board, Field Operations, and Ross Perot Jr., former Chairman of the Air Force Memorial Foundation and AFA's 2007 recipient of the Hoyt S. Vandenberg Award for outstanding contribution to aerospace education, at AFA's Memorial Service. Right, William Burns, a delegate from Kansas, and Judy Church, AFA National Secretary, at the National Convention. Below, AFA National Treasurer Steven Lundgren.



became acquainted with AFA, met with current USAF leaders, and conversed with defense and aerospace industry representatives and executives. They also attended panels and seminars and visited the various exhibits at the Technology Exposition.

For the first time, AFA's memorial service was held at the Air Force Memorial. More than 800 people—air chiefs and spouses and support staff, AFA delegates, members, and USAF airmen—gathered there Sunday morning, Sept. 23, for a ceremony commemorating all airmen, worldwide, who died in the service of their countries. Donald J. Harlin, AFA National Chaplain, officiated. He gave the invocation and concluded the service with a closing benediction. Maj. Gen. Charles C. Baldwin, USAF chief of chaplains,

delivered the homily. The official party, consisting of Air Force Chief of Staff Gen. T. Michael Moseley, Air Force Secretary Michael W. Wynne, AFA Chairman of the Board Robert E. Largent, and Lt. Gen. Soeung Samnang, Commander of the Royal Cambodian Air Force and senior air chief at the Global Air Chiefs Conference, laid a wreath to honor those lost. The 2007 AFA Memorial Tribute List was read by Largent.

Moseley welcomed delegates, Air Force attendees, and members of industry at the conference opening on Monday morning, Sept. 24. At the opening ceremony, a USAF honor guard presented the colorful national flags of the air chiefs in attendance. The Air Force Band Ceremonial Brass provided music. That evening, AFA paid tribute



Boyd Anderson, AFA's Vice Chairman of the Board, Aerospace Education (left), speaks with Brian Binn, president of the Lance P. Sijan Chapter, Colorado Springs, Colo.

to the 12 Outstanding Airmen of the Year. A reception underwritten by Lockheed Martin honored the airmen. Gen. Duncan J. McNabb delivered the address, and CMSAF Rodney J. McKinley served as toastmaster.

The next day, Tuesday, Sept. 25, the Outstanding Airmen, along with AFA and USAF leaders, met with their Congressional representatives on Capitol Hill, one of many highlights during their weeklong program of activities sponsored by AFA and underwritten by ATK Corp.

On Tuesday evening, the air chiefs gathered at the National Air and Space Museum Steven F. Udvar-Hazy Center near Dulles Arpt., Va., for a reception in their honor. The event was made possible by Northrop Grumman.

A reception underwritten by Lockheed Martin launched the festivities for AFA's Air Force Anniversary Dinner on Wednesday evening, Sept. 26. Retired CMSAF Paul W. Airey, first Chief Master Sergeant of the Air Force, received the AFA Lifetime Achievement Award. AFA honored Wynne with the W. Stuart Symington Award, in recognition of singular civilian contributions to national security. Gen. Ronald E. Keys, commander of Air Combat Command, was awarded the H.H. Arnold Award in recognition of the year's most significant contribution, by a military member, to national security.

Lockheed Martin and Boeing Co. were honored with the John R. Alisen Award for industrial contributions to the nation's security. The award recognized

their excellence in the production of the Atlas V (Lockheed) and Delta IV (Boeing) evolved expendable launch vehicles, and other launchers, that have contributed to USAF's record of 50 consecutive successful space launches.

Guests also viewed a special video highlighting 60 years of USAF's accomplishments, its technological achievements, outstanding service by its personnel, and contributions to the national defense. Patrick C.G. Coulter, vice president of communications and public affairs for Raytheon Space and Airborne Systems, served as master of ceremonies for the evening's festivities.

Singer and former New York police officer Daniel Rodriguez provided the musical entertainment.

At the National Convention, there were 274 registered delegates representing 44 states and the District of Columbia. The Air & Space Conference and Technology Exposition drew some 110 news media representatives.

Holding meetings were the Air Force's Air National Guard Council, Company Grade Officer Council, Enlisted Council, and Reserve Advisory Council.

Election of Officers

Robert E. Largent, of Harrison, Ark., was re-elected Chairman of the Board for a second term. Joseph E. Sutter, Knoxville, Tenn., was re-elected Vice Chairman of the Board, Field Operations, for a second term. S. Sanford Schlitt, Sarasota, Fla., was elected Vice Chairman of the Board, Aerospace Education, for a first term. Judy K. Church, Lenexa, Kan., was re-elected AFA National Secretary for a second term, and Steven R. Lundgren, Fairbanks, Alaska, was re-elected AFA National Treasurer for a third term.

Other Elections

Elected to the Board of Directors for three-year terms were Justin Faiferlick, Fort Dodge, Iowa, Jerry E. White, Colorado Springs, Colo., and Edward W. Garland, San Antonio.

Ten new Region Presidents were elected. Newly elected are Mason S. Botts (Central East Region), John T. Brock (Florida Region), Ronald



Gen. T. Michael Moseley, USAF Chief of Staff (left), and Julius Jackson, staff assistant to US Rep. Louie Gohmert (R-Tex.), meet at an AFA Congressional breakfast.



Above, Robert Largent, AFA's Chairman of the Board (left), and S. Sanford Schlitt (right), AFA's newly elected Vice Chairman of the Board, Aerospace Education. Right, CMSAF Rodney McKinley (center) talks with (l-r) MSgt. Charles Mercurio IV and SMSgt. Gerardo Tapia. Below, Col. Valeri Saar, air chief Estonia, and Air Chief Marshal Herman Prayitno, Indonesia, talk together during a Global Air Chiefs gathering.



E. Thompson (Great Lakes Region), Ronald M. Adams (New England Region), E. Laird Hansen (Northwest Region), Ronald W. Mielke (North Central Region), Joan Sell (Rocky Mountain Region), Donald R. Michels (Southeast Region), James I. Wheeler (Southwest Region), and Terry Cox (Texoma Region).

Other AFA Business

AFA delegates ratified four Constitution or Operations Procedures Manual (OPM) changes at the 2007 convention. Two were mandated by actions approved at the 2006 convention.

The delegates approved a Constitution change to the AFA Nominating Committee that alters the composition of the committee to include specified AFA constituency representa-

tives (Education, Field, Total Force, Retired, and Industry), the past three AFA Chairmen of the Board, and two representatives from each geographic area. The final structure was inserted into the Constitution, with a phase-in plan detailed in the OPM. The delegates also approved clarifying language in the Constitution and OPM to provide for full state delegation voting for national officer or director elections and delegates-present voting for all floor issues.

Two further issues arose during the year since the 2006 convention, and were approved by the Board of Directors prior to the 2007 convention.

In the first, the delegates approved a Constitution change to include the Air Force Memorial Foundation as an affiliate of AFA. They also approved



Lt. Gen. David Deptula, USAF deputy chief of staff for ISR, greets retired Gen. Charles Horner, who was air boss of the 1991 Gulf War.

a Constitution change to the title of the President of AFA to "President and Chief Executive Officer (CEO)" and were informed of the minor changes made to the OPM President-CEO duties by the Board of Directors.

Finally, the delegates approved a proposal by the Field Council to revise the way in which support payments will be made to chapters. The process will have a transition year in 2008 and be fully implemented in 2009.

Congressional Activity

AFA delegations from 16 states and two regions (Midwest and Southeast) gathered at the House of Representatives Cannon Building for a breakfast Tuesday morning with members of Congress, senior professional staff members, and USAF leadership. Among Congressional leaders in attendance was Sen. John R. Thune (R-S.D.), a member of the Senate Armed Services Committee.

Members of the Senate Appropriations Committee attending the breakfast included Sen. Christopher S. "Kit" Bond (R-Mo.).

Also participating in the AFA breakfast meeting were Reps. Rob Bishop (R-Utah), Dan Boren (D-Okla.), Thelma D. Drake (R-Va.), Trent Franks (R-Ariz.), Gabrielle Giffords (D-Ariz.), Robin Hayes (R-N.C.), Walter Jones Jr. (R-N.C.), Dave Loebsack (D-Iowa), Jeff Miller (R-Fla.), and John M. Spratt Jr. (D-S.C.), all members of the House Armed Services Committee.

Members of the House Appropriations Committee attending the breakfast included: Reps. Virgil H. Goode

Jr. (R-Va.), Tom Latham (R-Iowa), and John W. Olver (D-Mass.).

Other Senators attending the breakfast included Jon Tester (D-Mont.).

Other Congressmen attending the breakfast were Reps. Henry E. Brown Jr. (R-S.C.), Howard Coble (R-N.C.), Barney Frank (D-Mass.), Darleen Hooley (D-Ore.), Doug Lamborn (R-Colo.), James P. McGovern (D-Mass.), John Mica (R-Fla.), Brad Miller (D-N.C.), Harry E. Mitchell (D-Ariz.), Richard E. Neal (D-Mass.), Ed Perlmutter (D-Colo.), Stephanie Herseth Sandlin (D-S.D.), Bobby Scott (D-Va.), Heath Shuler (D-N.C.), and John F. Tierney (D-Mass.).

Air Force leaders who visited with

AFA delegates and lawmakers at the breakfast included Michael Wynne, Secretary of the Air Force, and Gen. T. Michael Moseley, USAF Chief of Staff.

AFA Education Awards

Videos on the theme of "The Most Significant Event in the Air Force's First 60 Years" competed for AFA's annual Jimmy Stewart Aerospace Education Award. The winning entry, from AFJROTC Unit FL-936, Flagler Palm Coast High School, Bunnell, Fla., focused on the Berlin Airlift as "the symbol of hope and humanitarian effort, ... by far the Air Force's most significant event in [its] history."

Jennifer Sinsel, a fifth-grade teacher at Wichita Collegiate School, Wichita, Kan., won the AFA Christa McAuliffe Memorial Award as the year's outstanding aerospace science, mathematics, or computer science teacher.

Acknowledgements

Parliamentarian for the AFA National Convention was Joan L. Blankenship. Inspectors of Elections were Robert C. Bienvenue (Chairman), Michael J. Bolton, and Edward S. Tooley. Raymond Turczynski Jr. chaired the Credentials Committee, serving with Nancy J. Driscoll and Patricia J. Snyder.

The association is particularly grateful to a corps of volunteers who assisted the staff in convention support: Dane Arnholt, Dan Hixon, Mordechai Levin, CMSgt. Debbie Snyder, Leola Wall, and 2nd Lt. Robert Wray III. ■



David Buckwalter of Rhode Island was a candidate for Vice Chairman of the Board, Aerospace Education.

The air forces are different, but many problems are the same.

World Gathering of Air Chiefs

By Peter Grier



More than 80 top leaders from air forces around the world attended the Global Air Chiefs Conference, held in conjunction with the Air Force Association's 2007 Air & Space Conference on Sept. 24-26 in Washington, D.C.

The meeting gave the air chiefs a chance to strengthen ties with the US Air Force—and among themselves—while discussing such mutual concerns as training, resources, and communications interoperability.

"We aimed this conference at establishing and reinforcing air force-to-air force relationships, increasing our understanding of the operational dynamics faced by airmen around the globe, and working toward interoperable solutions for our common challenges," said USAF Chief of Staff Gen. T. Michael Moseley. "I'm confident we achieved those objectives."

Retired Gen. Joseph W. Ralston, former Supreme Allied Commander Europe, led off the public portion of the conference by addressing air forces' lack of influence in shaping defense policy.

"Why is it that airmen do not have a voice in the national security debate

equivalent to the impact of airpower on the battlefield?" Ralston asked.

At the national level, airmen are too often simply viewed as technicians, said Ralston. Land- and sea-power advocates have more authority because of their warrior image.

Ralston urged the assembled air chiefs to push majors and lieutenant colonels to take on broader command responsibilities.

Air Vice Marshal Julius O. Boateng, air chief for Ghana, then talked about airpower in Western Africa and the development of partnerships with other nations.

Most of the countries in his region have few resources to spend on air capabilities, said Boateng. In addition, West Africa faces a daunting array of security challenges, including porous borders, social and political unrest, and armed conflict.

"The impact of these challenges is far-reaching" and negatively affects development, said Boateng. The weaknesses of the regional air forces include marginal offensive capability, limited airlift, and a lack of skilled manpower, he said.

The way forward includes strengthening partnerships now, rather than

in the future, said Boateng, who also called for additional US foreign military sales to African nations.

The commander of the United Arab Emirates Air Force, Maj. Gen. Staff Pilot Mohammed bin Swaidan Al Qamzi picked up on the theme of partnerships. "We have to understand," he noted, "that interoperability is political" before it is technical.

One prerequisite is mutual willingness on the part of the national leaders, said the UAE air chief. A second is a deliberate program to build trust and confidence between national partners. A third is continuing doctrinal debate between nations.

Al Qamzi also emphasized the importance of what he termed "cultural interoperability"—personal knowledge of each others' nations by the major players in the relationship.

The UAE has been a steadfast player in the Global War on Terror. Among the lessons it has learned from the campaign is the need for greater connectivity between national and coalition systems. The country has also experienced difficulty in obtaining timely intelligence and battle damage assessment from partner nations.

Air Chief Marshal Glenn Torpy, of

Britain, spoke of the need to communicate the importance of airpower to "key stakeholders" such as top government officials, academics, the other armed services, and the media.

Real Integration

"We have difficulty getting the message across," he said, indicating that the RAF faces some of the same frustrations as USAF.

Because the world is so unpredictable, Torpy said, airpower has a vital role in maintaining global stability, and Britain and other developed nations will need a balanced and flexible air force structure in the years ahead.

Air forces need to be ready for anything, said the UK air chief, declaring, "I don't agree that what we're doing in Iraq and Afghanistan is what we're going to be doing in 10 years' time."

Maj. Gen. Chee Khern L. Ng, air chief of Singapore, emphasized that interoperability is developed by deeds as well as words.

Singapore's KC-135s have deployed to the Persian Gulf region four times in recent years, he noted. Interoperability is also built through the approximately 500 US transit flights that touch down at Singapore air fields each year.

The city-state of Singapore is a small nation that has had to lift its air force up by the bootstraps, partnering with other nations for training, Ng said. Yet today it flies refueling tankers, modern fighters, long-range search and rescue helicopters, and other top-line aircraft.

Photos by Chris Cross Photography



Maj. Gen. Chee Khern Ng, air chief of Singapore, stressed the need for air systems to be interoperable.

Gen. of the Air Ricardo Ortega Perrier of Chile, on the other hand, emphasized his nation's niche roles supporting combined operations between different air forces.

Real integration depends on the adoption of interoperable planning systems, said the Chilean air chief, as well as common language and a standardized vocabulary.

Ortega gave an example from his own experience: As a young airman, he had been confused when a British airman referred to his aircraft's "undercarriage" while a US counterpart talked about his airplane's "landing gear." He said, "Both were supposed to be speaking in plain English."

Lt. Gen. Prince Faisal bin Al Hus-

sein, of Jordan, fielded a query about how the Arab nations of the Gulf region are working together, politically and militarily.

There is a lot of cooperation today, both within the GCC (Gulf Cooperation Council) and among other neighbors, he said.

"There is a greater degree of interoperability now. ... It is far different than it was five or 10 years ago," said Prince Faisal. The regional air forces are not only "more capable," he said, "we are more adaptive."

During the question-and-answer session which concluded the GACC, one query fielded by Moseley dealt with the problem of sharing sensitive intelligence among coalition partners.

"The challenge is normally back in the capital city," said Moseley.

In other words, intelligence officials and air leaders working on operations at the front lines are prone to trust colleagues and share when they can.

The hang-ups occur when officials who have not dealt with allies close up, or who insist on holding information closely or who are habitually following strict sharing rules and regulations, are allowed to gum up the process.

"The benefits [of sharing] are real, but you have to fight your own system," said Moseley. ■



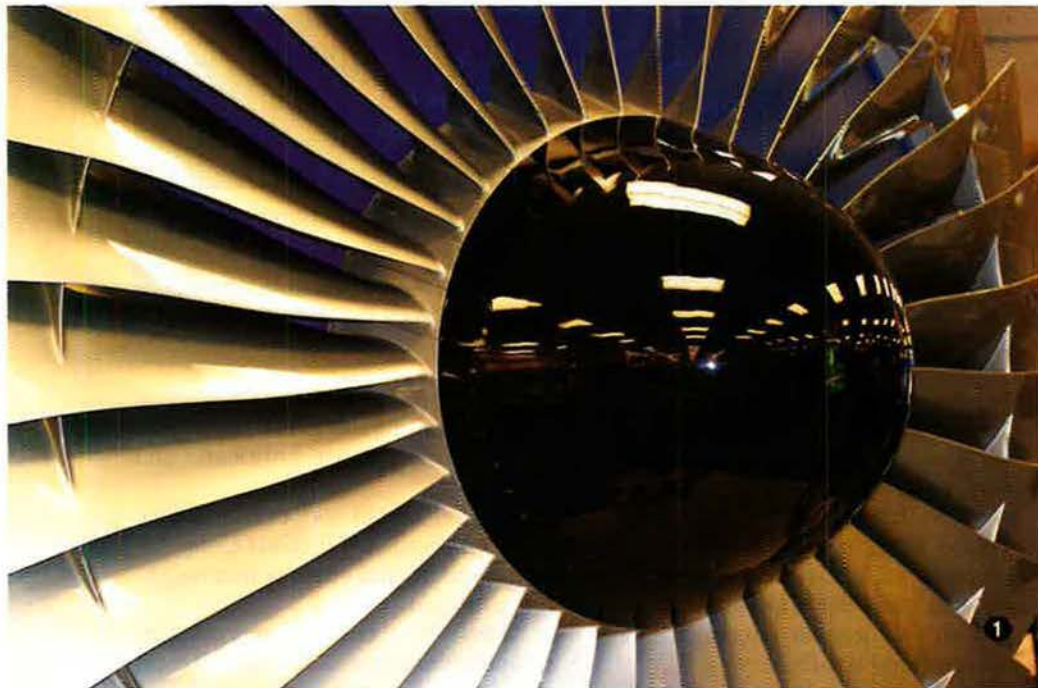
The commander of the United Arab Emirates Air Force, Maj. Gen. Staff Pilot Mohammed bin Swaidan Al Qamzi, spoke on ways to enhance cooperation.

Peter Grier, a Washington editor for the Christian Science Monitor, is a longtime defense correspondent and a contributing editor to Air Force Magazine. His most recent article, "Names for Our Unknowns," appeared in the July issue.



Air Force Association **Technology**

The latest and best in aerospace technology was on display at AFA's annual showcase.



111 A contender to power the KC-X tanker gleams for the camera at the Pratt & Whitney exhibit. 121 Visiting global air chiefs surge through the gates as the technology exhibition opens. 131 A Lockheed Martin model of the F-35, adorned with the flags of partner countries, shows off its internal weapons load: Small Diameter Bombs, AIM-120 AMRAAM radar missiles, and a 2,000-pound JDAM bomb. 141 A notional, stealthy UAV concept banks through the Air Force Research Laboratory's booth. 151 A full-scale model of an L-3 Communications Raven unmanned aerial vehicle.



Exposition 2007

Photos by Guy Aceto

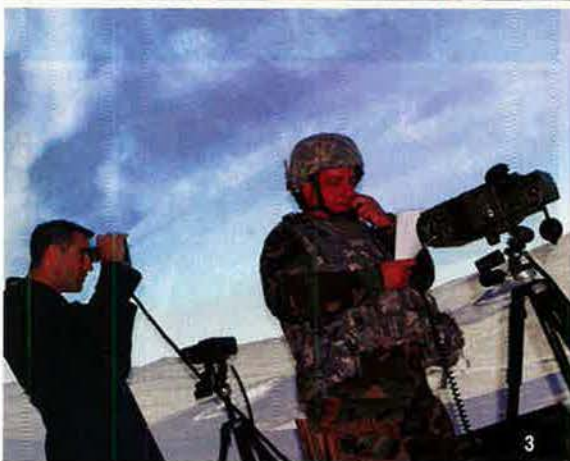


11 A model of an F-16 loaded for air defense at the Lockheed Martin booth, backed by the flags of the dozens of users of the fighter. *12* Air National Guard Chief Lt. Gen. Craig McKinley gets a quick briefing on the exhibit floor. *13* Lt. Col. Torgny Falhammar of the Swedish defense forces gets an update on the "smart rack" for the GBU-39 Small Diameter Bomb. *14* A Northrop Grumman concept for the Air Force's next long-range strike aircraft shows off its B-2 bomber heritage. *15* Brazil's Air Force Chief of Staff, Lt. Brig. of Air Juniti Saito, tours the exhibition.



Photo by Chris Cross Photography

111 Maj. Gen. Martin Mazick of Air Force Reserve Command chats with former CMSAF Gerald Murray. 121 A mock-up of the Taurus standoff missile, developed by European Aeronautic Defense and Space Co. and Bofors of Sweden. 131 A demonstration of a joint terminal attack controller task simulator.



141 A mannequin populates the Boeing HH-47 full-scale interior mock-up. The aircraft was selected as the next combat search and rescue helicopter. 151 Air Force Secretary Michael Wynne shares a moment with retired Gen. Lloyd Newton at an exhibit hall reception. 161 Security forces NCOs MSgt. Ernest Delao and MSgt. Malcum Rodgers of the Security Forces Center at Lackland AFB, Tex., discuss the latest personal tactical gear. 171 The C-295 light cargo aircraft was featured at the EADS booth.

Photo by Chris Cross Photography





111 Gen. Ronald Keys, then Air Combat Command chief, plays blackjack for a commemorative poker chip with representatives of the Nevada Test and Training Range. 121 A Sikorsky concept for a high-speed helicopter escort aircraft. 131 Lockheed Martin's US101 entry in the CSAR-X competition, shown as a cutaway model. 141 Another CSAR-X offering in cutaway: Boeing's HH-47.

Photo by Chris Cross Photography



151 A full-scale mock-up of the F135 engine that will power the F-35 fighter dominated the Pratt & Whitney booth. 161 Boeing displayed a cutaway of the

Airborne Laser along with a tangible example of its destructive power.



111 USAF commander Gen. William Hobbins offers insight to a vendor. 121 AFRC Maj. Gen. Erika Steuterman of Air Force Space Command checks out a display. 131 A model of Lockheed Martin's F-22 Raptor in the latest markings. 141 Lockheed Martin displayed its contender for the maritime Joint Strike Missile.



151 Lt. Gen. Hans de Jong of the Netherlands gets an update on the Air Force's plans to certify bombers and cargo aircraft for synthetic fuel. 161 An armed, counterinsurgency variant of the T-6 trainer in desert camouflage was displayed by Raytheon. 171 The C-27J Spartan, selected as the Army-Air Force Joint Cargo Aircraft, was the centerpiece of the L-3 Communications booth.

Photo by Chris Cross Photography





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 Reserve 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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Air Force Airpower: The Indispensable Instrument

The Air Force Association 2008 Statement of Policy adopted by the delegates to the AFA National Convention meeting on Sept. 23, 2007, in Washington, D.C.

"The future of our nation, indeed of all of our nations, is indissolubly bound up in the future of airpower."—Brig. Gen. Billy Mitchell

America can rightly claim to be the greatest military power—a power that affords us prosperity and security. This status is due in no small part to our overwhelming supremacy in air and space.

The United States Air Force provides our nation a unique military advantage, indispensable in war and peace—to know what is happening around the globe, to lend a hand with humanitarian assistance, to deter nations that would use aggression to bully their neighbors, to defend our nation when we are attacked, and deal a decisive blow to our foes. Our Air Force is balanced and precise; it can range the globe rapidly and to great effect with the least cost in American lives.

American know-how—technological brilliance—has been the cornerstone of the Air Force. The Air Force is the youngest of our nation's military branches and proud of it. It is able to adapt in time and space by changing position. The effects the Air Force can achieve through perspective, range, and endurance are those no other military instrument can execute. Our nation's ability to gain an advantage



B-1B bomber after mission over Iraq.

over our enemies by exploiting air and space is unsurpassed.

Today's Air Force was built on the work of those who preceded us. We laud their brilliant foresight, determination, and sacrifice. However, no marvel of ingenuity guarantees continued superiority in air and space.

The overwhelming advantages afforded to our nation by the United States Air Force can be lost through inattention to modernization or by underfunding force structure. We are now at a point, after 17 years of continuous combat—from Desert Storm, Bosnia, and Kosovo to Iraq and Af-

USAF photo

ghanistan today—where our nation's continued superiority in air and space is at risk.

Our Air Force flies the oldest aircraft that we have ever had to support—and they will be getting older and more costly to maintain if nothing is done to reverse the trend. Both our B-52s and KC-135s average 46 years old today; in 2030, they will average 68 years old. Our A-10s average 26 years old today; in 2030, they will average 49 years old. The nation cannot afford to lose this capability due to complacency.

Our Air Force is constantly in demand by combatant commanders around the globe—the operations tempo is high and continuing to rise—but the size of our Air Force is the smallest it has been in decades. The Air Force had approximately 4,400 fighters in 1985, today we have around 2,500, and in 2030 it will have fewer than 1,400. Despite technological improvements, the Air Force cannot fulfill its global missions without sufficient force structure—aircraft simply cannot be in two places at once, whether in Korea and Afghanistan or above New York City.

Losing our airpower edge is not a responsible option. Our elected leaders must ensure this does not happen. The United States Congress is charged by the Constitution with providing for the common defense. Our responsibility to our forefathers, to our nation, and to our families is to make sure it does just that.

The "Affordability" Issue

We recognize that a dominant Air Force—fully manned, highly trained, properly equipped, amply supported, and of proper size—will require increased funding. That, however, is not the whole story, or even the most important part of the story.

Today's defense burden is relatively light. Defense spending now claims some four percent of our Gross Domestic Product, and that includes the costs of the wars in Afghanistan and Iraq. For the basic defense program, the figure is roughly three percent, near the pre-Sept. 11, 2001 level. During the Cold War, the investment in defense was about 6 percent of GDP; during Korea, 12 percent; in World War II, nearly 40 percent. In 1962, before the Vietnam War, defense took 9.3 percent of GDP, without economic damage. Obviously, there is plenty of room in the economy for a more robust defense effort. Moreover, national resources are growing.

The \$13.75 trillion US economy is expected to grow by 15 percent in the next five years. Even a large defense increase would not take more than a small part of that amount.

One can debate figures, but there can be no denying that the armed services are seriously underfunded. For instance, the Air Force needs an extra \$20 billion a year over the next 20 years—and even that figure may be on the low side. The budget is simply too small to balance commitments and resources.

The Air Force Association recognizes that it will take political leadership in order to provide adequate funding to ensure that our national defense forces and infrastructure are sufficient to meet current and future threats to our nation. *AFA believes that the nation must commit significantly greater resources to defense and can afford to do so.* Such an increase could be accomplished with a very affordable 6 percent of its Gross Domestic Product applied to defense for many years to come.

Challenge of Globalization

The engine of change is globalization—the process of interaction and integration among people, companies, and governments of different nations. It is driven by international trade and investment and boosted by modern information technology. It affects culture, political systems, economics as well as national and international security.

This wave of change has brought huge benefits to millions around the world and to our citizens in the US. However, globalization is a two-edged sword. The same openness and interdependence that permits rapid growth and instantaneous communication also makes every nation more vulnerable. Each American depends on the world economy; we feel the effects of any disruption in the global system. As the events of Sept. 11, 2001 demonstrated, attackers can use modern transport and communication systems to reach us swiftly and with devastating effect. The decisions of people anywhere can affect us. Globalization gives us new benefits and new dangers.

Today, we see the consequences of this new reality in many places. The threatening actions of despots and killers in far-away nations—actions that we might once have been able to ignore or deal with at a distance—have drawn us toward military action. These threats are no longer far away.

The United States is in a tough fight

in both Afghanistan and Iraq. The Air Force Association salutes all of the armed forces for their service. The sacrifices that our men and women make to fight our nation's wars are a testament to our democracy. This association is especially proud of Air Force men and women—those 675,000 active airmen, National Guardsmen, Reservists, and Air Force civilians—for their efforts on behalf of our nation.

The Air Force Association believes that we must continue to support our troops who are fighting the Global War on Terrorism in Iraq, Afghanistan, and elsewhere around the world. Fully functioning and sovereign governments in Iraq and Afghanistan are in the best interest of democratic nations around the world.

The association calls on Congress to take action in the following five broad areas to provide for the defense and security of the United States for today and for future generations of Americans:

Prosecuting the Global War on Terrorism—Importance of the Air Force Role

We have been fortunate in having a strong Air Force. Our bombers, fighters, UAVs, and gunships have delivered potent attacks against enemy forces, not only setting the conditions for the fight on the ground, but effectively devastating enemy forces near and far. Air Force tankers have increased the range and endurance of aircraft from all the services. Air Force airlifters provide rapid medical evacuation and haul many of the troops, much of the cargo, and time-critical personnel and materiel within the theater after they arrive.

Air Force special operations forces, as flight crews and battlefield airmen, have allowed indigenous forces in Afghanistan to seize entire provinces. Air Force spacecraft, manned aircraft, and unmanned aerial vehicles have provided the intelligence, surveillance, and reconnaissance that have allowed joint force commanders to dominate the battlespace.

The Air Force continues to perform nearly all of the homeland defense missions that comprise Operation Noble Eagle. Every day, numerous fighters, tankers, and ISR aircraft take off in direct support of our nation's security.

AFA believes Congress and the Administration must work together to ensure the Department of Homeland Security and the Air Force have the

resources to effectively secure our homeland.

At this moment, state and non-state agents are exploiting the Internet, attempting to gain an advantage over the United States. The Air Force is meeting this challenge through the establishment of a dedicated Cyber Command. The response to a cyber-attack on our national infrastructure must be immediate; protecting military, government, and commercial networks will require increased cooperation between the private sector, DOD, and other government agencies.

Without dominance of the electromagnetic spectrum, operations in air and space would be at risk. In this domain, an adversary may be able to blind our sensors, unmask our stealthy aircraft, and exploit or disrupt our computer systems in order to diminish our military operations. AFA applauds the Air Force for taking the lead in countering this growing threat.

The Air Force maintains 35,000 airmen in the Southwest Asia region, including 5,000 Air National Guard and 2,500 Reservists. Air Force involvement includes direct attack operations and aeromedical evacuation, intelligence-surveillance-reconnaissance (ISR), close air support, air refueling and more. Use of unmanned systems—such as the Predator and Global Hawk—has helped ground forces locate and target roadside bombs, mortars, rockets, and concentrations of insurgent fighters. Air Force C-130s transport ground troops and materiel, helping keep them off the dangerous Iraqi roads.

The Air Force has flown more than 430,000 combat sorties in Afghanistan and Iraq. It has deployed, for an extended period, a steady-state force of 250 aircraft to the Southwest Asian Theater. The Air Force has conducted more than 18,000 aeromedical evacuations to save our airmen, soldiers, sailors, and marines. Every single day of the year, the Air Force flies over 400 sorties in Southwest Asia and over the US in homeland defense.

As part of a joint team, the combined force air component commander has hunted down elements of the Taliban in Afghanistan by participating in multiple sweeps of the southern and eastern provinces where enemy forces have infiltrated from Pakistan. Operation Iraqi Freedom is now in its fifth year; there, the Air Force role has shifted from attacking large formations of enemy forces to supporting counterinsurgency raids. We can expect that even after the bulk of US ground forces are withdrawn from Iraq, US Air Force operations will continue for many years afterward. *The United States Air Force is critical to the defense of our nation, and AFA urges Congress to fully fund the needs of the Air Force to enable it to fulfill its vital role.*

Invest in Air Force Capabilities

Our ability to sustain air and space dominance will not come cheaply. But an America without dominant air, space, and cyberspace power would be a nation in great jeopardy. For more than 50 years, our ground forces have benefited from air supremacy. The last time an American soldier was killed by enemy

aircraft was in 1953. We must not take air supremacy for granted. Our past military successes will not be repeatable without significant investments in future force structure.

For the future, we dare not rely on 50-year-old bombers, 40-year-old tankers, and 30-year-old fighters. The risk is too great. We have lived through two decades of neglect in recapitalization and modernization efforts. Our high operations tempo has pushed the Air Force into a choice between sustaining its power to fight today and providing adequate force structure for tomorrow.

Older systems are deteriorating and costing more to maintain. AFA strongly urges applying additional resources to increase the procurement rate of all types of aircraft, tankers, fighters, bombers, transports, and special purpose aircraft, to ensure tomorrow's national security.

We cannot forget the long hours and intense effort put forth day after day by operators, maintainers, and logisticians—the difficulties faced by men and women in combat and the required care of complex machines without which we would not have a very real capability to inspire awe in the defense of our nation. We cannot wish these factors away. To achieve the overwhelming effects that make air, space, and cyberspace power the daunting asymmetric force that it is today, the Air Force will continue to require specialized force training, a sustainable operational tempo, and high quality weapon systems in sufficient quantities.

As noted earlier, the Air Force is operating an aircraft fleet of unprecedented age. This is having a negative impact on the Air Force's ability to support the joint force. Our existing platforms are reaching a point where they are no longer efficient and are becoming less effective in carrying out their respective missions. The Air Force aircraft inventory needs to be recapitalized.

The difficulties associated with maintaining this old inventory have caused readiness rates to plummet and pushed operating and maintenance costs up to unprecedented levels. USAF readiness has declined by 17 percent across its aircraft systems since 2001. Less than 60 percent of the Air Force aircraft inventory is considered fully mission capable. Many fighters and transports are forced by engine and structural concerns to operate within restricted flight regimes.

Twenty percent of the Air Force

USAF photo by SSgt. Brian Ferguson



MQ-1 Predator at Creech AFB, Nev.

procurement budget—the highest percentage in history—must now go to modifications and upgrades of existing systems to keep them mission capable and flying, and this percentage is projected to rise even further.

There is an operational price to be paid. Legacy fighters are less capable of surviving against air defenses featuring fourth generation fighters and modern surface-to-air missile systems. C-5As cannot fly into hostile regions because they lack the necessary defensive countermeasures to protect against portable, shoulder-fired missiles. In the intense desert heat, KC-135Es are not deployed in the Middle East because they lack sufficient engine thrust for full-load takeoffs.

The Air Force has adopted a strategy aimed at divesting itself of its least capable airframes, procuring new aircraft, and modernizing the relevant aircraft remaining in the fleet. Some of these efforts have been blocked in Congress by laws preventing the planned retirements of selected B-52s, KC-135Es, C-130E/Hs, C-5s, and U-2s.

AFA calls on Congress to act expeditiously to allow the Air Force to manage its fleet and rid itself of many low-value, high-cost aircraft so that it can succeed in modernizing large parts of its current and future force.

The Air Force has made long strides toward acquiring its new KC-X tanker aircraft. Once a contractor is selected, the Air Force will start system development and prepare for the initial buy of 179 aircraft. This is long overdue. The joint force does not go anywhere without tankers. Their importance cannot be overstated; they provide the projection in American power projection. Unfortunately, even at the current program procurement rate, the mother of the last KC-135 pilot has not yet been born.

New fighter aircraft slated for procurement include the F-22 Raptor and F-35 Lightning II. These will serve as replacements for the aging F-15s, F-16s, and A-10s. The Air Force needs a minimum of 381 F-22s to fill out its 10 air and space expeditionary forces. However, it has been authorized funds for only 183. As a result, the Air Force must keep selected F-15s and F-16s in service much longer than had been expected. These are aircraft that were designed with 4,000 hours of flight time in mind; to serve for another decade or more will require them to be service life extended for 8,000 or even 10,000



F-22 fighter after disgorging a Small Diameter Bomb.

USAF photo by Darin Russell

hours, increasing risk and decreasing effectiveness.

With the F-22 buy currently restricted to less than half the requirement and the procurement of 1,763 F-35s stretching over nearly 40 years, there will be insufficient fighters available to meet the defense strategy, particularly steady state deterrence requirements. In addition, there will be an insufficient number of fifth generation fighters available to handle two nearly simultaneous major theater wars while ensuring control over sovereign United States airspace. The equipment shortfall will grow year by year. The risk to the nation and our airmen will grow apace. If nothing is done to remedy this situation, we should expect an increased rate of failure for our aircraft and increased losses in combat.

If our aircraft are lost in combat, we must make good on our promise to do our utmost to find and rescue our downed crew members. This promise is nonnegotiable. Making good on this promise requires serviceable, modern aircraft. However, the new combat search and rescue aircraft project, currently designated CSAR-X, has been snarled in delays. The Air Force needs to acquire 141 CSAR-X helicopters.

AFA calls on Congress, the Pentagon, the Air Force, and defense industry to clear away the red tape and get the CSAR-X system on the ramp without delay.

The 2006 Quadrennial Defense Review directed the Air Force to field a new long-range strike platform by 2018. This platform will be subsonic, manned, and able to loiter for long periods

over targets. It will have a mixture of surveillance and strike capabilities and its long range will increase options to base the aircraft in nonthreatened areas. We agree with this plan and strongly urge the Administration and Congress to support this program.

Persistent surveillance, intelligence, and reconnaissance using unmanned vehicles, satellite surveillance, and the Global Positioning System provide instant capabilities to the warfighter, from putting bombs on target to countering the threat from improvised explosive devices (IEDs). The Predator is a case in point. This unmanned aerial vehicle recently surpassed its 250,000th flying hour since entering service in 1995. It has been an invaluable workhorse supporting combat operations in Iraq and Afghanistan by providing reconnaissance, surveillance, and target acquisition in addition to rapid attack.

AFA believes that Congress must fund ISR systems in greater numbers and provide necessary capability upgrades.

The Air Force is investing in improving network operations so that the next generation of Predators can operate more effectively as a group. With the addition of the more capable Reaper and research into a new family of unmanned combat aerial vehicles, the Air Force will have taken important strides towards the goal of making every sensor a shooter. *AFA applauds the Air Force investment in UAVs and strongly supports efforts to designate the Air Force as the executive agent for UAV systems that fly above 3,500 feet, because the*

Air Force is organized, trained, and equipped to be the executive agent for air operations.

Airlift provides a critical logistic support for our nation's global engagement and is a key combat enabler. Ongoing operations in Operation Enduring Freedom and Operation Iraqi Freedom have sent demand for intratheater airlift using C-17s and C-130s soaring. They are now experiencing significantly more wear and tear than would otherwise be expected. On a typical day, the Air Force flies over 250 mobility sorties and moves over 1,000 tons of cargo and 2,500 passengers. However, with the planned growth of the Army by 65,000 personnel and in the Marine Corps by 27,000, more airlift is needed. *AFA strongly supports the Congressional effort to add funds to purchase additional C-17s and C-130s.*

Current and future space capabilities cannot be overlooked; they are mission-critical to every military operation. Space is essential for satellite communication, positioning and navigation, environmental monitoring, intelligence, reconnaissance and surveillance, and command and control. Protection of our space assets must continue through strong situation awareness, defensive, and offensive counterspace initiatives.

Space operations are important to national defense and humanity more than ever before and *AFA strongly urges Congress and DOD provide the necessary funding and resources to modernize and exploit space systems and capabilities.*

Space-based early warning and satellite communications are crucial to the success of the warfighter. Space-based early warning provides the warfighter with missile launch indications, allowing theater missile defense system activation and defensive postures by our ground forces. The Defense Support Program (DSP) satellites were developed 30 years ago and several currently in operation have exceeded their planned life expectancy. The Space Based Infrared System (SBIRS) will replace the aging DSP constellation with an improved capability. In addition to the short wave infrared (IR) of DSP, SBIRS adds midwave IR for improved detection. Beyond the traditional space-based missile warning, SBIRS will also provide warfighters with battlespace characterization and technical intelligence.

In addition, demand for space-based communications is skyrocketing. Communications bandwidth requirements have grown far more rapidly than military satellite communications (Milsatcom) capacity. Estimates run as high as 80 percent over the capacity of the current Milsatcom capability. The Advanced Extremely High Frequency (AEHF) communications satellite, the replacement for Milstar, will improve the capacity for assured strategic and tactical communication tenfold.

In addition to AEHF, the next generation of communication satellites, the Transformational Satellite Communications system (TSAT) will bring Internet-like connectivity to the warfighter including survivable communications on the move. Although AEHF and TSAT

will not eliminate the need for DOD's use of commercial SATCOM, it will help reduce the requirement. AFA supports Air Force efforts to maintain a robust space superiority that provides for the nation's defense and telecommunications needs. AFA urges Congress and the Administration to fully fund Air Force recapitalization efforts.

Support Air Force People

Nothing is more important to the Air Force than its people. More than ever, the Air Force needs each airman to be battle-ready. Advances in technology are important, but to effectively operate these high-tech systems, the Air Force needs qualified, well-trained, and motivated people.

USAF is expanding its basic training an additional two weeks to ensure that all airmen are prepared for the challenges of a combat environment. The new emphasis begins at basic military training with combat arms and first aid, but the change is felt throughout the Air Force. Some units within the Air Force have introduced a level of close-quarters combat training for those who are about to deploy. One such program is the Air Force Common Battlefield Airmen Training (CBAT) Program, which will provide our airmen the combat survival skills needed to better survive in a combat environment. AFA applauds this crucial Air Force initiative, and urges acceleration of this critical training program.

Air liaison officers and combat controllers have been joined with other specialties into battlefield airmen since 9/11. These airmen are providing vital tactical air control to help direct bombs and bullets at terrorists and insurgents with great accuracy. These airmen engage in a broad spectrum of missions, from C4ISR to close air support to training indigenous security forces. AFA believes that, though deployed to assist in ground operations, they should stay within the Air Force chain of command.

Currently, the Air Force is short of pararescue teams and controllers who work with ground Special Forces and other ground units. It plans to increase recruiting efforts and expand the ranks in key areas.

The demands of the Global War on Terrorism have also obliged the Air Force to operate outside of its core competencies. Some 6,000 airmen are performing duties outside of their Air Force specialties, helping ease the burden on US Army and Marine Corps



SSgt. Geoffrey Welsh trains a security forces military working dog.

ground forces. Many now serve in lieu of ground force personnel as convoy vehicle operators, gun-truck guards, and interrogators.

This has placed additional strain on the Air Force as leaders in recent years have been forced into difficult decisions balancing personnel, infrastructure, readiness, and modernization accounts.

The Air Force has announced planned cuts of more than 40,000 airmen over three years to free up funds to modernize old aircraft. The Air Force cut 11,000 airmen by the close of Fiscal Year 2007. Recently, the Air Force announced additional force shaping boards in the officer ranks for 2008.

AFA is concerned that the announced increase in the overall size of the US Army and Marine Corps will drive increased demand, presently unfunded, for additional Air Force personnel. With the increase in troops, *AFA believes the practice of having airmen serving in place of ground forces should end and that they be permitted to return to their specialties. We call on the Administration and the US Congress to add funds to the Air Force budget and raise the manning authorization cap to ensure a balanced force compatible with Army and Marine Corps growth.*

AFA applauds service initiatives concerning force development, which will help attract quality people and develop their skills and experience to successfully create and exploit new aerospace capabilities. The Air Force must continue to take the lead in educating, training, and providing for the professional development of enlisted members, officers, and civilians.

In the era of the all-volunteer force, the Air Force has recruited and retained the best educated, best trained, and most technically proficient airmen ever. They serve in an air and space expeditionary force with global reach and are called on to deploy regularly. In 1993, about 15 percent of the force was trained and able to deploy. Today, though the force is roughly 25 percent smaller, more than 85 percent of the force is able to deploy.

Thus, the importance of recruiting and retaining quality people in sufficient numbers cannot be overstated. AFA commends Air Force efforts to increase the pool of deployable airmen and reshape the force to achieve the right skill mix and meet authorized manpower levels.



C-17 Globemaster IIIs lined up on the runway at Charleston AFB, S.C.

AFA believes that we are fast approaching the point where the demands of global operations will be incompatible with the current size of the Air Force. Although retention and morale remain arguably strong and the Air Force is performing at a high level, there is considerable stress on personnel. If things do not improve, retention will suffer.

Congress and DOD must work together to set active duty end-strength levels that give the Air Force sufficient manpower to carry out its mission. DOD should also strengthen quality of life programs to attract adequate numbers of high quality volunteers. For example, it should make available to all airmen an open season for enrollment in the Montgomery GI Bill program. AFA supports these further measures to improve the quality of life for military members and their families.

AFA also believes civilians are integral to the defense of our nation. *AFA urges DOD to carefully monitor and evaluate the role and use of civil servants and nonappropriated fund employees in combat zones. It should also provide equitable treatment to such civilians in terms of tax exemptions, accidental death and dismemberment coverage benefits, and other benefits.*

AFA also believes that the robust force of today is built on the promises made to those who served in the past. *AFA urges Congress to make funding of the VA health care system mandatory and to increase support for defense health care programs.*

Strengthen the Foundation Through Education, the Industrial Base, and Technology

The Air Force of today was built upon a strong foundation of technological and industrial might. Without such a technical base undergirding air and space power, the Air Force cannot be sustained, much less modernized or transformed.

Today, there are reasons for concern.

US defense industry consolidation, foreign competition, dwindling major US defense programs, a declining workforce, and a lack of scientific and engineering emphasis in our schools are conspiring to erode America's defense industrial base. Since 1994, the number of prime contractors doing major aerospace defense work has declined to a handful.

The aerospace industry warns that it is having difficulty finding sufficient numbers of qualified US engineers and scientists—ones who can conduct highly classified work—and other technically skilled workers to replace the workers who are nearing retirement age. Thus, acquiring security clearances is a major issue this country will have to deal with if it wants to maintain its national security.

Part of the problem has to do with our educational priorities. America now ranks 29th in the world in the percentage of college graduates with math or science degrees. When it comes to advanced degrees in those fields, the rank is even lower. Moreover, increasing percentages of advanced-degree gradu-

ates of US universities are foreign-born and after they receive their degrees, they are increasingly returning to their home countries.

As the most technologically advanced military in the world—if we are to maintain our superiority in air and space power—*America must continue its investment in technical education and build the foundation to support what the nation needs.*

A recent GAO report highlighted the need for mathematics and science teachers at the middle school and high school levels and projects a shortfall of 280,000 math and science teachers by 2015. We must therefore encourage our schools to foster interest in math and science for teachers and students to meet the challenges of the future and to ensure our technological edge.

AFA believes we must partner with industry to encourage not only more student participation in the math and sciences, but also encourage people to enter these important careers.

The nation must recognize this crisis. *AFA believes it is time for a set of broad-based national level programs, funded by Congress, to encourage more people to study science, technology, engineering, and mathematics.*

On a national level, investments in science and technology (S&T) help produce breakthrough systems of the future. Yet the Air Force S&T program in recent years has amounted to less than 2.5 percent of the overall budget. This relatively low level of investment in defense related S&T is a concern to AFA. *We believe DOD must increase the Air Force's funding to permit a 3 percent investment in science and technology.*

It is imperative that the US vigorously pursue future military capabilities, from microchips to directed energy and hypersonic technology. The Air Force has launched a number of initiatives to increase the emphasis on S&T programs and improve industrial base facilities. Additionally, the Air Force must recruit and maintain a strong technical workforce of engineers and scientists—both military and civilian.

As for the American defense industrial base, it is today characterized by consolidation and shrinkage as the number and size of defense programs shrink despite a sharp rise in development and procurement costs. A lapse in procurement throughout the 1990s has not only diminished our margin of

superiority but has forced consolidation of defense industries and reduced competition.

The number of prime airframe manufacturers producing Air Force combat aircraft is now down to two, and lower-tier suppliers are being overwhelmed by commercial demand. We can and must protect, reinforce, and strengthen the industrial base by wise acquisition strategies, fair contracting, and business practices.

The Air Force's industrial base includes not only firms in the private sector but also the air logistics centers. To preserve a ready and controlled source of depot maintenance, we must strike a careful balance between the maintenance and repair workload that is contracted out and the portion performed by the air logistics centers.

AFA urges DOD, Congress, and industry to jointly determine the industrial base capabilities needed to meet national defense requirements in the future and take the necessary steps to achieve these capabilities.

Preserve the Total Air Force

The United States Air Force is a total force, comprising the three components of active duty, Air National Guard, and Air Force Reserve members, their units, and their equipment. We cannot go to war with only one or even two; we need all three elements of air and space power in every fight.

The Guard and Reserve currently provide large shares of the Air Force's aviation and combat support elements in support of the 10 air and space expeditionary forces (AEFs). They also provide most of the Air Force's tactical airlift, strategic airlift, and air refueling capability.

AFA expresses its appreciation for these citizen airmen members of the Guard and Reserve and acknowledges that without their sacrifice and contribution, the Air Force would be far less capable than it is today.

The increased reliance on Air National Guard and Air Force Reserve units has caused extended call ups in both components. The Guard and Reserve regularly make up approximately 20 percent of our forward deployed force. Such utilization rates are not sustainable for the long term. AFA is concerned we are placing an undue burden on the Guard and Reserve. AFA recommends DOD increase Air Force funding to relieve this burden.

We should not underestimate the

USAF photo by MSgt. Richard Freeland



A Delta II rocket carrying a National Reconnaissance Office satellite launches from Vandenberg AFB, Calif.



F-16 fighter completes a mission.

cumulative impact of extended call ups on the Guard and Reserve and on their civilian employers. Many members of the Guard and Reserve have put college and careers on hold. Some have had to close their businesses. Already, Guard recruiting has fallen short of goals. For the time being, retention is much higher than predicted and has offset recruiting shortfalls, but this may well change, too. We must take action now to prevent further harm.

The increased use of reserve component forces has highlighted the inequities in the pay and compensation system that is based on Cold War reserve policies. *AFA believes the Guard and Reserve should be compensated, equipped, and manned in consonance with their increased contribution to the Total Force.*

Because the Guard and Reserve have to maintain the same readiness standards as active duty members, they should also receive increased access to Tricare. Recapitalization of Guard and Reserve facilities needs attention and funding as many do not meet DOD minimum adequacy standards.

Total Force success stories include the Air National Guard, in which citizen airmen connect directly with the citizens they serve while providing state governors with expeditionary homeland security forces to assist in disaster response. Another Total Force example is the Air Force Reserve associate unit concept in which the reserve component and active duty personnel share aircraft and equipment. This means more crews and higher utilization for the same

number of aircraft. This efficiency capitalizes on inherent strengths of the Total Air Force.

The civil service component of the Total Force needs more attention. Over the next five years, more than 40 percent of the career workforce will become eligible for retirement. Force reductions have already created problems with the skill mix. We support the Civilian Workforce Shaping Initiative which attempts to rebuild the civilian force in the right way. We applaud the integration of the military and civilian Air Force teams which has added increased synergy to the force.

Deterrence on the Line

The United States will be making a mistake of historic proportions if it fails to put sufficient emphasis on development and sustainment of sufficient air and space forces. These forces uniquely define the military strength of the United States. They are the hardest-hitting, longest-reaching, and most flexible forces we possess. Our security now—and in the future—depends on them.

**"Our Air Force belongs to those who come from ranks of labor, management, the farms, the stores, the professions, and colleges and legislative halls. ... Airpower will always be the business of every American citizen."
—Gen. H.H. "Hap" Arnold**

Amazingly, though, the nation is on a dangerous path, almost by default rather than conscious intent. In 1987, just 20 years ago, we had approximately 400 long-range bombers arrayed on ramps around the world. Today we have less

than 200, and many of those are more than 50 years old. In 1987, the Air Force fielded about 800 air superiority fighters. Today, the number is under 500, most of which were built more than 30 years ago. In 1987, USAF had around 2,200 multirole and attack fighters. Today it has less than 2,000.

The Air Force budget request for 1987 included funding for 264 fighters and bombers. Its request for 2007 included funding for just five fighters. Many Air Force aircraft date back to the 1960s, when the Air Force bought more than 600 new airplanes a year.

Since the Cold War, those holding nuclear capabilities had little motivation to proliferate nuclear weapons. However, in recent years, less responsible nations have gained nuclear know-how and capability. Deterrence through the threat of massive retaliation could prove unsuccessful against rogue states in the future. We are engaged in a fight that will not end for some time, but must prepare for an unknown fight that we may face tomorrow.

For our nation's security, we cannot afford to focus too narrowly on the insurgent threats of today and neglect to develop the capabilities that we will need to defend ourselves in the future.

America's dominance in the air and in space is waning. The capabilities that gave us this unprecedented level of security and power are being neglected while political leaders debate the wisdom of how best to continue the fight in Iraq. Investment not directly related to that threat is mistakenly questioned as a legacy of the Cold War.

It is not too late to reverse these trends. In the 21st century, the United States will need—even more than it has in the past—our forces of air and space for global vigilance, global reach, and global power. We can still preserve the conventional military capabilities that have proven so effective in deterring and defeating major threats to our security, but the window of opportunity is closing.

It takes 15 to 20 years to develop new aircraft from go-ahead to an employable asset. If we do not act, we leave a legacy of weakness for our children. Now is the time for action. Now is the time to invest in the future of America. ■



Air Force Association **National Awards 2007**

National Aerospace Awards

Award

H.H. Arnold Award

AFA's highest honor in national security to a member of the armed forces

W. Stuart Symington Award

AFA's highest honor in national security to a civilian

John R. Alison Award

AFA's highest honor for industrial leadership

David C. Schilling Award

Outstanding contribution in flight

Theodore von Karman Award

Outstanding contribution in science and engineering

Gill Robb Wilson Award

Outstanding contribution in arts and letters

Hoyt S. Vandenberg Award

Outstanding contribution in aerospace education

Thomas P. Gerrity Award

Outstanding contribution in logistics

**Department of Veterans Affairs
Employee of the Year**

Recipients

Gen. Ronald E. Keys, USAF

Commander, Air Combat Command,
Langley AFB, Va.

Honorable Michael W. Wynne

Secretary of the Air Force, Washington,
D.C.

Lockheed Martin and Boeing Company

Suppliers of evolved expendable launch
vehicles

17th Airlift Squadron, Charleston AFB,
S.C.

Maj. Steven M. Ross, Air Force Institute
of Technology, Wright-Patterson AFB,
Ohio

Donald Lopez, Deputy Director, Smith-
sonian Institution, National Air & Space
Museum, Washington, D.C.

Ross Perot Jr., former Chairman,
Air Force Memorial Foundation, Plano,
Tex.

Lt. Col. William T. Singer, Deputy Direc-
tor, 565th Aircraft Maintenance Squadron,
Tinker AFB, Okla.

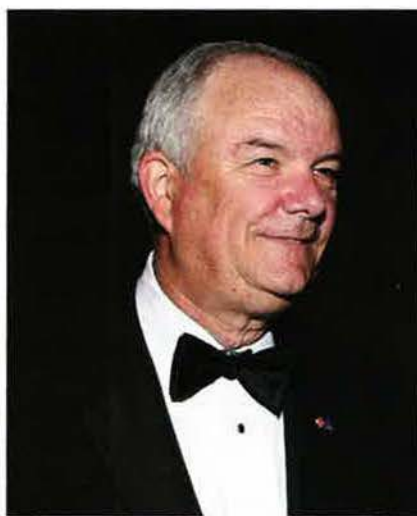
Carl E. Lowe II, Director, Waco, Tex.



Gen. Ronald Keys, commander, Air Combat Command, received the H.H. Arnold Award for his advocacy for air and space power and his support of USAF's combat forces. He retired in September.



Retired CMSAF Paul Airey, the first airman to hold the top enlisted position, received the AFA Lifetime Achievement Award.



Michael Wynne, Secretary of the Air Force, was presented the W. Stuart Symington Award as the top civilian proponent of airpower.



Joanne Maguire (l) of Lockheed Martin and **James Albaugh (r)** of Boeing accept the John R. Alison Award from AFA Board Chairman **Robert Largent**. The award recognized quality production of Atlas V (Lockheed) and Delta IV (Boeing) evolved expendable launch vehicles, which contributed to the achievement of 50 straight successful launches.

Crew Awards and Team Awards

Award	Recipients	Achievement
Airborne Battle Management Crew	12th Expeditionary Airborne Command & Control Sq., Crew Three, 116th Air Control Wing, Robins AFB, Ga.	Best airborne battle management crew
CMSAF Thomas N. Barnes Award	SSgt. Charles R. Tate III, 463rd Aircraft Maintenance Sq., Little Rock AFB, Ark.	Crew chief of the year
Lt. Gen. Claire L. Chennault Award	Maj. Clinton W. Eichelberger, 66th Weapons Sq., USAF Weapons School, Nellis AFB, Nev.	Best aerial warfare tactician
Brig. Gen. Ross G. Hoyt Award	Air Crew of Shadow 61, 67th Special Operations Sq., RAF Mildenhall, England	Best air refueling crew
Gen. Curtis E. LeMay Award	Crew of Bone 27, 37th Expeditionary Bomb Sq., 28th Bomb Wing, Ellsworth AFB, S.D.	Best bomber aircrew
Gen. Jerome F. O'Malley Award	Crew of Crowe 45, 55th Wing, Offutt AFB, Neb.	Best reconnaissance crew
Gen. Thomas S. Power Award	Capt. Melissa S. Ward and 1st Lt. James A. Mijatovich, 90th Space Wing, F.E. Warren AFB, Wyo.	Best missile combat crew
Space Operations Award	2nd Range Operations Sq., FTG-02 Range Crew, 30th Space Wing, Vandenberg AFB, Calif.	Best space operations crew
Lt. Gen. William H. Tunner Award	Crew of Ouzo 05, 7th Special Operations Sq., RAF Mildenhall, England	Best airlift aircrew
USAF Test & Evaluation Team of the Year	Small Diameter Bomb Test Team, Air Force Operational Test and Evaluation Center, Eglin AFB, Fla.	Best test team

Professional, Management, Civilian, and Environmental Awards

Award	Recipient
Gen. Billy Mitchell Award for C4 Excellence	Lt. Col. William J. Poirier, 35th Communications Sq., Misawa AB, Japan
Paul W. Myers Award for Physicians	Lt. Col. Christopher G. Scharenbrock, 60th Medical Ops Sq., Travis AFB, Calif.
Verne Orr Award for Human Resources	5th Bomb Wing, Minot AFB, N.D.
Juanita Redmond Award for Nursing	Capt. Christina R. Wheeler, Scott AFB, Ill.
Stuart R. Reichart Award for Lawyers	Lyndon B. James, 16th Air Force, Det. 3, RAF Mildenhall, England
Personnel Manager of the Year	Capt. Liza M. Theriault, 51st Mission Support Sq., Osan AB, South Korea
Civilian Wage Employee of the Year*	David L. Smart, 1st Special Operations Logistics Readiness Sq., Hurlburt Field, Fla.
Civilian Program Specialist of the Year*	Christopher R. Nordberg, 309th Maintenance Group, Hill AFB, Utah
Civilian Program Manager of the Year*	Robert D. LeFever, 820th Security Forces Group, Moody AFB, Ga.
Civilian Senior Manager of the Year	Robert C. Renko, Defense Cyber Crime Center, Linthicum, Md.
AFROTC Cadet of the Year	Maureen A. Hartney, University of Florida
CAP Aerospace Education Cadet of the Year	Maria T. Mangano, Iowa State University
Joan Orr Award for Air Force Spouse of the Year	Michele D. Jurgensen, Ankara, Turkey
Air Force Chaplain Service Award	Col. Gary L. Carlson, US Central Command Air Forces
AFMC Executive Management Award	Lynda T. Rutledge, 308th Armament Systems Wing, Eglin AFB, Fla.
AFMC Middle Management Award*	Maj. Kristi L. Forino, 558th Aircraft Sustainment Group, Hill AFB, Utah
AFMC Junior Management Award*	Capt. Richard L. Van Slyke, 516th Aero. Systems Group, Wright-Patterson AFB, Ohio
Gen. Edwin W. Rawlings Award for Environmental Excellence (Management)*	Kevin S. Hooper, 45th Civil Engineering Sq., Cape Canaveral AFS, Fla.
Gen. E.W. Rawlings Award (Technician)*	TSgt. Joseph A. Barry, 50th CES, Schriever AFB, Colo.

*Presented at recipient's location

Citations of Honor*

For the outstanding contribution of an individual or organization to the development of aerospace power.

*Presented at recipient's location.

Recipients	Achievement
ROVER Team, Office of the Secretary of the Air Force	Air Force and industry teamed to produce and deliver an advanced, live shared-video system, comprising a laptop, receiver, and cables, that enables pilots and ground controllers to simultaneously view a target. ROVER technology aided precise air-to-ground strikes.
301st Mission Support Group, NAS JRB Fort Worth, Tex.	Finished nearly 60 major renovation projects in Afghanistan, including helping build a helipad at Bagram Air Base. Expedited delivery of relief workers and supplies as first aerial port squadron supporting post-Katrina operations in New Orleans.
43rd Airlift Wing, Pope AFB, N.C.	Transported 330,000 troops and 78 million pounds of cargo. Created C-130 realignment plan for Central Command Air Forces. Evacuated 17,000 patients in more than 500 missions from Iraq and Afghanistan. Established first intermediate engine repair facility in theater. Conducted 130 convoy missions.
1st Special Operations Group, Hurlburt Field, Fla.	Carried out nearly 7,000 combat and humanitarian missions in Southwest Asia, Africa, South America, and the Philippines, eliminating or capturing thousands of enemy personnel and providing medical care to 6,000 civilians. Flew 18,941 combat hours.
658th Aeronautical Systems Squadron, Wright-Patterson AFB, Ohio	Provided 41 Predator unmanned aerial vehicle systems for combat operations. Sped delivery of MQ-9 Reaper UAVs to combat theater. Fielded Hellfire missile with expanded target area capability.
Rapid Attack ID & Detection and Reporting System Deployable Ground Segment Team, 379th Expeditionary Communications Squadron, Southwest Asia	Deployed to Southwest Asia as the sole defensive counterspace unit, employing satellite communications system to "find, fix, track, target" in record time to terminate enemy communications.
355th Logistics Readiness Squadron, Davis-Monthan AFB, Ariz.	Conducted more than 500 combat convoys. Trained Iraq's first vehicle operations flight. Facilitated materiel shipped into and out of Southwest Asia, including hundreds of critical air assets. Refueled US Customs aircraft, facilitating 6,200 counterdrug sorties.
86th Airlift Wing, Ramstein AB, Germany	Provided instruction and training for Iraqi pilots and maintainers, enabling stand up of Iraq's only airlift squadron. Evacuated 14,000 Americans out of Lebanon. Airlifted 200 tons of aid and 3,400 peacekeepers to Darfur. Moved troops and cargo for five commands spanning 65 countries.

Air National Guard and Air Force Reserve Command Awards

Award	Recipient	Achievement/Employer
CMSgt. Dick Red Award	CMSgt. Terry M. Allen, 175th Aircraft Maintenance Sq., Martin State Arpt., Md.	Best ANG maintainer
Maj. Gen. Earl T. Ricks Award	Crew of Jolly 92, 129th Rescue Sq., 129th Rescue Wing, Moffett Field, Calif.	Best ANG unit airmanship
Best Air National Guard Unit	114th Fighter Wing, Joe Foss Field, S.D.	Top ANG unit of the year
George W. Bush Award, Officer	Capt. Andrew F. Bennett, 290th Joint Comm. Support Sq., MacDill AFB, Fla.	Advanced C4 Solutions, Inc., Tampa, Fla.
George W. Bush Award, Enlisted	MSgt. Alice Sischo, 115th Mission Support Gp., Truax Field, Wis.	Kwik Trip, Inc., La Crosse, Wis.
Best Air Force Reserve Unit	446th Airlift Wing, McChord AFB, Wash.	Top AFRC unit of the year
President's Award	446th Airlift Wing, McChord AFB, Wash.	Best AFRC aircrew of the year
Citizen Airman Award, Officer	Maj. Thomas N. Jensen, 97th Airlift Sq., 446th Airlift Wing, McChord AFB, Wash.	Alaska Airlines, Seattle
Citizen Airman Award, Enlisted	SMSgt. Kenneth C. Crosby, 914th Aero-medical Evacuation Sq., Niagara Falls Arpt./ARS, N.Y.	Middle Atlantic Warehouse Distributor, Inc., Tonawanda, N.Y.

AFA Member of the Year



William Croom Jr., Alamo Chapter (Tex.).

Arthur C. Storz Sr. Membership Award—Chapter



Michael Clark, president of the Miami Chapter (Fla.).

AFA Christa McAuliffe Memorial Award for Teachers



Jennifer Sinsel, a fifth-grade teacher at Wichita Collegiate School in Wichita, Kan.

D.W. Steele Sr. Memorial Award

(AFA Unit of the Year)



President of the Central Oklahoma (Gerrity) Chapter, James Diehl.

Arthur C. Storz Sr. Membership Awards

Chapter Award

Miami, Fla.

President Michael S. Clark

Individual Award

Elizabeth McLaughlin

Carl Vinson Memorial, Ga.

Jack Gross Award

Small Chapter
Meridian, Miss.

President Langford Knight

Medium Chapter
Miami, Fla.

President Michael S. Clark

Large Chapter
Enid, Okla.

President James J. Jacobs

Extra Large Chapter
Montgomery, Ala.

President Thomas W. Gwaltney

Chapter Larger Than 1,500
Lance P. Sijan, Colo.

President Brian Binn

Gill Robb Wilson Award



Donald Lopez, deputy director of the Smithsonian Institution's National Air and Space Museum, Washington, D.C.

Outstanding State Organization

Florida

President E. Max Friedauer

Outstanding Chapters by Size

Extra Large Chapter (901+ members)

Montgomery, Ala.

President Thomas N. Gwaltney

Large Chapter (401-900 members)

Hurlburt, Fla.

President James B. Connors

Medium Chapter (201-400 members)

Col. H.M. "Bud" West, Fla.

President John E. Schmidt Jr.

Small Chapter (20-200 members)

Fort Dodge, Iowa

President Deann Faiferlick

Unit Exceptional Service Awards

Best Single Program

Lance P. Sijan, Colo.

President Brian Binn

Communications

Lufbery-Campbell, Germany

President Kenneth E. Gammons

Community Partners

Enid, Okla.

President James J. Jacobs

Community Relations

Tucson, Ariz.

President Karen Halstead

Overall Programming

Eglin, Fla.

President Edwin G. Jordan

Veterans' Affairs

Long Island, N.Y.

President William G. Strate-meier

Special Recognition— Sustained New Member Recruitment

These chapters have attained the quarterly new member recruitment goal for three consecutive quarters, extending from October 2006 to June 2007.

Ark-La-Tex, La.
Big Sky, Mont.
Bob Hope, Calif.
Central Florida, Fla.
Central Oklahoma (Gerrity), Okla.
Chautauqua, N.Y.
Col. H.M. "Bud" West, Fla.
Contrails, Kan.
Dacotah, S.D.
David D. Terry Jr., Ark.
Delaware Galaxy, Del.
Edward J. Monaghan, Alaska
Eglin, Fla.
Fairbanks Midnight Sun, Alaska
Fort Dodge, Iowa
Gen. Charles A. Horner, Iowa
Gen. David C. Jones, N.D.
Gold Coast, Fla.
Golden Triangle, Miss.
Green Mountain, Vt.
Happy Hooligan, N.D.
Harry S. Truman, Mo.
Hurlburt, Fla.
Lance P. Sijan, Colo.
Lincoln, Neb.
Lloyd R. Leavitt Jr., Mich.
Meridian, Miss.
Miami, Fla.
MiG Alley, South Korea
Montgomery, Ala.
Newport Blue & Gold, R.I.
Paul Revere, Mass.
Red River Valley, N.D.
Red Tail Memorial, Fla.
Roanoke, Va.
Robert H. Goddard, Calif.
Rushmore, S.D.
Savannah, Ga.
Shooting Star, N.J.
Tucson, Ariz.
Ute-Rocky Mountain, Utah

Special Recognition—Chapter Growth

These chapters have realized a growth in total membership from June 2006 to June 2007.

Lindbergh/Sikorsky, Conn.
Flying Yankees, Conn.
Minuteman, Mass.
Paul Revere, Mass.
Newport Blue & Gold, R.I.
Gen. Carl A. "Tooney" Spaatz, N.Y.
Chautauqua, N.Y.
Olmstead, Pa.
Lehigh Valley, Pa.
Total Force, Pa.
Altoona, Pa.
Delaware Galaxy, Del.
Leigh Wade, Va.
Roanoke, Va.
Langley, Va.
Tarheel, N.C.
Cape Fear, N.C.
Blue Ridge, N.C.
Kitty Hawk, N.C.
Strom Thurmond, S.C.
Red Tail Memorial, Fla.
Florida Highlands, Fla.
Miami, Fla.
Hurlburt, Fla.
Falcon, Fla.
Col. H.M. "Bud" West, Fla.
Gen. Nathan F. Twining, Fla.
Birmingham, Ala.
Tennessee Valley, Ala.
Razorback, Ark.
Meridian, Miss.
Chattanooga, Tenn.
H.H. Arnold Memorial, Tenn.
Gen. Bruce K. Holloway, Tenn.
Fort Wayne, Ind.
Lexington, Ky.
Gen. Joseph W. Ralston, Ohio
Big Sky, Mont.
Happy Hooligan, N.D.
Red River Valley, N.D.
Dacotah, S.D.
Gen. Charles A. Horner, Iowa
Earl D. Clark Jr., Mo.
Lincoln, Neb.
Enid, Okla.
Central Oklahoma (Gerrity), Okla.
Alamo, Tex.
Abilene, Tex.
Ghost Squadron, Tex.
Denton, Tex.
Cochise, Ariz.
Llano Estacado, N.M.
Lance P. Sijan, Colo.
Cheyenne Cowboy, Wyo.
Fairbanks Midnight Sun, Alaska
Snake River Valley, Idaho
Inland Empire, Wash.
Keystone, Pacific
MiG Alley, Pacific

Special Recognition— State Growth

These states have realized a growth in total membership from June 2006 to June 2007.

Connecticut
Massachusetts
Rhode Island
Delaware
North Carolina
Tennessee
Kentucky
South Dakota
Iowa
Oklahoma
Colorado

Special Recognition— Region Growth

These regions have realized a growth in total membership from June 2006 to June 2007.

New England
Texoma

EDUCATION AWARDS

Chairman's Award for Exceptional Performance in Aerospace Education

Presented to a maximum of three chapters annually for sustained performance in aerospace education programs. To qualify, a chapter must have received the Aerospace Education Council award this year and the prior year.

Wright Memorial, Ohio
Donald W. Steele Sr. Memorial, Va.
C. Farinha Gold Rush, Calif.

Aerospace Education Council Award for Sustained Performance in Aerospace Education

Presented to chapters for outstanding aerospace education programs.

Albuquerque, N.M.
Ark-La-Tex, La.
Blue Ridge, N.C.
Brig. Gen. James R. McCarthy, Fla.
Cape Canaveral, Fla.
Chattanooga, Tenn.
C. Farinha Gold Rush, Calif.
Col. H.M. "Bud" West, Fla.
Donald W. Steele Sr. Memorial, Va.
Eglin, Fla.
Falcon, Fla.
Fort Dodge, Iowa
Gen. Charles A. Gabriel, Va.
Gold Coast, Fla.
Harry S. Truman, Mo.
Kitty Hawk, N.C.
John C. Meyer, Fla.
Miami, Fla.
Montgomery, Ala.
Northern Shenandoah Valley, Va.
Northern Utah, Utah
Red Tail Memorial, Fla.
Richard I. Bong, Minn.
Roanoke, Va.
Savannah, Ga.
Scott Berkeley, N.C.
Swamp Fox, S.C.
Tarheel, N.C.
Tidewater, Va.
Tucson, Ariz.
Wright Memorial, Ohio

MEMBERSHIP AWARDS

The following chapters have qualified for these awards based on their recruitment of new members during the 12-month period ending June 30, 2007.

Community Partner Membership Awards

Gold Award

Presented in the field to chapters whose Community Partners represent at least six percent of overall chapter membership, with a minimum number of Community Partners. The minimum number is determined by chapter size.

Altus, Okla.	Hurlburt, Fla.
Carl Vinson Memorial, Ga.	Lance P. Sijan, Colo.
Central Oklahoma (Gerrity), Okla.	Leigh Wade, Va.
Cheyenne Cowboy, Wyo.	Lloyd R. Leavitt Jr., Mich.
Cochise, Ariz.	McChord AFB, Wash.
Col H.M. "Bud" West, Fla.	Mercer County, N.J.
Contrails, Kan.	Meridian, Miss.
Del Rio, Tex.	Miami, Fla.
Delaware Galaxy, Del.	Montgomery, Ala.
Enid, Okla.	Northeast Texas, Tex.
Fairbanks Midnight Sun, Alaska	Richard D. Kisling, Iowa
Fort Wayne, Ind.	Steel Valley, Ohio
Gen. David C. Jones, N.D.	Swamp Fox, S.C.
Golden Triangle, Miss.	Ute-Rocky Mountain, Utah
Happy Hooligan, N.D.	Wright Memorial, Ohio
High Desert, Calif.	

Achievement Award

Presented in the field to chapters whose Community Partners represent at least three percent of overall chapter membership, with a minimum number of Community Partners. The minimum number is determined by chapter size.

Brig. Gen. Bill Spruance, Del.	Langley, Va.
Cape Canaveral, Fla.	Lt. Col. B.D. "Buzz" Wagner, Pa.
Charles Hudson, Calif.	Maj. Gen. Charles I. Bennett Jr., Calif.
Chautauqua, N.Y.	Mel Harmon, Colo.
David D. Terry Jr., Ark.	Red Tail Memorial, Fla.
Earl D. Clark Jr., Mo.	Richard I. Bong, Minn.
Fort Dodge, Iowa	Robert H. Goddard, Calif.
Frank Luke, Ariz.	Shooting Star, N.J.
Gen. B.A. Schriever Los Angeles	Strom Thurmond, S.C.
Gen. Charles A. Horner, Iowa	Tidewater, Va.
Gen. Charles L. Donnelly Jr., Tex.	Total Force, Pa.
Jackson, Miss.	William A. Jones III, Va.
Joe Walker-Mon Valley, Pa.	

Jimmy Stewart Media Award

Given annually to the AFJROTC unit that produces the most creative public service video. The theme of the video is different each year, but is always patriotic/military oriented. This award is named to honor Brig. Gen. James Stewart—actor, warrior, and a charter member of the Air Force Association. He was America's leading man who served his country in World War II.

Flagler Palm Coast High School AFJROTC
Bunnell, Fla.

The topic this year was "What was the most significant event in the Air Force's first 60 years?"

Individual Awards

Presented for outstanding service.

Presidential Citation

John Timothy Brock, Fla.
David Buckwalter, R.I.
David Cummock, Fla.
Mary Feightner, Okla.
Rodgers Greenawalt, S.C.
Stan Hood, S.C.
Joe Panza, Ala.
Joe Price, Va.
Joan Sell, Colo.
Thomas G. Shepherd, W.Va.
Stephan Pappas, Wyo.

Central East Region

Medal of Merit

Harold Barton, Va.
Tom Bucklin, Va.
Nancy Cribb, Va.
John Friedman, Del.
Norman Haller, Va.
Curt Osterheld, D.C.
Michelle Ryan, Va.
Charles Winstead, Va.

Exceptional Service Award

Nikki Barry, Va.
Thomas Bass, Md.
James Holt, Va.
Fred Richardson, Va.
Sean Ryan, Va.
William Williams, Va.

Far West Region

Medal of Merit

Marjorie Beckmann, Calif.
Chad Cerreto, Calif.
Nancy Driscoll, Calif.
Eugene Grimm, Calif.
Martin Ledwitz, Calif.
Carlos Ortiz, Calif.
Jerry Saunders, Calif.
Robert D. Smith, Calif.

Exceptional Service Award

Joseph Battaglia, Calif.
Lee Greer, Calif.
Barbara Konieczny, Calif.
Arthur Trost, Calif.

Florida Region

Medal of Merit

Steve Czonszka, Fla.
Leslie Matheson, Fla.

Merry Ortega, Fla.
Ann Shambo, Fla.
Danny Webb, Fla.
William Yucuis, Fla.

Exceptional Service Award

Jeri Martin, Fla.
Sandra S. Wood, Fla.

Great Lakes Region

Medal of Merit

Gerhard Gaiser, Ind.
Robert Goedel, Ind.
David Judson, Ohio
Al Schoolcraft, Ohio
George Simons, Ohio
Charles Spencer, Ohio
Michael Winslow, Ohio

Exceptional Service Award

William Howard, Ind.
Kent Owsley, Ohio
Shiela Wallace, Ohio

Midwest Region

Medal of Merit

Von Blunt, Iowa
David Cory, Mo.
Donna Dee, Iowa
Deann Faiferlick, Iowa
Richard Schlegel, Iowa
Robert Tovado, Neb.

Exceptional Service Award

Bruce Bachellor, Iowa
Michael Cook, Neb.
Charles McDonald, Iowa
Mark Musick, Neb.
Jerry Needham, Neb.

New England Region

Medal of Merit

James Anderson, Vt.
Mark Harysch, R.I.
Brad Jensen, Vt.
Lisa McCurdy, Mass.
Udo McGregor, Mass.
Yvonne Thurston, Mass.

Exceptional Service Award

Ronald Adams, Mass.
Richard Codling, Mass.
Louis Emond, N.H.

North Central Region

Medal of Merit

Al Garver, Mont.
Paul Johnson, Minn.

Exceptional Service Award

Ronald Mielke, S.D.
Robert McGonigal, Minn.
James Simons, N.D.

Northeast Region

Medal of Merit

Robert Egolf, Pa.
Frank Martins, N.J.
Edgar Shallenberger, Pa.

Northwest Region

Medal of Merit

Gary Brackett, Wash.
Mary Mayer, Ore.
Mary Moss, Wash.
Darlene Parrow, Ore.
Jack Wilbur, Alaska
Vivian Wilson, Wash.

Exceptional Service Award

Carlene Joseph, Wash.
Fred Rosenfelder, Wash.

Rocky Mountain Region

Medal of Merit

Richard Ames, Wyo.
Russ Anarde, Colo.
Marvin Berry, Utah
Brian Binn, Colo.
Cary Trafton, Colo.
Walter Saeger, Utah

Exceptional Service Award

James Aadland, Utah
Jeri Andrews, Colo.
Ronald Geurts, Colo.

South Central Region

Medal of Merit

Michael Asselin, Miss.
Leonard Buch, Ark.
Bob Frye, Ala.
John Glass, Tenn.
Richard T. Johnson, Miss.
Langford Knight, Miss.
Ann Reichenbach, Ark.

Exceptional Service Award

Amy T. Brown, Ala.

Thomas W. Gwaltney, Ala.
Pat McCoy, Ala.
Judy Rice, Ala.

Southeast Region

Medal of Merit

David Griffiths, N.C.
George Medina, N.C.
Donald Michels, Ga.
Jay Seward II, S.C.
Lance Young, S.C.

Exceptional Service Award

Joyce Feuerstein, N.C.
Ronald Powell, S.C.

Southwest Region

Medal of Merit

Elizabeth Evans, Ariz.
Joseph Peltier III, Nev.
Helen Oster, Ariz.
James O. Turner, Ariz.
Rex Weber, Ariz.

Exceptional Service Award

Ramon Barajas, Ariz.
Karen Halstead, Ariz.

Texoma Region

Medal of Merit

Nancy Bolinger, Okla.
Robert Hall, Tex.
Kelly Jones, Tex.
Joel Mann, Okla.
Dan Ohnesorge, Okla.
Rick Pena, Okla.
James Perry, Tex.
Pattie Rosas, Tex.
Joe Shurila, Okla.

Exceptional Service Award

Clay Church, Tex.
Terry Cox, Okla.
James Diehl, Okla.
Richard Walker, Tex.

Europe

Medal of Merit

Kenneth E. Gammons, Germany

Named in Memorial Tribute

Deaths during the past year that were formally recognized at the convention.

Alva Appel

Lt. Col. Gregory H. Bradford, USAF (Ret.)

Lt. Col. W.W. Brown, USAF (Ret.)

Lt. Col. Norman Collard, USAF (Ret.)

Brig. Gen. Darrell Cramer, USAF (Ret.)

Carol Denicole

Maj. Russell Martin Dobyns, USAF (Ret.)

Gen. Russell E. Dougherty, USAF (Ret.)

Brig. Gen. Donald Dressler, USAF (Ret.)

Col. James Fagan, USAF (Ret.)

Joseph R. Falcone

Col. E.F. "Sandy" Faust, USA (Ret.)

Lt. Col. Romeo Ferretti, USAF (Ret.)

Lt. Col. Carl M. Folsom, USAF (Ret.)

Herbert Foster

William W. Glasmann Jr.

Brig. Gen. John O. Gray, USAF (Ret.)

Maj. Gen. Rex A. Hadley, USAF (Ret.)

Frances Northrop Hardy

Lt. Col. C.R. Hedrick, USAF (Ret.)

SMSgt. Carroll Herndon, USAF (Ret.)

Lt. Col. Roy J. Hopper, USAF (Ret.)

Maj. Gen. Doyle E. Larson, USAF (Ret.)

Capt. Joseph G. Lerner, USAF (Ret.)

Alwyn T. Lloyd

Col. Nathan Mazer, USAF (Ret.)

Brig. Gen. Robert F. McDermott, USAF (Ret.)

Robert E. Meinecke

Lt. Col. Chase J. Nielsen, USAF (Ret.)

Brig. Gen. Robin Olds, USAF (Ret.)

Adrian T. Peschl

CMSAF Gary R. Pfingston, USAF (Ret.)

Lt. Col. Samuel L. Rich, USAF (Ret.)

Col. Robert R. Scott, USAF (Ret.)

SSgt. Robert S. Seidel, USAF (Ret.)

Bryan Sharratt

Janelle Shaud

Hon. John C. Stetson

Harold C. Stuart

Lt. Col. Andrew J. Stough, USAF (Ret.)

Sen. Craig Thomas

Lt. Col. James O. Tyler, USAF (Ret.)

Lt. Col. Jay Zeamer, USAF (Ret.)

Dorothy Jule Zumwalt



Air Force Councils

Air National Guard Council



Maj. Gen. Fred R. Sloan, ANG (Ret.) (Chair)

CMSgt. Lori Ashness
Maj. Robert T. Botkin
Brig. Gen. Hugh T. Broomall
Maj. Gen. Michael J. Haugen, ANG (Ret.)
CMSgt. Michael Meyers
CMSgt. Jon Rosa
Col. J. Kurt Vogel Jr.
Maj. Gen. Mason C. Whitney, ANG (Ret.)
Lt. Gen. Craig R. McKinley (Advisor)
SMSgt. Jennifer C. McKinney (Liaison)

Civilian Advisory Council



Jeffrey C. Allen (Chair)

Sheila Barboza
James Hamilton
Raymond Pabilonia
Cynthia Manchester (Liaison)

Company Grade Officers Council



Capt. Jason Parker (Chair)

Capt. Matt Altman
Capt. Jill A. Durbin
Capt. Jason Kalmon
Capt. Jason J. Miller
Capt. Kevin Osborne
Capt. Jeremy B. St. John
Capt. Gregory Vice
Capt. Gregory Duffy (Liaison)

Enlisted Council



CMSgt. Tenda L. Voegtle (Chair-Liaison)

SrA. Linn Aubrey
SMSgt. Tammy L. Brangard-Hern
SMSgt. Ronald A. Colaninno
TSgt. Jeremy L. Griffin
SSgt. Matthew J. Hefti
SSgt. Matthew C. Hulsman
MSgt. Sachiko D. Jones
SSgt. Jonathan C. McCoy
SSgt. David Orvosh
SSgt. Richard Rose Jr.
MSgt. Lawrence B. Taylor
TSgt. Billy D. Tramel Jr.
SSgt. Geoffrey M. Welsh

Reserve Advisory Council



Brig. Gen. Wallace W. Farris Jr. (Chair)

Capt. Melanie Englert
SMSgt. Alan H. Gingras
SSgt. Dominique D. Hogan
SMSgt. Phyllis M. Joyner
Capt. Jennifer Kowalski
Lt. Col. Robert Palmer
SMSgt. Anthony Rittwager
Lt. Col. Meleah Whetstone
SSgt. Kris Winder
CMSgt. David Conaway (Liaison)
Wayne Gracie (Advisor)
Col. Michael F. LoGrande (Advisor)



Veterans/Retiree Council



Walter S. Hogle Jr. (Chair)

Paul Arcari
Rod Ellison
Richard E. Fitzhugh
David A. Guzman
Charles E. Lucas
Russell Mank
Jimmy L. Miller
Donald Taylor
Elia T. Vasilopoulos

By John T. Correll, Contributing Editor

Weinberger-Powell OBE

"The Weinberger-Powell Doctrine is a nostalgic yearning for the days when wars were wars (and men were men); when states fought each other force-on-force in open battle; when progress could be measured by divisions destroyed, factories bombed, and territory taken; and when the enemy's unconditional surrender could be sought and obtained. It has very little relevance in a world in which intrastate wars and transnational terrorism have replaced interstate warfare as the primary threat to US security."—**Jeffrey Record, Air War College, Strategic Studies Quarterly, fall issue.**

Rumsfeld's Grasp

"I'm not saying Donald Rumsfeld is stupid, far from it. But the intellectual grasp of the complexity and breadth of what this campaign was going to be about—it seems to me it wasn't there."—**Retired Gen. Mike Jackson, head of the British Army during the invasion of Iraq, Washington Post, Sept. 8.**

Regress to the (Hollywood) Mean

"Anti-war movies are coming out now because public opinion has crystallized against the war. It's safe for Hollywood to make these kind of movies without risking much of a backlash. There's always a risk when you make an anti-war movie in the middle of the war that people are going to be ticked off."—**Darrell West, expert in politics and the mass media, Brown University, Agence France-Presse, Aug. 21.**

The Airman's Perspective

"An airman's perspective is, by definition, multidimensional, global, and strategic. We instinctively address problems in a comprehensive, three-dimensional, nonlinear manner, and we intuitively factor in the fourth dimension: time. Our way of thinking starts at the top, with the first-order, overarching determination of desired effects. We systematically work our way through the ensuing tasks and second- and third-order consequences. We size up situations, integrate seemingly disparate data points, seize on opportunities, and act

decisively."—**Gen. T. Michael Moseley, Air Force Chief of Staff, Strategic Studies Quarterly, fall issue.**

The All-Recruited Force

"This is the first time since the Civil War the United States has fought an extended conflict with an entirely volunteer force. The test for the volunteer force is, can the United States sustain a significant volunteer force over a long conflict? It's more accurately called an all recruited force because we aim at high-quality entrants."—**David S.C. Chu, undersecretary of defense for personnel and readiness, Washington Examiner, Sept. 1.**

A Blast From the Past

"The F-16A, as it was in 1986, can whip today's F-22. You'd think the F-22 would be able to whip some antique."—**Pierre Sprey, one of the original members of the "Military Reform" movement in the 1970s and 1980s, Cybercast News Service, Aug. 31.**

Nunn Urges Talking

"I think the Russians see the danger from Iran, but they have, of course, different tactical considerations, and they want the United States to talk bilaterally to the Iranians, as well as multilaterally, and I think on that point the Russians are right. I've said for a long time that we need to be talking to the Iranians. I don't think you have very much success by refusing to talk to people whose behavior you want to change, and certainly you want to change it without a war if that's at all possible."—**Former Sen. Sam Nunn during visit to Russia, Atlanta Journal-Constitution, Sept. 2.**

Headline of the Month

"USAF Gets Far Too Little Credit for Role in Iraq."—**Toronto Sun, Aug. 26.**

Victims of Withdrawal

"One unmistakable legacy of Vietnam is that the price of America's withdrawal was paid by millions of innocent citizens whose agonies would add to our vocabulary new terms like 'boat people,' 're-education camps,' and 'killing fields.'"—**President Bush**

to Veterans of Foreign Wars national convention, Aug. 22.

Long-Range Russians

"In 1992, the Russian Federation unilaterally ended the flights of its strategic aviation in faraway areas patrolled by the military. Unfortunately, not everyone followed our example, and strategic aviation flights by other states continue. This causes certain problems for guaranteeing the safety of the Russian Federation."—**Russian President Vladimir V. Putin, announcing resumption of regular long-range air patrols, Washington Post, Aug. 18.**

Willy-Waving

"It's willy-waving. They are out to make a point, that they are still here, and that they can't be forgotten about or ignored. But it isn't something anyone has to worry about."—**Robert Hewson, editor of Jane's Air-Launched Weapons, on largely "symbolic threat" of Russia's aging Tu-95 bombers, Guardian Unlimited, Sept. 7.**

Springboards for Cyber-war

"Most Americans would be surprised to learn that many Islamist hacker sites are hosted in the United States. Consider it an unmistakable and intended irony that these cyber jihadists are using our own domestic Internet resources against us."—**Jim Melnick, senior threat analyst at VeriSign Inc., Boston Globe, Aug. 19.**

Different Difficulty

"I mentioned mutually assured destruction in the Cold War. If that war ever came, the Soviet Union's most deadly forces—ICBMs, tank armies—they were actually relatively easy to find, but they were very hard to kill. Intelligence was important, don't get me wrong, but intelligence was overshadowed by the need for raw, sheer firepower. Today, the situation is reversed. We're now in an age in which our primary adversary is easy to kill, he's just very hard to find. So you can understand why so much emphasis in the last five years has been placed on intelligence."—**CIA Director Gen. Michael V. Hayden, Council on Foreign Relations, Sept. 7.**

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By Frances McKenney, Assistant Managing Editor

AFA's Teacher of the Year

At the Air Force Association's Air & Space Conference and National Convention, Jennifer L. Sinsel, a fifth-grade science teacher from Wichita, Kan., received the Christa McAuliffe Memorial Award as National Teacher of the Year.

Sinsel received the award for her work at Wichita Collegiate School, a private school with nearly 1,000 students ranging from preschool level to the 12th grade. She had been at the school since 1999 and taught her students through discovery activities and hands-on projects such as a simulated mission to Mars. She is now teaching gifted students in grades three to five at Bostic Traditional Magnet, a public school in Wichita, and is in the process of raising funds to build a shuttle simulator there.

AFA Chairman of the Board Robert E. Largent presented the award to Sinsel at the convention's opening day awards ceremony. She is the 22nd recipient of the honor.

The Christa McAuliffe award recognizes a public, private, or parochial school teacher in grades K-12 who promotes aerospace technologies through innovative curriculum in the classroom. The award is named for S. Christa McAuliffe, the Concord, N.H., high school teacher who was to become the first teacher in space. She died in the 1986 Challenger space shuttle explosion.

Sinsel was one of 35 finalists considered by NASA in 2003 to become an educator-astronaut.

AFA's **Roanoke Chapter** nominated the second-place Christa McAuliffe award recipients, Sandy Sampson and Robert Keck, team teachers from the Gereau Center for Applied Technology and Career Exploration. The school is located in Rocky Mount, Va. Kareen Borders of Key Peninsula Middle School in Lakebay, Wash., received the third-place award. The **McChord Chapter (Wash.)** nominated her for the honor.

Keeping Hydrated

The **Wright Memorial Chapter** in Dayton, Ohio, led some 40 volunteers in offering cups of water to runners passing an aid station during the



AFA Teacher of the Year Jennifer Sinsel works with fifth-grader Marcus Phox at Wichita Collegiate School in Kansas. They are programming a robotic vehicle to navigate "Mars"—actually a large rug strewn with obstacles. This activity teaches Sinsel's students about geology, measurement, scientific inquiry, and technology.

11th annual Air Force Marathon in September.

Some 1,600 people finished the full 26-mile marathon, held at Wright-Patterson Air Force Base. Some 4,700 others were registered for associated races and teams. Josh Cox, a civilian from Mammoth Lakes, Calif., won the marathon with a course record of two hours, 20 minutes, 57 seconds. AFRC Lt. Col. Mark Cucuzzella, a physician at Andrews AFB, Md., was the marathon's first military finisher. Cucuzzella, from Shepherdstown, W.V., came in fifth overall, at 2:34:26. He won the marathon last year. Second Lt. Karissa Goodrich, 22, was the first female finisher, at 3:06:54. She is from the 17th Training Wing, Goodfellow AFB, Tex.

This was the first time the Wright Chapter manned a hydration station. It was located between mile 17 and 18 on the marathon route. Chapter volunteers handing out water included Chapter President Dennis Drayer, Government Relations VP John W. McCance, Leadership Development VP W. Ron Goerges, Jeff A. Liffick, Michael Winslow, and David Allen.

Liffick reported that the group worked

with about 30 AFROTC cadets from Wright State University, the University of Dayton, and Cedarville University. He said this event gave the chapter members an opportunity to serve as mentors to the cadets.

Double Anniversary

September was an anniversary month for the **Iron Gate Chapter (N.Y.)**, as well as the Air Force.

This year, the chapter marked the 46th anniversary since its chartering in 1961 with a meeting that highlighted a unique Air National Guard unit—the 109th Airlift Wing from Stratton ANGB, N.Y. Col. Anthony German—the wing commander and a chapter member—was guest speaker.

Located north of Schenectady, the 109th flies C-130s equipped with skis so the transports can operate "from Pole to Pole," as its unofficial motto proclaims. In the 1970s, the wing began flying supply missions to reach Distant Early Warning radar sites in Greenland. In 1988, it began missions to Antarctica to support Navy and National Science Foundation units there. The 109th continues to support scientific research missions in Greenland and Antarctica,

along with other federal missions and deployments to Southwest Asia.

Chapter President Frank Hayes noted that the guests for this double anniversary event came from eight states. Those who cut the anniversary cake were George Burns, Pamela Freytag, Irwin Gorman, and J.S. Holtner.

The A2 on ISR

Lt. Gen. David A. Deptula, the deputy chief of staff for intelligence, surveillance, and reconnaissance (A2), was guest speaker for the August luncheon meeting of the **Donald W. Steele Sr. Memorial Chapter (Va.)**.

He spoke about the Air Force's three-pronged approach to intelligence-surveillance-reconnaissance: managing ISR capability, organizing it as a USAF-wide enterprise, and developing its intel general officers for joint positions.

Steele Chapter newsletter editor George DeFilippi said Deptula left the chapter members with the striking thought that "ISR is no longer a support function but a direct warfighting capability."

During the chapter luncheon, Chapter President Peter Gavares announced the winners of the chapter's scholarships and presented \$1,000 each to SSgt. Cheryl Rush and Jennifer Kunkel. Other \$1,000 recipients were Kathryn Tidaback, Jordyn Ginnity, Susan Chitwood, and Sean Croghan. The \$2,000

John P. Henebry, 1918-2007

Retired Maj. Gen. John P. "Jock" Henebry, former AFA Chairman of the Board and National President, died Sept. 30 in Evanston, Ill., of heart failure. He was 89.



Henebry was born in Plainfield, Ill., on Feb. 14, 1918, and graduated from the University of Notre Dame in 1940. In July 1940, he entered aviation cadet training and received his wings in March 1941 at Kelly Field, Tex. The next year, he was sent to Australia and began to make his mark in the Southwest Pacific Theater as a combat pilot. He flew more than 200 missions in the B-25, A-20, and A-26 and joined other pilots in sinking an entire enemy convoy during the Battle of the Bismarck Sea. A few months later, he led an air attack that, in effect, destroyed the Japanese stronghold at Rabaul, New Britain.

Released from active duty as a colonel in 1946, he was promoted to brigadier general in the Reserve and commanded the 437th Troop Carrier Wing. He was recalled to active duty and led the 315th Air Division during the Korean War.

General Henebry was AFA's National President from 1956 to 1957 and its Board Chairman 1957-58. During his successful civilian business career, he founded a private aviation service and owned several businesses.

recipients were 1st Lt. Jeffrey Genda and Thomas Junyszek.

Bob Nicholson received Chapter Teacher of the Year honors at the gathering. He teaches earth sciences, oceanography, and astronomy to grades 10 through 12 at T.C. Williams High School in Alexandria, Va. His award included a copy of a statement describing his achievements. It had been read

into the Congressional Record by US Rep. James P. Moran (D-Va.).

Three Plus Three

Good news came in groups of three for the **Joe Walker-Mon Valley Chapter (Pa.)**: For the third time, someone from the chapter won the state Member of the Year award. Also, the chapter gained a new member who is the third generation in his family to join AFA.

James M. Cain, chapter secretary, received the Pennsylvania State Member of the Year award at the AFA state convention in State College in June. He has held every chapter office and has been president several times. He was the third chapter member in the past five years to earn the honor. Chapter President William J. Worthington took home the award in 2002. The next year, David L. DuBarr, now chapter VP, received the award.

Earlier this year, the chapter presented a scholarship to DuBarr's son, Chad, and in July signed up the young man as a member. Chad is a freshman at Waynesburg University (Pa.), majoring in business administration. His grandfather, Korean War Army veteran Winfield DuBarr, and father are both former chapter presidents. David joined AFA first, in 1998. He is a retired tech sergeant who served as a recruiter in the Monongahela area.

Keeping the Flame

The 1889 Johnstown Flood has been called one of the biggest news stories of the latter 19th century. More than 2,000 people died when the combination of heavy rainstorm and a dam collapse washed away several communities in western Pennsylvania. An eternal flame

AFA In Action

The Air Force Association works closely with lawmakers on Capitol Hill, bringing to their attention issues of importance to the Air Force and its people.

Outstanding Airmen on the Hill

The Air Force's 12 Outstanding Airmen joined AFA delegates for the Congressional Breakfast Program, held as part of the National Convention and Air & Space Conference and Aerospace Technology Exposition. The airmen toured Capitol Hill and made office calls on their Congressional Representatives.

SMSgt. Tammy L. **Brangard-Hern**, from Randolph AFB, Tex., and SrA. Linn **Aubrey**, from Lackland, met with Texas Republican Rep. Lamar **Smith's** military legislative assistant Mark **Sanchez**. SMSgt. Ronald A. **Colaninno** met with Bill **Jorch**, MLA for Rep. Carolyn **McCarthy** (D-N.Y.).

MSgt. Sachiko D. **Jones** met Rep. Mike **McIntyre** (D-N.C.). Rep. Peter **Roskam**, (R-Ill.) met MSgt. Lawrence B. **Taylor**.

TSgt. Jeremy L. **Griffin** was greeted by Eric **Hannis**, MLA for Rep. Dave **Weldon** (R-Fla.). Griffin is stationed at Patrick AFB, Fla. Rep. Ron **Kind** (D-Wis.) met SSgt. Matthew J. **Hefti**, while SSgt. Matthew **Hulsman** met Rep. Baron **Hill**, an Indiana Democrat. Rep. John **Mica** (R-Fla.) greeted SSgt. Jonathan C. **McCoy**. Also from Florida, Rep. Kathy **Castor** (D), met SSgt. David L. **Orvosh**. Republican Rep. Terry **Everett** (Ala.) welcomed SSgt. Richard W. **Rose Jr.** to his office. North Carolina Rep. Robin **Hayes** (R) met SSgt. Geoffrey M. **Welsh**, who is stationed at Seymour Johnson AFB, N.C.

Air Force Chief of Staff Visits With Staffers

AFA gave professional staffers on Capitol Hill an opportunity to meet with Gen. T. Michael Moseley, the Air Force Chief of Staff, during the AFA conference. This invitation brought 40 staff members—the largest number ever—to the conference. They received an update on combat operations in Iraq and Afghanistan and had a chance to ask Moseley questions on a wide range of issues.

at a Johnstown park memorializes the flood victims, and the **Lt. Col. B.D. "Buzz" Wagner Chapter (Pa.)** wants to make sure it stays lit.

According to Chapter President William B. Burns, wind in the valley tends to blow out the flame, and chapter members have been asking around for help in solving this problem. He said they had "many doors slammed" in their faces until Chapter Secretary Robert C. Rutledge suggested contacting the University of Pittsburgh at Johnstown.

Burns said the chapter is now working with Gregory M. Dick, associate professor and head of the Department of Electrical Engineering Technology. Dick told the chapter that the problem sounded like a good candidate for a senior class project.

Why should the AFA chapter get involved at all? Burns said that so many people died in the flood—and in more recent floods in 1936 and 1977—that almost every family in town, including those of chapter members, has a connection to these events. "We've always prided ourselves in being a community-oriented organization," Burns explained.

More AFA Chapter News

■ In August, John W. Glass III, president of the **Chattanooga Chapter (Tenn.)**, presented a laser-engraved AFA glass mug to Boy Scout Nathan Kennard, who had earned an aviation merit badge in the process of becoming an Eagle Scout. Glass presented the mug at a Boy Scout Court of Honor for four troops in the Signal Mountain area. He said he presents the award to every local Boy Scout who completes the aviation badge and makes Eagle and once gave out four in a year. "It gives them an incentive," he said about the mug award. "The kids compete for this."

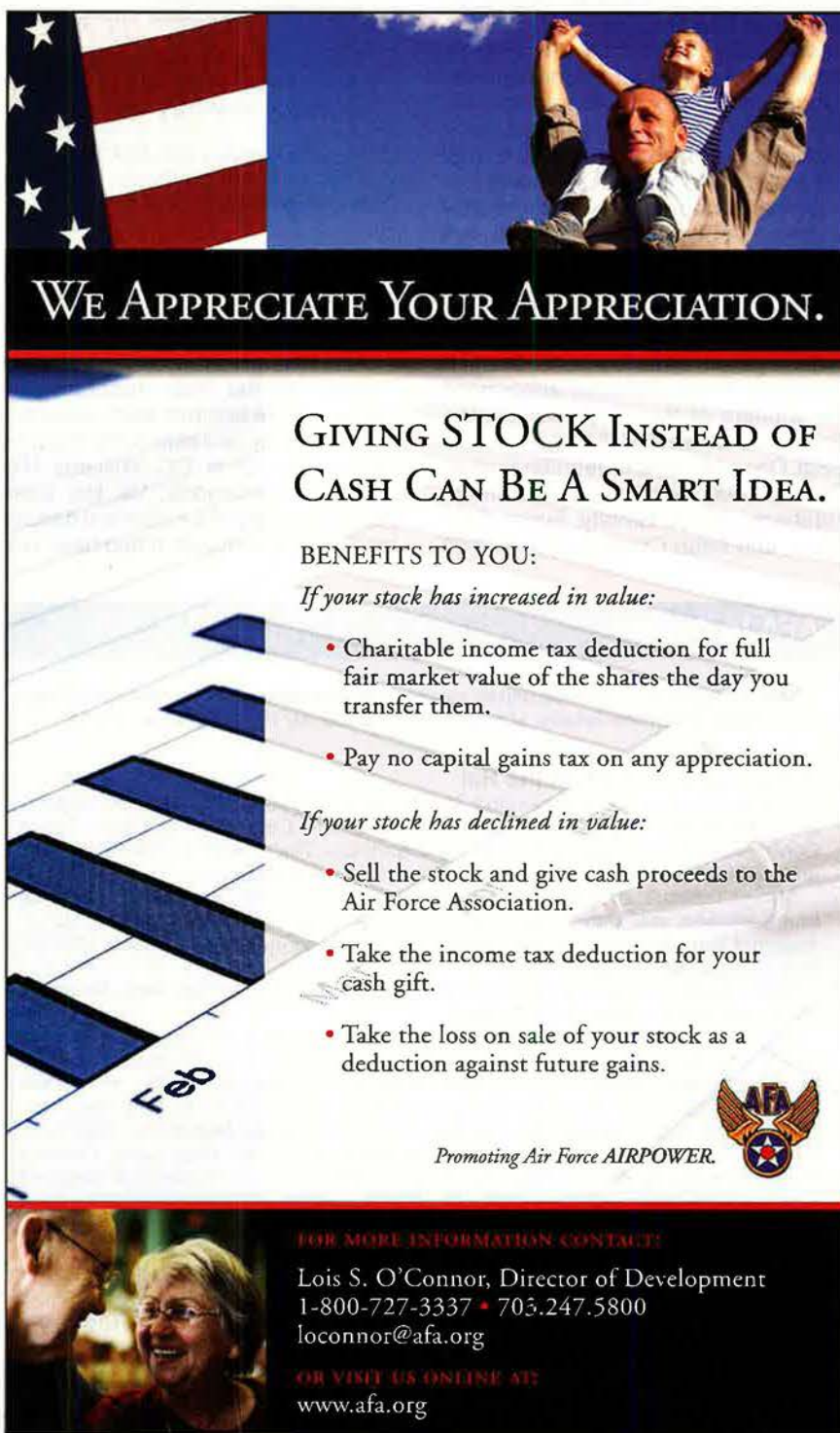
■ It was a two-state effort: Sponsored by the **Richard I. Bong Chapter** of Duluth, Minn., Craig Anderson was named Wisconsin State Teacher of the Year for 2007. Anderson is a Wisconsin resident, but his school—Northwestern Middle School, in Poplar, Wis.—participates in the AFA-USA *Today* newspaper's Visions of Exploration program in Minnesota, and he met the teacher of the year criteria using Minnesota guidelines.

■ The **Del Rio Chapter** in Texas held its third annual golf tournament, combining fund-raising for a chapter scholarship with the celebration of the Air Force's 60th anniversary. Held on Laughlin Air Force Base, the tournament attracted some 45 golfers, many of them Community Partners and including Col. Mike Minahan, the 47th Fighter Train-

ing Wing commander, and local mayor Efrain V. Valdez. Chapter President Larry E. Martwig led the preparations for a barbecue after the tournament. James W. Winters, chapter VP, and Patricia A. Watson, secretary, organized the entire event. The chapter plans to award its scholarship to a graduating senior from Del Rio High School.

■ In Indiana in September, Heather

Weatherbee was honored as both Chapter and State Teacher of the Year during a meeting of the **Southern Indiana Chapter**. Why was she selected? A local newspaper headline listed one reason: "Bottle rocket classes lead to Teacher of the Year Award." Weatherbee, a fourth-grade teacher from Binford Elementary School in Bloomington, received the awards from State President Thomas E.



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Eisenhuth and James E. Fultz, aerospace education VP. Lt. Col. John D. Golden, the new professor of aerospace studies at Indiana University Bloomington, addressed the chapter meeting.

■ The **L.D. Bell-Niagara Frontier Chapter (N.Y.)** granted a \$1,000 scholarship to Amanda Ward at a chapter dinner meeting this summer. Ward, who competed against some 70 other candidates for the award, is the daughter of SMSgt. Bob Ward of the 107th Air Refueling Wing (ANG). The wing is based at Niagara Falls Arpt./ARS, N.Y., where the chapter held this meeting. Chapter President Richard H. Waring and the installation commander, Col. Reinhard L. Schmidt from the 914th Airlift Wing (AFRC), presented the scholarship to Ward, who has begun studies at Hobart and William Smith Colleges in Geneva, N.Y.

Joseph R. Falcone, 1927-2007

AFA National Director Emeritus Joseph R. Falcone died Sept. 20 in New Milford, Conn. He was 79 years old and lived in Ellington, Conn., and Charlottesville, Va.

Mr. Falcone was born in the Bronx, N.Y., on Oct. 15, 1927, and served in the US Army in World War II. He attained the rank of chief master sergeant.

He was a technical representative with Pratt & Whitney Aircraft in East Hartford, Conn., for more than 30 years, retiring in

1998. He also served as a police officer for the town of Ellington and a county deputy sheriff in the 1960s and 70s.

Mr. Falcone was a charter member of the association, having joined AFA in October 1946.

reunions@afa.org

Unit Reunions

Reisenbach AS, Germany, veterans, including the **2060th Radio Relay Squadron (1952-69)**. Sept 5-15, 2008, at the Bavarian Village Resort in Branson, MO. **Contact:** Richard Spoley (rjspol@reisenbach.com).

B-47 Stratojet Assn. Sept 25-27, 2008, in Marietta, GA. **Contact:** Bob Bowman ([770-826-5562](tel:770-826-5562)) (bbowman@northhighland.com).

Veterans of Underage Military Service. April 24-27, 2008, in Rapid City, SD. **Contact:** R. Thorpe, 6616 E. Buss Rd., Clinton, WI 53525 ([608-676-4925](tel:608-676-4925)).

Seeking members from **Pilot Training Class 65-XG**, Laughlin AFB, TX, for a reunion. **Contact:** Hank Salcido, 1546 Pelican Bayou Dr., Biloxi, MS 39532 ([228-354-8066](tel:228-354-8066)) (hank@cablone.net).

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.

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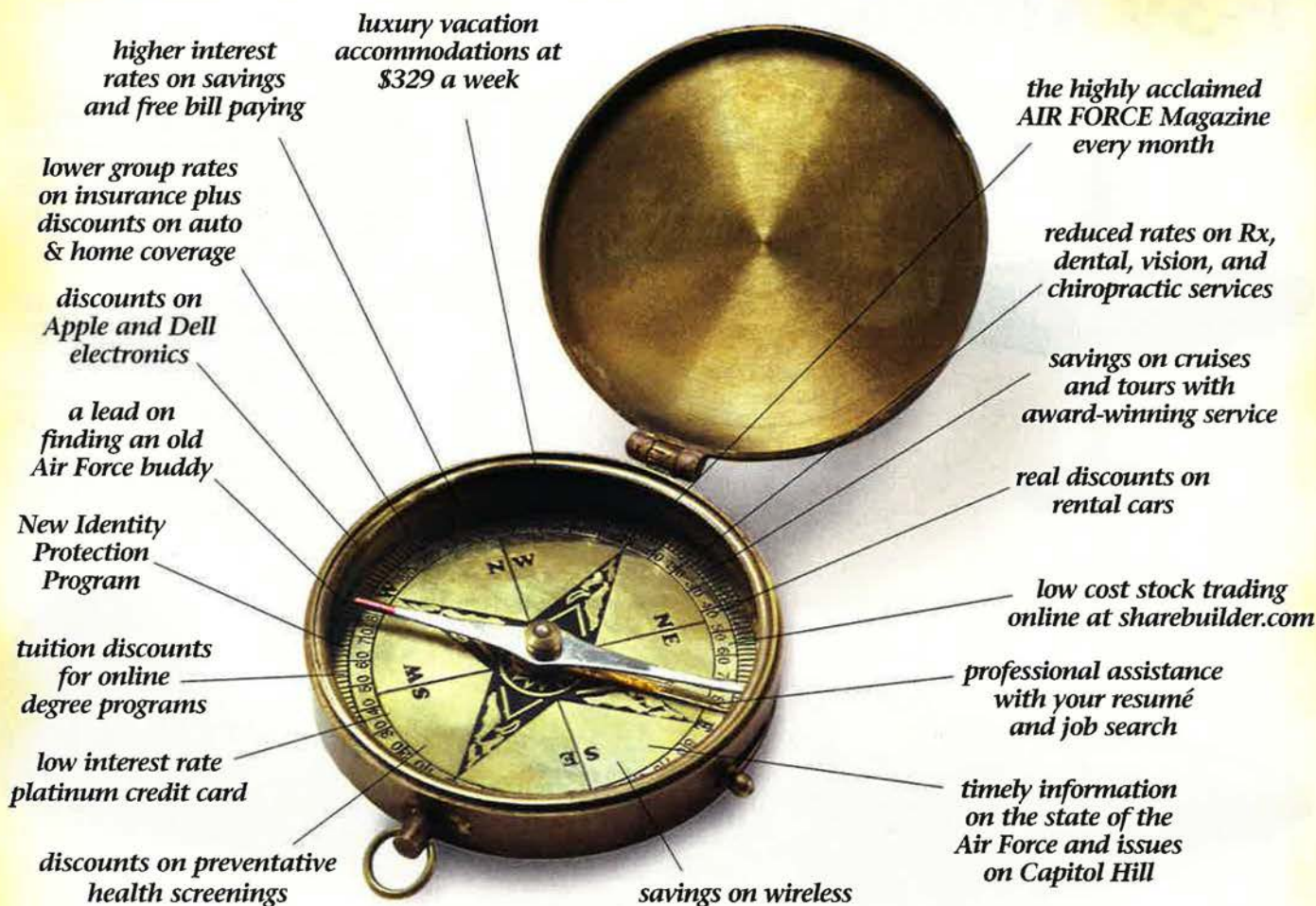
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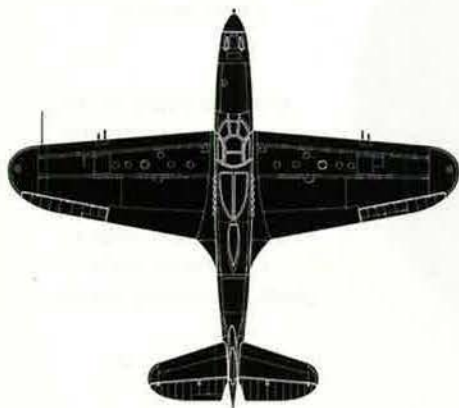
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Airpower Classics

Artwork by Zaur Eylanbekov

P-39 Airacobra



The radically new P-39 Airacobra, begun in the late 1930s, was one of the first "modern" Air Corps fighters—the only one built around a cannon and not an engine. Bell's unusually streamlined design placed the engine behind the pilot, inside the fuselage, so as to allow frontal installation of the big "bomber-killing" 37 mm cannon. Tricycle landing gear and car-like doors and windows in the cockpit were also innovative. Because it was light in weight, the P-39 was very fast at some altitudes.

The Airacobra had, in the Air Corps, a bad reputation for "tumbling," short range, poor performance at altitude, and armament problems. The same aircraft, however, was acclaimed by many high-scoring Soviet aces. The difference was primarily in its application. At low altitudes on the Eastern Front, it performed well even against vaunted

Luftwaffe Bf-109s and FW-190s. However, the US pilots needed to use it above 15,000 feet, an altitude at which it was less effective. The Air Corps had dropped the supercharger requirement on the assumption that a drag reduction program and a more powerful version of the Allison engine would provide adequate performance. The assumption was wrong.

Even so, the P-39 had a great virtue: It was available when war broke out in the Pacific. The infant Fifth Air Force was desperate for aircraft, and it is generally conceded that the P-39 did well in the close support role at Guadalcanal and a host of other battles. US P-39s were used extensively in North Africa and Italy. On the Eastern Front, the USSR found the P-39 to be superb at low altitudes, where its tank-killing capability was used to great effect against German armor.

—Walter J. Boyne

This aircraft: USAAF P-39D Airacobra No. 1731P as it looked in 1941 while stationed at Selfridge Field, Mich.



In Brief

Designed, built by Bell ★ first flight April 6, 1938 ★ crew of one ★ Allison V-1710-85 engine ★ number built 9,558 ★ **Specific to P-39Q:** max speed 385 mph ★ cruise speed 200 mph ★ max range 650 mi ★ armament single 37 mm cannon, four .50 cal machine guns (2 in nose, 2 in wings), single 500 lb bomb ★ weight (max) 8,300 lb ★ span 34 ft ★ length 30 ft 2 in ★ height 12 ft 5 in.

Famous Fliers

AAF Ace, P-39 only: Lt. William Fiedler Jr. **AAF Aces, Some Victories in P-39:** 1st Lt. Thomas J. Lynch, Lt. Col. Boyd D. Wagner, 1st Lt. George Welch. **Notables:** Tuskegee Airmen pilots of the 100th FS, 301st FS, and 302nd FS; Soviet Capt. G. Rechkalov, 56 confirmed kills in P-39; Col. Aleksandr Pokryshkin, 59 confirmed kills in P-39.

Interesting Facts

Half of P-39s transferred to Soviet Union ★ scored first US victory in Europe in WWII (Aug. 14, 1942) ★ also named Model 14 (RAF) and P-400 (USAAF) ★ Russian nicknames of *britchik* ("little shaver"—shaving being slang for strafing) and *kobrusha*, or "dear little cobra" ★ appears in 2006 Russian film, "Peregon" ★ P-39 lost in 1942 found in Fiji in 2004 ★ built in 16 models, 48 variants ★ besides US, Russia, and Britain, flown by Free France, Australia, Italy, Poland, and Portugal.



Airacobra in action.

FLORIDA'S AVIATION & AEROSPACE CLUSTER SNAPSHOT

Aviation

Florida is the air transportation hub of the Western Hemisphere with more than 3.2 million aircraft takeoffs and landings each year. The state is a leading gateway for both passengers and cargo.

Size: Over 1,400 aviation companies

Areas of Excellence: Flight training, maintenance, repair & overhaul (MRO), air cargo.

Fast Fact: Florida has the third largest MRO cluster in the United States.

Aerospace

Virtually every major aerospace company from around the world has operations in Florida. In the past five years, Florida companies and individuals have received over 650 patents in aerospace related fields.

Size: Over 370 aerospace companies

Areas of Excellence: Aircraft, aircraft parts, propulsion systems, avionics, modeling and simulation.

Fast Fact: Florida is the No. 3 state in manufacturing aircraft engines and parts.

Space

For over 50 years, Florida's Cape Canaveral has been the world's premier "gateway to space." Today, the state hosts nearly a third of all worldwide commercial space activity, as well.

Size: Over 180 space technology companies

Areas of Excellence: Aeronautical instruments, rockets, spacecraft, satellite communications.

Fast Fact: Florida is home to one of only five commercially licensed spaceports in the United States.



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