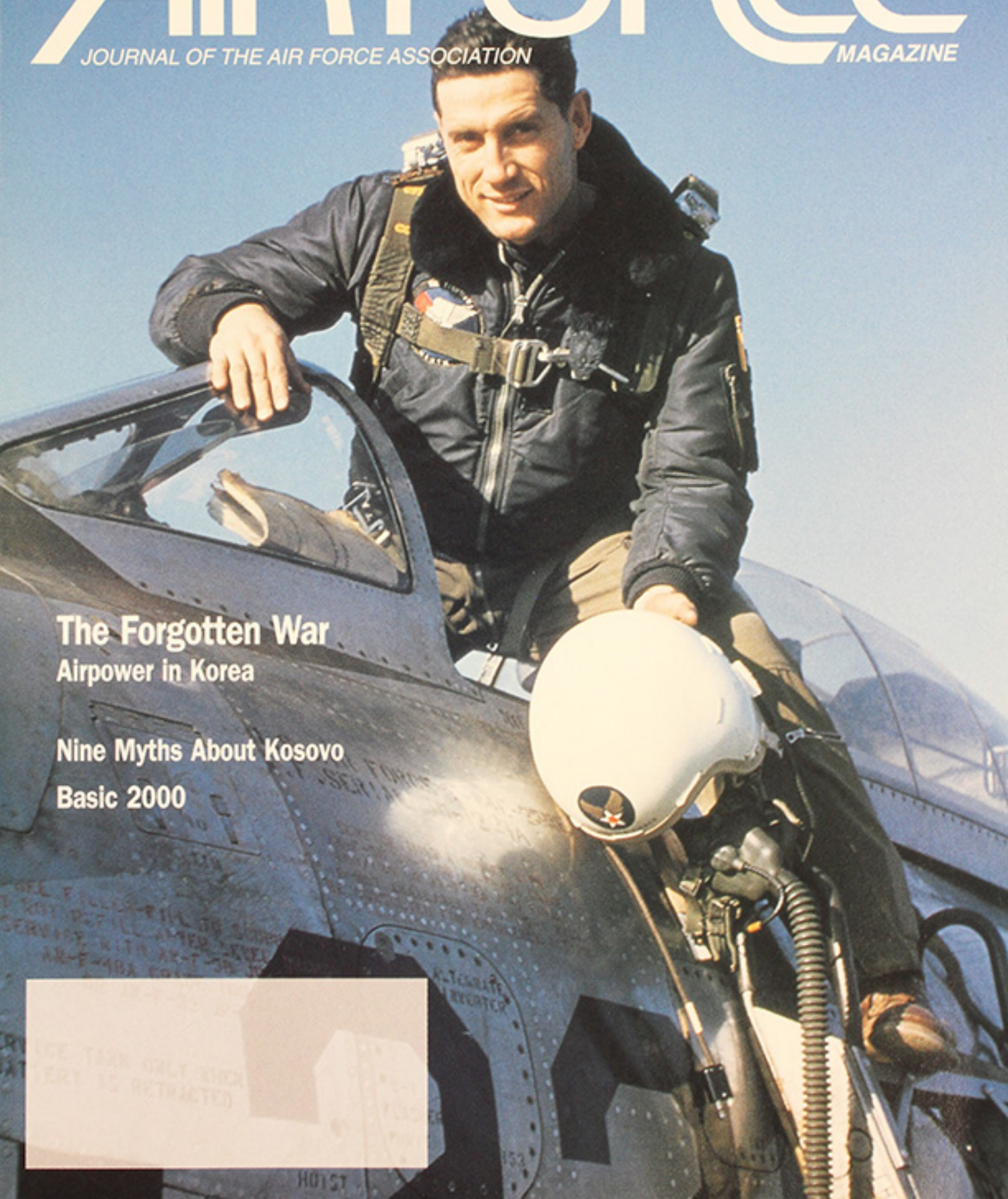


June 2000/\$3

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MAGAZINE



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Airpower in Korea

Nine Myths About Kosovo
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About the cover: Capt. Arnold Braswell strikes a pose in the cockpit of his F-84 at Taegu AB, South Korea. See "The Forgotten War," p. 28. Photo from Lt. Gen. Arnold Braswell, USAF (Ret.), via Warren Thompson.



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By John T. Correll, Editor in Chief

Police Action

In a remembrance that begins this month, we look back with 50 years of hindsight at the Korean War, which started June 25, 1950.

It was a different kind of war. To get around the necessity of asking Congress to declare war, President Truman called it a "police action." It was fought under the auspices of the United Nations, with the United States acting as the UN's executive agent.

Unlike World War II, the objective in Korea was not victory. Technically, the Korean War is not over. The fighting ended in an armistice, which continues today.

In the 1950s, Korea was seen as a one-time deviation from the way wars were supposed to be fought. In retrospect, it set a pattern for other limited conflicts—notably Vietnam—that would come later, characterized by uncertain commitment and shifting purpose.

After World War II, US forces and defense budgets were drawn down to dangerous levels. Military resources were strained to cover our obligations in Europe and the strategic threat from Russia. We were not ready for a pop-up war in Korea.

To make matters worse, foreign policy in Asia was not the long suit of the Truman Administration. Up to the moment North Korean tanks rolled across the border, we did not regard Korea as particularly important. Five months earlier, Secretary of State Dean Acheson had publicly defined the US "defensive perimeter" in Asia. Korea lay outside the line.

When news of the invasion came, the Truman Administration reversed its Korea policy overnight. Believing it to be the start of a worldwide Communist offensive led by the Russians, Truman decided to make a stand.

The first line of support for South Korea was Far East Air Forces, operating mostly from bases in Japan. Except for a small advisory group, US forces had been withdrawn from Korea. The South Koreans had no armor or combat aircraft. Without

FEAF, which harried the invasion force and took a terrific toll on it, the war would have been lost in a month.

Originally, the objective was to eject the invaders from South Korea. In September, though, a successful counteroffensive carried the war into the north. The objective was changed to defeating North Korea and unifying the peninsula.

In Korea, the armed forces fought well in a war we were not prepared to win.

In November, the Red Chinese entered the war, crossing the Yalu with 260,000 combat troops. Armed with Russian equipment—and with Russians flying some of the MiG-15s—they pushed the UN forces into retreat across the 38th parallel.

We were unwilling to risk a wider war by striking back at the Chinese in their sanctuary in Manchuria. We were likewise unwilling to pull out of Korea.

By January 1951, the objective changed again. We would seek a negotiated settlement. Eventually, even that revised goal proved elusive.

Truman assured the European allies, who had begun to worry, that Korea would not drain American military resources away from Europe, which was a higher priority.

The conflict in Korea mired into stalemate around the middle of the peninsula, and the final objective became an armistice, which was reached in July 1953.

Under the circumstances, US forces and their UN allies performed well in a war their governments were not prepared or committed to win. It was basically a ground war, and the contribution of airpower is not always understood.

The air war in Korea is usually

remembered for the epic fighter battles in "MiG Alley" along the Yalu, where F-86 Sabre pilots shot down 10 MiG-15s for every loss of their own.

Air superiority was critical. It allowed UN forces to operate without fear of air attack. The enemy did not have that advantage. During their big offensive in the winter of 1950, for example, the Chinese could move only at night. UN air superiority made it impossible for them to establish forward air bases, and their massive ground forces were not enough to gain the victory.

The famed air superiority missions, however, accounted for less than 10 percent of FEAF combat sorties. The bulk of the effort was interdiction, close air support, airlift, and reconnaissance.

Because of UN airstrikes, about a third of the North Korean force and some 450 of the tanks that crossed the 38th parallel on June 25 never went home again. By the end of July, FEAF had reduced the North Korean air force to 18 airplanes. By September, such industry as North Korea had was destroyed. When the UN launched its counteroffensive, the enemy had been bled down and was short of food, fuel, and ammunition.

Lt. Gen. Walton H. Walker, commanding the US Eighth Army in the early part of the war, said that without air support, "we would not have been able to stay in Korea." Army Gen. Matthew B. Ridgway, commander of all UN forces, acknowledged that "not only did airpower save us from disaster, but without it the mission of the United Nations Forces could not have been accomplished."

South Korea kept its freedom. Whether that outcome was in hand in September 1950 or if it took three years of war to secure is more of a political question than a military one.

What is indisputable is that our forces who fought the "Forgotten War" in Korea deserve a better place in their nation's memory than they have had up to now. ■

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Nuclear Rumbles Misplaced?

I agree with most of John T. Correll's well-reasoned April editorial [*"Nuclear Rumbles," p. 2*]. But I think he is too ready to identify Russia as a long-term enemy. Most of our present problems with Russia are rooted in our humiliation of Russia, mainly the driving of a US-dominated NATO to the Russian border. When we rubbed salt in the wound by moving on Kosovo when we knew the Russian foreign minister was en route to Washington to seek a delay, we earned the counterthrust we got when the Russians seized the Pristina airport.

The current tenuous Russia-China rapprochement belies the fact that the long-term threat to both Russia and the United States is China. Russia has never been able to populate its Far Eastern provinces, except with prisoners. Now, what led Nikita Khrushchev to accept a hostile Sino-Soviet relationship from the 1960s on—the danger of Chinese labor being drawn into the Siberian vacuum—is happening. Gen. Charles de Gaulle foresaw the long-term consequences when he described a Europe des patries "from the Atlantic to the Urals."

Who controls Siberia is of vital interest to the United States and Japan, as well as to that future Russia. Russia is not and never has been a natural enemy of the United States. Let's not make it so.

William V. Kennedy
Wiscasset, Maine

What's the Real Need?

Your article in the April edition, "The Defense Budget at a Glance" [*"The Chart Page," p. 9*], uses an irrelevant comparison between military spending as a share of Gross Domestic Product. The GDP is not the government's money. It is not revenue. It belongs to the private sector.

Let's calculate the military spending based on real need—and the need has diminished due to the total collapse of the Eastern Block nations and the USSR. The military buildup of the Reagan years was totally out of proportion to need or real threat.

Reagan and [Defense Secretary Caspar] Weinberg[er] did not care how much money they had to borrow to build the military and increased military spending by over \$1 trillion. DoD vendors were awash in contracts and money—it was a Reagan-era jobs program.

When we know that just two American missile submarines can turn China into a giant parking lot, much of our Navy is redundant. In 1944, a B-29 cost taxpayers less than \$60,000 and delivered the atomic bomb. Today, the B-2 bomber delivers about the same payload, and the price is \$2 billion. What else in society has gone up so much in price?

Until American children are no longer going to school in trailer classrooms and are [no longer] forced to use outdoor toilets regardless of the weather, let's cap military spending.

Phil Weissburg
Monterey, Calif.

Kosovo Retro

Lt. Gen. Michael C. Short [said, "It's not clear yet] if we won" in Kosovo. [See "*Kosovo Retrospective*," April, p. 28.] The United States has not attempted to gain an unconditional surrender in any war in which it participated since World War II. In the conflict last year between NATO and Serbia, America was again willing to accept something less than total victory.

The precedents for this type of strategy are not encouraging. We only have to look at Korea and the Persian Gulf for examples of lengthy troop

developments which resulted from the same approach.

Recent developments in the Kosovo peacekeeping operation are very depressing. Yugoslavia's president, Slobodan Milosevic, is causing trouble in several spots. One possibility is that he may be preparing a coup against the government of neighboring Montenegro. At the same time an armed Albanian group is instigating unrest in the sector policed by the American contingent.

It now appears that our armed forces may well be stuck in the Balkans far into the future.

Peter Kenney
Birmingham, Ala.

I find it hard to believe that anybody from the Pentagon, let alone the Intelligence Community, would be crowing over a 10-minute turnaround time to get intel to the warfighter, as described in "*Kosovo Retrospective*." Almost 10 years ago, we expected our qualified operators to get the intel off the platform and into the hands of the warfighter in two minutes or less. We foresaw the day when we'd be able to do it in under 30 seconds, given better man-machine interfaces, higher-speed processors, and automated operator cuing/fusion aids already in the pipeline. A 10-minute turnaround might be fine for a B-2 that is hours and thousands of miles away, but for a fighter pilot ingressing to a target through a cordon of [surface-to-air missiles] and [anti-aircraft artillery], 10 minutes might as well be 10 years. Given where we were five years ago, a 10-minute turnaround time now even lags as an adequate proof-of-concept demonstration and, if anything, is a reversal.

However, the article does raise the central contention over intel support to the warfighter—control. Even after all these years and our supposed Desert Storm lessons learned, the national Intelligence Community still doesn't get it (something Gen. [John P.] Jumper alluded to in the article). If you're not there under the direct command and authority of the air boss, you've already lost the degree of trust

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

needed to support the warfighter. Rather than trying to continually work around the political rice bowls of the current structure, when is someone going to finally listen to what the warfighters actually want? If you look at tactical intel today, it's too expensive, it's too resource-intensive (crews, maintenance, support tail, etc.), and it has far too many needless middlemen—all of which is exacerbated by today's austere budgets, lagging retention, and out-of-sight ops tempo.

That having been said, the question comes down to onboard vs. off-board platforms/sensors and how much of both. From what I've seen, the Intel Community would literally prefer to spend itself into oblivion promoting off-board means than give the warfighters the onboard support they've asked for for as long as I can remember (just ask the [Airborne Warning and Control System] community about their battles over E-3 upgrades). The fact is, with today's front end as represented by [unmanned aerial vehicles] and the continued miniaturization of high-speed processors with ever increasing capabilities, there's no reason that tactical intel in 10 years should look anything like it does today (though Pentagon press releases seem to simply advocate more of the same). All the pieces are already in place today. The task is finding someone with enough political willpower and vision to put the right pieces in place to work together—perhaps Jumper has that willpower.

The AWACS and [Joint] STARS radar aircraft communities would help themselves immensely by learning how their brethren in [Air Force Special Operations Command] at Hurlburt [Field, Fla.] have tackled this problem while keeping those unnecessary middlemen at arm's length. There's no reason an enhanced capability, including indigenous intel, could not be fully integrated aboard AWACS and JSTARS using a 21st century T3-AFSOC model. It's time tactical intel returned to the warfighter (imagine a [World War II] P-51 photo recce sending the film back to Washington first, and you'll understand how out of whack this system has gotten). Meanwhile, the national Intelligence Community needs to concentrate on what they do best—science and technology (figuring out the new threats that lead to the appropriate countermeasures in time to make a difference to the warfighters). As long as we keep working around the central problem and throwing more middlemen into the intelligence chain (via satellite links or not, it's still a support tail), we will never be able to

support the warfighters with "how" they want to be supported. However, if we finally tackle this entire process head-on, we might just discover how to save a planeload of money, manpower, and logistics and better support the warfighters rather than simply giving them what we "think" they really need.

T. Curtis Goodwin
Rochester, MN

Expeditionary Force

Thank you for printing the superb pictorial "An Expeditionary Force" [April, p. 34] by the USAF combat camera photographers. I could not help but look at all the photos and hope that the Expeditionary Aerospace Force concept is a huge success. The transition from a Cold War Air Force to a 21st century Air Force is not going to be an easy one. However, just like their performance in the air campaigns of World War II, the Berlin Airlift, the Cold War, etc., I have no doubt that the men and women of the total US Air Force will not only rise to the challenge, but they will exceed it with flying colors!

Jim Dolbow
Arlington, Va.

Showdown on Tricare

I just finished reading the article "It's Showdown Time on Tricare" [p. 48] in the April issue and didn't know who to write to tell them that the proposed change of eliminating the cost share and fee for membership and making it available to more retirees is really not the issue. Before we get too excited about making it available to more people who do not have access to military facilities, we need to make it a usable program.

I was elated to discover that I could get not only Tricare Prime but the supplemental insurance that would cover all costs that Tricare would not cover, for a fraction of the cost to obtain not nearly as good coverage from other [Health Maintenance Organization] and [Preferred Provider Organization] plans. The problem, however, was that I couldn't find a doctor who was a Tricare provider who would recommend the plan. They feel that not only are they not paid in a timely manner, but more importantly, the restrictions that are placed upon them prevent them from providing what they consider to be adequate care for their patients.

Referrals are dreadfully slow, even for critical cases, and most hospitals won't even accept Tricare patients. Additionally, while doctors said they would certainly provide the best care possible, they did not believe I would be happy with it, and most were not

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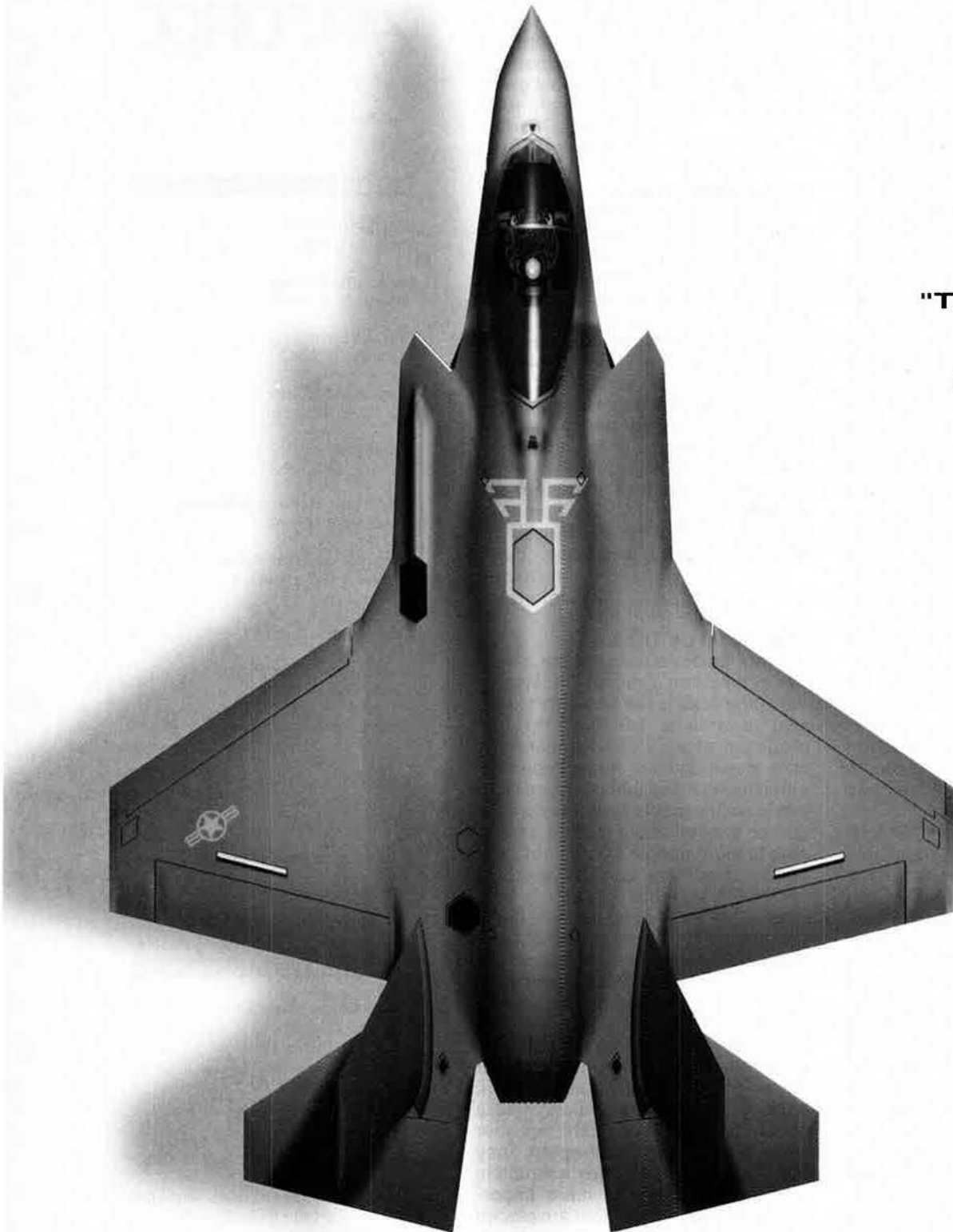
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Letters

sure that they would continue to be a Tricare provider in the near future.

As a result, I have opted to obtain health care other than Tricare. I would be delighted to pay the current costs for Tricare and for the supplemental coverage if the program were changed to permit the doctors to provide what they consider to be proper care and hospitals were willing to accept you as a patient. While most doctors complain about most HMO and PPO programs, they consider all of the leading programs to better than Tricare.

Bottom line is, while we are trying to make the program available to more, we need to make the current plan usable, not cheaper.

Ronald G. Wertz,
USAF (Ret.)

Grand Prairie, Texas

One Yes for the Logo

I was not surprised at the negative feelings toward the new Air Force emblem. [See "Letters: No to the New Logo," May, p. 12.] I was greatly impressed by the how deeply those feelings run. The negative feelings toward the new uniform were not surprising either.

The emblem is a source of much controversy, especially as it relates to "tradition." Several writers alluded to the traditions of our sister services without giving voice to the fact they have been around a heck of a lot longer than we have. All three are well over 200 years old while we aren't even a hundred yet (if you subscribe to the belief that we didn't come into existence until the incorporation of heavier than air flying machines—sorry, balloonists). So, have we even been around long enough to have a tradition and all that it means? Yes, I think so.

The problem is our history is so short, and it all occurred during a time of enormous technological advancements. Navy fighting ships evolved over two centuries as have Marine and Army weapons. We have gone from the Wright Flyer to the B-2 Spirit and F-22 Raptor in only about 90 years. And, lest we forget, ICBMs and satellites also are a major part of who and what we were and are.

So the question becomes, Should the official emblem of the US Air Force be based solely on our early flying history, or should it include some homage to our awesome advancement? I lean toward the latter. Hopefully, someone smarter than me will find an answer all of us can take pride in.

I, too, believe the memorial design is inadequate. [See "Letters: The

Memorial Issue Continues," May, p. 11.] It's as dubious as the new uniform. Is it possible Gen. [Merrill A.] McPeak was on the memorial design committee, too? If we want a memorial that symbolizes our heritage, what better than the propeller? It is easily recognizable and represents aircraft from every major conflict we've ever been involved in. It is also timeless. Even 200 years from now, it will still signify flight.

Surely constructing a memorial around the simple shape of a three- or four-blade prop can't be all that difficult. We might also want to include the shadow of an ICBM to signify the important role of the missileers throughout much of our history.

As we enter the 21st century, our Air Force is continuing its rapid evolution. Our sister services have emblems and memorials that are timeless. Let's make sure we don't settle for anything less.

MSgt. Boyd A. Hemphill Jr.,
USAF (Ret.)
Enid, Okla.

Fall of Saigon

[There is an] error in the article "The Fall of Saigon" [April, p. 68]. On p. 72 you refer to the CBU-55 as "a CBU-55B asphyxiation bomb." This statement is inaccurate. The CBU-55 is a Fuel-Air Explosive weapon which produces a pure blast effect (i.e., no fragmentation) for use against light material and personnel (especially personnel in bunkers). It was developed by the Navy and used by them and by USAF. I worked on FAE development in the 1969-73 time frame at the Air Force Armament Laboratory at Eglin AFB, Fla.

Col. Alan E. Habersbusch,
USAF (Ret.)
Niceville, Fla.

Just for the record (so another Tailwind fiasco doesn't get started), the CBU-55 was not an asphyxiation bomb but a cluster bomb that dispensed three BLU-73 FAE submunitions. When each submunition ruptured, its contents vaporized to form a fuel-air cloud.

The overpressure that resulted when the cloud ignited was an effective anti-personnel weapon. In short, it crushed its targets. First used in 1971, four were expended by A-37Bs of the 546th Fighter Squadron on March 27, 1975. They dropped two more on April 18, the same day that A-1Hs from the 524th FS also dropped two. The similar CBU-72, which had a beefed-up

dispenser hardback, was last used during Desert Storm by Marine AV-8Bs to detonate minefields.

Maj. Jim Rotramel,
USAF (Ret.)
Lexington Park, Md.

Sadly, the vast majority of the newspapers and magazines reporting on the [anniversary of the] fall of Saigon have trumpeted the choreographed efforts of the Vietnamese government hailing the glorious victory by the Vietnamese people. *Air Force Magazine*, instead, through retired Col. Walter J. Boyne, prints a painful but objective article that shows the failure of the policy-makers in Washington and, more remarkably, clearly shows how the US government continued to allow the South Vietnamese to believe that help would likely come because of the [North Vietnamese] violation of the 1973 peace accords. [That is] a hard thing to read for those of us who served over there because we still feel that we did our dead level best to fight that war, fully aware of all the constraints imposed by politicians immobilized before a steady diet of anti-war demonstrations.

Thus, I think it would be fitting if you would also, in conjunction with Boyne's article, try to remember that many of us who served find little solace in continued and perhaps inadvertent comments about the military losing the war. With 18 months over there, I still feel the painful memories of comrades lost in a fight constrained by a lack of national will and coming home to a nation wishing to ignore our sacrifices.

Col. Bill McDonald,
USAF (Ret.)
Fairbanks, Alaska

I was the aircraft commander aboard Cricket 01, the C-130 [Airborne Battlefield Command and Control Center] aircraft that provided command and control for the evacuation. We launched from U Tapao RTAB, Thailand, about 4 p.m. on April 29 with a crew of four and a 22-man battle staff. I was a first lieutenant, and it was my first mission as an aircraft commander, having just completed pilot upgrade the week before. Our departure that afternoon was the heaviest I ever made in the C-130, at approximately 176,000 pounds. We flew 13.5 hours unrefueled and landed back at U Tapao the next morning.

After arriving in the Saigon area around 6 p.m., we established a north-south orbit over the Vung Tau peninsula. Right at dark, a 37mm site of five or six guns attempted to engage us, but we were a little farther off the

coast than they could reach. One of the battle staff intelligence guys, a fighter pilot who had flown F-105s on an earlier tour, came up and identified it for us. Later, around midnight I believe, we were forced to reposition our orbit to a point up the river in an area close by the burning [defense attaché's office] complex. One of the helicopters reportedly knocked down the antennae [for] the embassy radio, and we lost communications with them until we moved closer. They eventually got that fixed, and we were able to return to our preferred station off the coast. Sometime around 3 a.m. on the 30th, President Ford made a phone call to [US] Ambassador [Graham A.] Martin. The phone call was relayed through our aircraft, as we were the only ones in contact with the embassy.

President Ford asked how everything was going, and then told the ambassador he would be getting three more helicopters, and [Martin] would be on the third one. All night long the helicopters were [lifting] off the embassy with incredible passenger numbers. I remember that the H-63s were lifting off with 64 to 68 souls aboard.

When we finally left the orbit and Vietnamese airspace for the return to U Tapao, the ambassador was on the helicopter and a huge chunk of history was coming to a close. All of the battle staff had Vietnam history. Several had completed other tours, some as fighter pilots or [forward air controllers] and others with varying support jobs, but all had had an association that dated back to at least 1965. For all, it was a special moment, the end of an era that meant way more than we can contemplate here. They did break out champagne, and everyone aboard toasted a silent moment on that pre-dawn trip home.

Maj. Scott H. Stiltner,
USAF (Ret.)
Sunnyside, Wash.

[This] article held special interest for me, a Vietnam-era veteran. I was on standby in Hawaii on April 4, 1975, to receive a planeload of infants from Vietnam. There was great sadness and shock to learn of the accident involving the C-5A that crashed shortly after takeoff, killing many babies. There were many unanswered questions that did not end with the first plane.

I was on the runway at Hickam [AFB, Hawaii] as the second scheduled planeload of "babies" landed. Several busloads of women waited to accept two infants each (indicating just how small we were told the children would be).

The passengers who deplaned

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were not carrying infants but were mostly wealthy young adults wearing much gold jewelry. I did not doubt that their lives would have been in great danger had they remained in Vietnam but was outraged that not a single infant was on that plane.

Last to deplane from that second transport was a small ragged group of young teenaged boys. One of them "adopted" me and filled me in on their flight from a French orphanage. Over the next several days I checked on my new "little brother," near the flight line, supplying him with books to read. I can tell you that no planeloads of babies landed at Hickam AFB in the period between April 4 and 14, 1975. During that time, I was on call for future baby lift planes, and we remained prepared and eager to participate.

My "little brother" was sent to Denmark, and we continued to correspond. To my knowledge, all the boys from the second baby lift were denied refuge in the United States. [An] overt attempt to create good public relations was focused in on some babies that made it into the United States, but from where—and why not through our well-equipped and obviously well-located island base? My question: Where were all those ba-

bies [who] did not go through Hawaii? Did they fly directly from Vietnam to America [or to] Guam?

B.M. Liszewski
Mill Valley, Calif.

Surge in JROTC

[I] was most happy to see the major article by Bruce Callander on "The Surge in Junior ROTC" [April, p. 75]. We here in Tallahassee are blessed to have not only the Air Force JROTC program in our schools, but the Army, Navy, and the Marine Corps programs in three other high schools.

I was most fortunate when I retired in 1981 to come to Tallahassee and help start up the first JROTC program in Leon County. Col. Howard Weber [and I] introduced to this community a program that has been highly acclaimed within the county, which has accepted the program for what it is really all about—citizenship training. The Air Force program was most happy and proud to have the other three services join us in reaching out to more of the county in our community services programs and for helping more students develop skills needed for their future—in whatever avenue that may take.

Our four JROTC programs can be seen throughout the year participating in joint color guard functions, athletic and field meets, and on several occasions, coming together in formal social events. Each of our programs has many success stories to tell, regarding our cadets after high school—from meritorious service during the Gulf War to graduation from our service academies and representing their particular service as a commissioned officer. We have been very proud of the contribution our cadets have made to our nation. There is no question, something very good comes out of the Junior ROTC programs here in Florida's capital city.

CMSgt. John E. Schmidt Jr.,
USAF (Ret.)
Tallahassee, Fla.

I recently read and enjoyed the article "The Surge in Junior ROTC." As a former student of JROTC, I can attest that the article hit the nail on the head with every point. However, it failed to mention the fact that lifelong friendships come from the program as well. I graduated from high school last year after four years in AFJROTC (SC-64) and now attend The Citadel in Charleston, S.C., and I still go back to my old corps every chance I get just to be with the friends I have made through the wonderful program.

It is easy to see that the program is in need of good instructors to lead the youth of America. I only hope that they can all be like the ones I had though my JROTC days. The fact of the matter is that the program works, and I feel that every high school student should have the opportunity to participate in it.

Michael LeMay
Charleston, S.C.

I have recently had the opportunity to observe the outstanding job that can be done by these retired [military members] working within this program and making a major contribution to the overall discipline in their schools.

While visiting with Lt. Col. Don McCreary at Dunwoody High in Atlanta, I overheard a teacher tell him that one of his students (also one of her students) had committed some minor infraction and she wanted him to "take care of it," which he agreed to do. Since a high percentage of the Dunwoody students are in his Junior ROTC program, he said that the teachers often come to him to handle such problems they can't or don't want to handle.

Obviously, the students hold him in high regard and respect his disciplinary actions, and this permeates even the nonmilitary students as well, thus creating a school with a greatly reduced number of behavioral problems. Critics of this program obviously are not aware of the tremendous difference these programs can bring to our high schools.

Many of McCreary's students have gone on to outstanding military careers, including seven to the Air Force Academy and one to West Point—pretty solid evidence of the values of their high school military experience. On one of my visits there, I observed one of these young men providing a group discussion with current students on what the program had meant to him in his career. From these observations I am firmly convinced of the tremendous returns we are getting from our Junior ROTC programs.

Robert H. Powell,
Atlanta, Ga.

True War Machine

I certainly respect the comments of [retired] MSgt. [John L.] Clayborn ["Letters: Jumping to Conclusions," May, p. 16] in regards to the photo in the February issue of a "filthy" F-15, but they are indicative of how out of touch many people are with the Air Force of today. This is not the Air

Force in the 1980s with loads of funding, experienced personnel, and two-week training deployments for "the big one" to Nellis [AFB, Nev.] or Zaragoza [AB, Spain]. That jet flying in Operation Northern Watch looks like the true war machine that it is instead of some peacetime sports car with many man-hours spent polishing it.

I have flown the A-10 in operational squadrons for the past 13 years on active duty and flown in 14 contingency deployments. The dirty jets were almost always the ones that were the good [aircraft]! The clean ones were the ones just coming out of hangar queen status or were broken so often that they didn't have time to earn some combat grime.

When squadrons deploy to Kuwait, Saudi [Arabia], Turkey, or any other garden spot, aircraft appearance is hardly a consideration. Squadrons with chronic underfunding for spare parts, undermanning, retention problems, low morale, [personnel concerned about] anthrax shots, and high deployment rates don't have the time or energy to worry about clean airplanes.

Our maintenance folks are already putting in very long days in austere conditions trying to keep enough jets flying to make the next day's schedule. It seemed for every day that we broke a slew of jets, our maintenance guys would pull another miracle out of their hats (sweat, hard work, and determination), and we'd fly another full schedule the very next day. Thanks, guys.

As for us pilots, we just wanted safe, flyable airplanes that let us do our jobs, i.e., kill the enemy's tanks, trucks, aircraft, and his will to wage war. Give me the dirty airplane. It's a dirty business.

Maj. Charles "Sammy" Samuel,
ANG
East Granby, Conn.

Antidote

What a great antidote for the constant barrage of negative comments all too common in today's military media coverage. [See "Pilots for a Day," March, p. 70.] The airmen who gave critically ill children a day to remember carry on a fine tradition. Like Lt. [Gail] "Berlin Candy Bomber" Halvorsen's gesture of dropping candy to children in 1948, these leaders found a way to make a difference with the means at hand and a lot of imagination.

Col. Michael R. Gallagher,
USAF (Ret.)
Sacramento, Calif.



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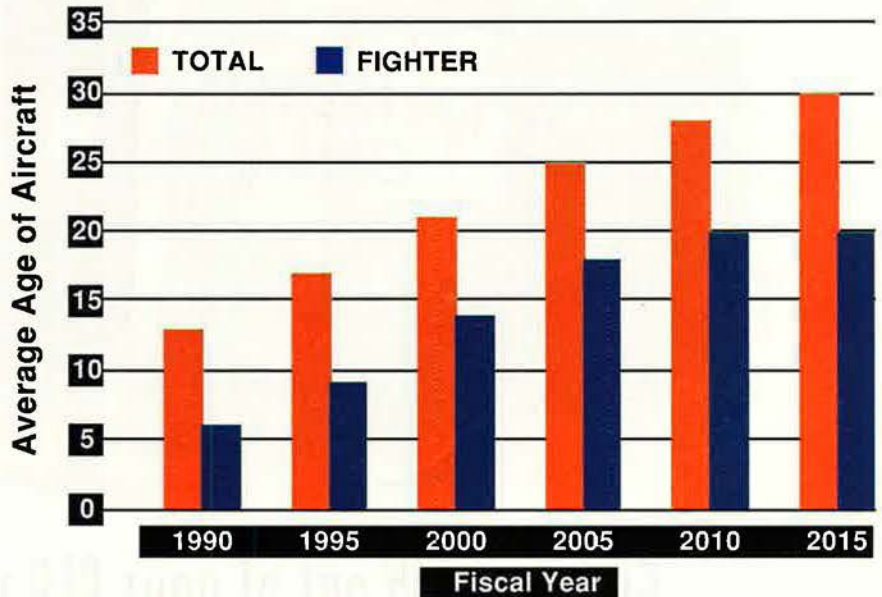
The Chart Page

By Tamar A. Mehuron, Associate Editor

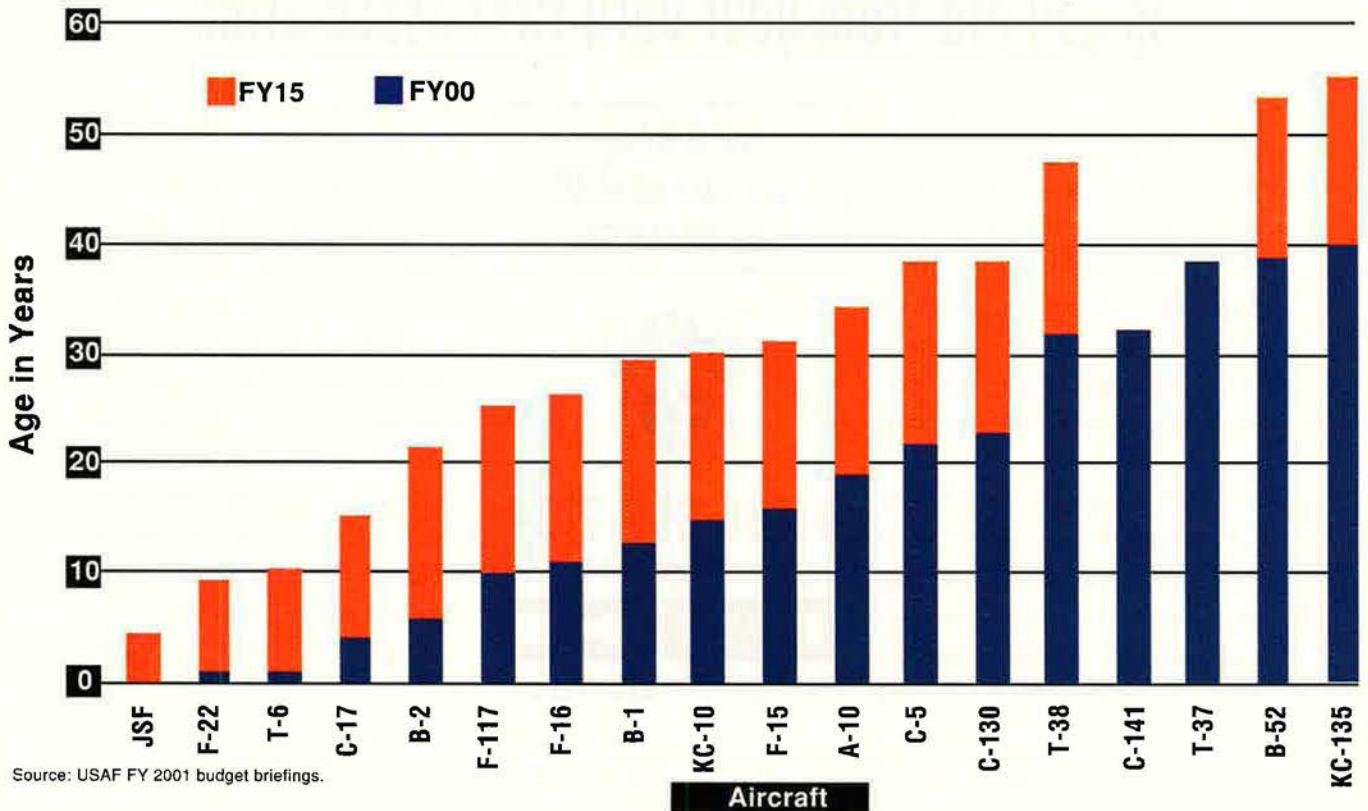
When the Air Force Goes Gray

Over the next 15 years, the Air Force aircraft inventory will age steadily, the result of slack production during the so-called "procurement holiday" of the 1990s. The chart at right shows aging trends of the total fleet and a subset of that fleet, the fighter force. During the 25-year period 1990–2014, the average age of USAF aircraft is expected to increase by 17 years, more than doubling its 1990 average age of 13 years. For fighters, the average age will more than triple, from six years in 1990 to 20 years by the end of 2014. The chart below illustrates the long-term aging trend of specific aircraft.

The Aging Fleet



Aging Trends by Aircraft Type



Source: USAF FY 2001 budget briefings.

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Aerospace World

By Peter Grier

Human Error Cited in Kuwait C-130 Crash

Pilot error was the cause of the Dec. 10 crash of a C-130E transport in Kuwait, according to a newly released accident report.

The aircraft, part of USAF's 9th Expeditionary Airlift Group, crashed at Ahmed Al Jaber AB in the Persian Gulf nation. The nighttime accident killed three airmen and injured seven others.

According to the report, the C-130 crew members failed "to follow governing directives" and exhibited "complacency in flight operations" during the airplane's approach to the Ahmed Al Jaber runway. Thus "they failed to monitor their instruments, which is critical during night flying with reduced visibility."

The report states, "The pilot never recognized his landing picture, with reference to the runway, and failed to transition to a normal visual glide path for landing." Moreover, the approach was "conducted below weather minimums and in violation of landing restrictions on [the chosen runway]." Additionally, the crew failed to contact the tower for confirmation of runway visibility after being warned by the weather office about fog in the area.

At about 125 feet above ground level, the C-130 entered a fog bank, and the pilot and copilot lost sight of the runway. None of the flight crew had recognized the need to correct the aircraft's unusually steep rate of descent. The airplane hit the ground 2,890 feet short of the runway. The crew managed to get the aircraft back into the air, flying about five feet above ground when it then struck the antenna of an instrument landing system.

The initial impact destroyed the airplane's main landing gear and forced the crew to make a no-gear landing at Kuwait City IAP.

Basic Training Death Prompts Charges

The Air Force on April 14 said it will charge a Noncommissioned Officer with dereliction of duty in connection



USAF photo by MSgt. Steven M. Turner

The 6th Air Refueling Wing, MacDill AFB, Fla., took the top spot as best overall air mobility wing during Rodeo 2000 at Pope AFB, N.C. Here, CMSgt. Gail Harrell, a C-130 flight engineer and Rodeo umpire, looks for the exact landing point of a C-130 on an assault landing at Pope during the May 6-12 Air Mobility Command competition, which had more than 80 teams from 16 countries.

with the heatstroke death of a recruit at Lackland AFB, Texas, last September.

Two officers and three other NCOs will be reprimanded for their part in the tragedy, said officials.

Trainee Micah J. Schindler died two days after collapsing of heatstroke during a training march in mid-day Texas heat. His heatstroke was complicated by overhydration, or drinking too much water, said officials.

The officials claimed that the NCO charged with dereliction failed to see the seriousness of Schindler's condition after he vomited during a meal break, less than an hour before he collapsed.

Maximum punishment for the charge under Article 15 of the Uniform Code of Military Justice includes reduction in rank, 30 days in correctional custody, and half pay for two months. The NCO may request a trial by military court instead of accepting the punishment.

The Air Force declined to release the names of those charged.

According to news reports, Schindler's family regretted the service's decision to not file criminal charges against anyone involved in the incident.

CNN Settles Tailwind Defamation Lawsuit

Cable News Network settled a defamation lawsuit brought by retired Army Maj. Gen. John K. Singlaub as a result of the network's misbegotten 1998 "Tailwind" broadcast, according to the Associated Press.

The network identified Singlaub as a source of the Tailwind story, which charged that the US military used prohibited nerve gas in attacks on US defectors and others during the Vietnam War.

Terms of the settlement were not disclosed.

CNN was forced to retract the nerve gas charge one month after the airing of the Tailwind segment. The story had elicited a firestorm of negative reaction from former members of the US military, who charged the basic story was a fabrication. CNN offi-

Panel Says Two-War Strategy Is Outdated

The Pentagon needs to ditch its "two Major Theater War" strategy for sizing military forces and try something different, concludes a report released April 19 by the US Commission on National Security/21st Century.

Better known as the Hart-Rudman Commission, the panel is chaired by former Sens. Gary Hart (D-Colo.) and Warren Rudman (R-N.H.). It was established in 1998 to recommend new national security strategies.

The panel's report—its second in a series of three—offered little of note other than its two-war recommendation.

In the 1990s, DoD has sought to structure and train its forces to be able to fight and win two MTWs at more or less the same time. The military has claimed it needs such forces to deter potential aggression against US interests in a second area should the US military already be engaged in major combat elsewhere.

This strategy, claimed the panel, prevents the United States from fielding all of the kinds of forces it needs to be able to address existing and emerging threats.

"This commission believes that the 'two Major Theater Wars' yardstick for sizing US forces is not producing the capabilities needed for the varied and complex contingencies now occurring and likely to increase in the years ahead," said the report.

More specifically, the panel claims the present method of sizing forces will no longer be viable in the coming decades, as an increasing number of interventions overseas, such as those required to promote regional stability, call for standing up forces "different from those designed for Major Theater War."

Consequently, the United States must "adapt portions of its force structure to meet these needs."

To conduct such interventions—which will become more difficult with the continued proliferation of defense-related

technologies to potential adversaries—the United States needs "rapidly employable" expeditionary capabilities and humanitarian relief and constabulary capabilities.

The report also specifies three other capabilities needed for the early 21st century—nuclear forces to protect the United States and allies; conventional forces to win major wars; and homeland security capabilities, which may include a National Missile Defense.

The Phase 2 report, though it trashes the Pentagon's existing force-sizing mechanism, stops short of recommending an alternative that would be more in line with the capabilities it advocates. The outcome is surprising since devising an alternative was the subject of considerable debate among panel members as they worked to finalize the Phase 2 report.

Some members called for scrapping the two MTW strategy by taking resources presently devoted to fighting one potential major war and using them to constitute rapidly employable expeditionary forces and constabulary forces. Other members wanted the commission to focus on adding resources to the defense budget to achieve those goals.

In the end, commissioners agreed that given today's demands on the military, and those anticipated over the next 25 years, "it is evident that modern forces equal to these demands cannot be sustained by current levels of spending."

When the Phase 2 study was unveiled at the National Press Club in Washington, Rudman said the commission plans, in the next report, to address how to adapt the Pentagon's existing force structure to meet existing and emerging threats. "These kinds of specific recommendations are not properly placed in a document that mainly deals with strategy," he said. It is due early next year, just as the Pentagon embarks on a new Quadrennial Defense Review and a new Presidential Administration takes office.

cial, revisiting the issue, found they could not verify the story's accuracy.

Two producers were fired, and a third quit. The lead named reporter on Tailwind, Peter Arnett, kept his job only by arguing that he did little on the story and simply repeated assertions handed to him in a script. However, he was placed in limbo, appearing on air only once before CNN used an exit clause in his contract with two years still remaining of the five-year pact.

Army Lieutenant General Charges Sex Harassment

In a move that is roiling the top ranks of the Army, the service's highest-ranking woman charges that in 1996 she was sexually harassed by a general officer colleague.

Lt. Gen. Claudia J. Kennedy, head of Army intelligence, alleges that a fellow general—identified in news reports as Maj. Gen. Larry G. Smith—made sexual advances during a meeting in her Pentagon office.

Kennedy never reported the alleged incident at the time; rather, she dealt with it directly. However, when Smith was tapped for a promotion to become deputy inspector general of the Army, she felt it was imperative to

advise the Army, since he would supervise investigations of sexual harassment claims.

Swirls of charges and countercharges—including various charges by anonymous officers against Kennedy—regarding the principals have been covered in news reports. The Army and Pentagon refuse to officially confirm Smith is under investigation. Neither general has spoken publicly about the issue.

A May 11 *Washington Post* report states that Army investigators have substantiated Kennedy's charge. Although Kennedy did not report the incident in 1996, she apparently had confided in several friends.

Pentagon spokesman Kenneth Bacon would still not comment, saying that the news reports have "made clear that whatever process there is [is] still under way."

Smith has denied making an improper advance, according to reports. An article in *The Washington Times* May 12 stated that military sources say Smith is thinking of asking DoD to reinvestigate the case.

The Army has faced several high-profile sexual harassment cases in the past few years. One involved an Army general officer who had also

been tapped for the deputy inspector general position. He retired as an investigation was launched into charges that he had had sex with the wives of subordinates and lied to Army investigators about it. After the charges became public, Maj. Gen. David R. Hale was recalled from retirement to face a court-martial. He was fined and reduced in rank.

The current case represents the first known charge of general vs. general sexual harassment.

USAF Should Revamp Launch Range Safety, Study Says

The Air Force should get ready for a surge in space launch activity in coming years by streamlining and updating safety management practices at Cape Canaveral AFS, Fla., and Vandenberg AFB, Calif., according to a new report from the National Academy of Sciences.

The 55-page report, titled "Streamlining Space Launch Range Safety," was prepared by the National Research Council under commission by Air Force Space Command.

Among other items, the report concluded that the Air Force should proceed with plans to replace outdated



Lockheed Martin delivered its 4,000th F-16 at Fort Worth, Texas, on April 28. "Production of 4,000 fighters is a major milestone that has been rare since World War II," said Dain Hancock, company president. The 4,000th Fighting Falcon was built for the Egyptian air force.

tracking radars with satellite-based tracking systems.

"Launch range operators can maintain today's high level of safety while reducing costs by using satellite technology, for example, which is more efficient than a conventional radar system and can track rockets just as accurately," said Robert E. Whitehead, committee chair and a retired NASA administrator.

The report also urged the service to shift launch-tracking functions for the Africa "gate" at Antigua and Ascension islands in the Atlantic Ocean to sites closer to the US. That would allow range safety officers to destroy rockets earlier if there is any chance they will fall to Earth during a brief pass over Africa on their way toward orbit.

However, the report noted that the chance of such an accident ever occurring is small, as rockets that pass over the gate are on the verge of entering space, and that more mod-

F-22 Faces Another Congressional Test

For the F-22, this year's ride through Congress may well turn out to be a white-knuckle affair, as it was last year.

Several factors—including the recently concluded strike at subcontractor Boeing—could keep the Air Force from meeting the program's Congressionally mandated testing requirements for 2000.

A key legislator—Rep. Jerry Lewis (R-Calif.), head of the defense appropriations subcommittee—says he will try to block funding for the airplane if it does not meet the designated test schedule. Lewis mounted a serious stop-the-F-22 effort in 1999, catching many of the fighter's supporters by surprise.

While he praises the airplane's cutting-edge technology, Lewis continues to question the need for the aircraft, saying in a statement that it is "difficult" to "convince ourselves" that future foes will be so "extraordinarily formidable" that their defeat would require the F-22.

This year the Air Force is requesting \$4 billion to continue development and to buy 10 production aircraft.

The biggest technical problem now facing the Air Force and F-22 prime contractor Lockheed Martin deals with the aircraft's Block 3 integrated avionics software package.

The F-22's avionics are intended to be a major reason why the fighter should dominate skies well into the 21st century. The system will show pilots an environment that identifies hostile aircraft and ground threats and allows targeting with a click of a mouse. In addition, the airplane's electronics are supposed to be able to fix themselves by recognizing failure in sensors and other electronic parts and reconfiguring to keep the system operating.

Boeing is the F-22's major avionics subcontractor—and Boeing engineers recently went on strike for 40 days.

The Air Force had figured that a 60-day strike would make it unlikely that Block 3 software would fly in the F-22 by this December, as Congressional test requirements mandate. The 40-day strike means that things will be close.

"At this point, it is high risk that we will actually have Block 3 in an airplane by the end of December," Secretary of the Air Force F. Whitten Peters told the Senate Appropriations Committee in March.

Raptor flight testing of Block 3 is one of 10 criteria that the Air Force must meet for a Low-Rate Initial Production decision on the F-22 to be made by the end of the year. Service testers said they will try to overcome the effects of the Boeing strike. Peters told senators he thinks proceeding with LRIP is still "appropriate," even if the avionics software is tested only in the lab and on the 757 flying test bed.

Some 98 percent of avionics software bugs are typically discovered prior to operational flight testing, said Peters.

Lewis, however, continues to insist that Block 3 must take to the air in an F-22 airframe before the program can proceed into production.

Lewis's panel on May 11 approved full \$4 billion funding for the F-22—including production funds for 10 fighters. However, its bill pointedly restates that no funds may be released unless the F-22 meets all testing requirements.

Fatigue testing may also be a particular problem area for the Raptor. The Pentagon's top testing official, Philip E. Coyle III, says the program may be unable to complete 40 percent of fatigue testing by the end of the year—another requirement for the LRIP decision.

The Air Force does not agree that fatigue tests will be a problem—and continues to vigorously defend the F-22 program. The facts will out, say Air Force officials, and the facts indicate that the F-22 should forge ahead.

The decision whether to proceed into production with the Raptor should be reached as "a result of a vigorous debate where we stand on our merits, and if our arguments prevail we get it sooner. If we can't convince them, then we get what we deserve; we get it later," said Gen. John P. Jumper, commander of Air Combat Command, in mid-April.

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CIA Dismisses Officer Over Embassy Bombing Error

The Central Intelligence Agency has dismissed the officer most responsible for the mistaken targeting of the Chinese Embassy in Belgrade during NATO's air war against Yugoslavia. The agency reprimanded six others for their role in the incident.

China has long demanded punishment for whomever lay behind the bombing of their embassy—a misstep that derailed US-China relationships for months. But Beijing quickly dismissed the CIA's actions as scapegoating and at least publicly continues to appear unconvinced by US protestations that the bombing was an accident.

"The Chinese Embassy in Yugoslavia has unmistakable markings and is also clearly indicated on US maps," the official Xinhua news agency quoted Foreign Ministry spokesman Zhu Bangzao as saying on April 10, several days after the punishments became public. "The US claim that it did not know its exact location doesn't hold water," Zhu said, according to Xinhua.

In laying responsibility for the bombing on multiple officials, the CIA appeared to be at least implicitly admitting that the nation's premier intelligence arm has no organized procedure for providing specific bombing targets to the military.

"Numerous CIA officers at all levels of responsibility failed to ensure that the intended bombing target—the Yugoslav Federal Directorate of Supply and Procurement headquarters—had been properly identified and precisely located before CIA passed a target nomination package to the US military for action," said a statement issued by the agency April 8.

The officer who was dismissed was using an unclassified military map to try to locate the supply directorate building and pinpointed it, using an incomplete knowledge of address numbers.

The officer in question wrongly assumed that the directorate, at 2 Bulevar Umetnosti, would be in the same relative position on its block as the No. 2 address on a parallel street. That would have likely been true if Belgrade's street numbering was as regular as that of most American cities—which it isn't.

The building was, instead, the Chinese Embassy. The map the CIA used was an outdated one that showed the embassy at its former location, more downtown.

The target was discussed in at least three spy agency meetings by officials who did not question the methodology used to establish its location. It was then forwarded to the Pentagon—where no one questioned its authenticity.

The CIA did praise one official who it said raised questions about the target location during the identification process, according to *The New York Times*. Those questions were not relayed, or at least not relayed in time, to higher levels of authority.

running a National Missile Defense system through 2026 will be \$30.2 billion, officials said April 4.

That is more than twice the \$12.7 billion often cited by the Clinton Administration in the past as the life-cycle cost of the system.

The \$12.7 billion figure represents only acquisition costs incurred from 1999 through 2005, said a Pentagon spokesman, Rear Adm. Craig R. Quigley. It does not include \$7.5 billion previously spent on the National Missile Defense effort. Nor does it include substantial acquisition costs that would be incurred after 2005.

Last year, Administration and military officials decided that NMD plans should reflect the need for 100 ground-based interceptors purchased by 2007. Previous plans had called for only 20 interceptors, with procurement ending in 2005.

"The total life-cycle cost of the program from 1991 to 2026 is projected to be \$30.2 billion," Quigley said. "I'm talking maintenance, I'm talking everything."

All of the dollar amounts are expressed in base-year Fiscal 1999 dollars, according to Quigley.

Agent Orange Link to Diabetes?

The Air Force on March 29 released study results that have once again raised questions about whether human exposure to Agent Orange and its contaminant dioxin is in some way associated with adult-onset diabetes.

ern technologies can in any case do the same job from elsewhere.

The NRC also said that the military should redouble its efforts to keep boats and airplanes out of restricted zones prior to launch—especially near Cape Canaveral.

The Air Force should make greater use of news media to alert the public, said the report.

Another aspect of the report stated that despite organizational changes within the Air Force some overlaps continue. In 1997, Air Force Space Command transferred oversight for acquisition-like functions related to range safety to Air Force Materiel Command. The report noted that "the complete transfer ... would, if properly implemented, increase efficiency and reduce costs without compromising safety."

Missile Defense Costs On Rise?

The Department of Defense estimates that the full cost of buying and



US Air Forces in Europe officials confirmed in April that wreckage found in Bosnia-Herzegovina was the F-16C piloted by former USAF Capt. Scott O'Grady. A Serb missile shot down O'Grady on June 2, 1995. He was rescued five days later.

USAF photo

19 Killed in V-22 Osprey Crash

In one of the worst accidents in the history of Marine Corps aviation and one of the deadliest military crashes of the decade, 19 people were killed April 8 when a Marine V-22 Osprey tiltrotor plunged nose-first into a concrete landing pad near Tucson, Ariz.

Marine officials denied reports that there had been a fire or explosion aboard the airplane before the crash, but they said that the \$44 million aircraft fell so hard it blew the air cushion out from beneath another Osprey landing nearby, causing that airplane to drop hard and roll 150 feet.

The airplane's engines were in the helicopter, or vertical, position when it crashed, said investigators.

The accident marked the second fatal incident in the Osprey's test history. In 1992, seven people were killed when an engine fire caused a V-22 to fall into the Potomac River near Quantico, Va. A year earlier, a V-22 crashed at a Boeing test facility in Delaware, but no one was killed.

Lt. Gen. Fred McCorkle, head of Marine aviation, said the disaster should not affect plans to purchase 360 V-22s as a replacement for aging CH-46 helicopters. The Air Force plans to buy 50 V-22s; the Navy, 48.

"Analysis of the data retrieved from the crash, ... coupled with comprehensive engineering investigations to date, have found no mechanical or software failures," said McCorkle in a Pentagon briefing May 9.

"The data shows that the mishap aircraft was in a high rate of descent at a relatively forward low air speed," he said. "These characteristics can lead to a condition known as power settling." Basically, the aircraft would have lost lift on its rotor system. It's a condition that is common to all helicopter flight, added McCorkle.

He then emphasized, "We have found no structural or design flaws that would preclude safe flight operations and maintain complete faith in the safety of the V-22."

The doomed flight was part of the aircraft's operational evaluation, in which realistic exercises test notional tactics. The airplane was full of Marine passengers because the tactics being tested involved evacuation of a crowded and threatened US embassy.

Meanwhile, one of the Osprey's most enthusiastic Congressional boosters said the crash might signal trouble for the program.

Rep. John P. Murtha (D-Pa.), a former Marine and ranking minority member of the House Appropriations Committee's defense spending subpanel, said that the Marines have virtually no other option than the V-22 to replace their 40-year-old CH-46s.

"We got a big time problem here if there's something wrong with it," said Murtha in an April 11 interview with *Defense Daily*. "We have to see."

Black Hawk helicopters might conceivably replace the V-22 in Marine plans, but UH-60s are slower and carry less than the Osprey, said Murtha.

The V-22 has had plenty of testing, so that should not be the problem, said the Pennsylvania Democrat. He added that he has always been concerned about the airplane's transition mode, when it changes from forward aircraft flight to helicopter flight.

"That always worried me. There's a brief period when the wings turn [and] they lose some lift," said Murtha.

The aircraft involved in the accident had flown for more than 135 hours since January, according to Marine records. The V-22 program had accumulated about 2,400 hours since the 1992 fatal crash.

The long-term Air Force effort is called the Ranch Hand Study, named for the operation in the 1960s in which the Air Force sprayed defoliant herbicides over Vietnam in an effort to deny the Viet Cong foliage cover and crops. Since it began in 1982 the study has focused on whether long-term effects exist in Ranch Hand air and ground-crew personnel that can be attributed to the herbicides.

The results released in March suggest that as dioxin levels in the body increase, the presence and severity of adult-onset diabetes increase, and the time it takes to contract the illness decreases. A 47 percent increase in diabetes was found among

those with the highest measured levels of dioxin.

Officials noted that after 15 years of follow up, the Ranch Hand Study has found no consistent evidence that dioxin exposure is related to cancer.

Ranch Hand crew members as a group show a 6 percent greater risk of cancer than a comparison group of Air Force veterans involved with C-130 missions in Southeast Asia during the same period as Operation Ranch Hand. However, differences by occupation and service within the data suggest that herbicide or dioxin exposure is not the cause of this increased risk factor.

For example, the subgroup that had the highest exposure to dioxin—Ranch Hand ground crew members—exhibited a 22 percent decreased risk of cancer, noted the study.

Next, Ho Chi Minh "Highway"?

Communist Vietnam has broken ground for an ambitious project to build a 1,000-mile-long highway along stretches of the old Ho Chi Minh Trail, the network of roads along the nation's spine used for the transport of troops and supplies to Communist forces in the south during the Vietnam War.

Hanoi claims that the road project will turn a symbol of conflict into an engine of economic growth for the nation's poor western provinces. Outside experts were skeptical, noting that most of the country's population is along the coast and that the main coastal north-south highway is itself not overly congested.

Some said any money spent on the Ho Chi Minh project would be better used to improve the country's existing road network. Highways are so bad that foreign firms are reluctant to set up factories in rural areas. Urban streets are so crowded that daily commutes are maddeningly long.

Twenty-five years after its military victory, Vietnam is attempting to turn a number of war relics into economic assets. Some former US military bases have been converted into special export processing zones that produce clothes and other consumer goods.

DoD Seeks Base Agreement With Qatar

The US is negotiating with Qatar for the right to land expeditionary aircraft forces at the Gulf nation's Al Ueidid AB, said defense officials accompanying Secretary of Defense William S. Cohen on a swing through the region April 5.

"There's willingness by both parties to reach an agreement," said a defense official. "It's just a matter of terms and conditions."

Among the issues are which nation will pay for new hangars, prefabricated maintenance buildings, aprons, and other improvements needed to allow the base to accommodate 30 to 40 fighters, which would be part of US Central Command forces.

Qatar reportedly wants a visible US presence as a means to help it defend its offshore North Field, which is the world's largest natural gas reservoir. It extends into the Gulf near Iranian waters.

The DoD official emphasized, however, that the negotiations did not come in response to a specific action by either Iran or Iraq. Instead, the

Battle of the Pentagon Bus Station

It's the Washington area's largest bus-to-subway transfer point—but the Department of Defense says it is just too close to the Pentagon, reports *The Washington Post*. For security reasons, the US military plans to relocate the D.C. Metro system's Pentagon bus station stop 300 feet to the east of its present building-side location.

Metro officials aren't happy that their customers will now have a five-minute walk to board buses. They want the Pentagon to fund a \$35 million replacement bus plaza, sized to allow addition of bus lines if ridership grows in the future and to include a climate-controlled waiting area and restrooms.

The Pentagon says it will only replicate today's rectangular bus drop-off plaza, which is of 1977 vintage.

The impetus for the move is the increasing realization that Washington's federal infrastructure is not as hardened against terrorist attack as it could be. From a security official's point of view, relocating the Pentagon bus shelter is an obvious move.

The stop handles 95 bus routes and some 34,000 commuter trips a day. Some 30 percent of passengers who use the bus-subway node are bound for the Pentagon itself. Seventy percent transit the area and head elsewhere.

"With the volume of people going through there, it's a very nice area for a target," said Army Maj. Kelly Butler, a Pentagon official working the issue.

The military also plans to close an escalator that leads from the Metro subway directly to the Pentagon itself. The escalator is a "threat delivery tube," said Butler.

Construction of the new plaza is to be finished by 2002, said officials.

talks are part and parcel of a US effort to build an integrated regional coalition.

"Our presence at the base would be one part of that regional security framework—not focused at one particular country or another, but part of a system we would like to have in place," said the official.

USAF Taps Texas Site for Bomber Training

The Lancer Military Operations Area in central Texas plus Instrument Route 178 in west Texas will be the site for the new training range called for by Air Combat Command's Realistic Bomber Training Initiative, Air Force officials announced in late March.

The Lancer option won out over another Texas site, a northern New Mexico site, and a no-action alternative, which would mean continuing to use distant ranges.

The RBTI is aimed at improving the realism of training for B-1 crews from Dyess AFB, Texas, and B-52 crews from Barksdale AFB, La. The new Texas site should also reduce training transit time for the crews by 70 percent, according to Air Force estimates. Currently the crews have to travel as far as Wyoming and South Dakota to find real-world-type flying space.

Three existing military training areas will be consolidated into a single 40-by-80 nautical-mile rectangle to create the Lancer MOA. Some 85 percent of Lancer and IR 178 will

come from existing military airspace.

Two electronic scoring sites will be constructed to support the RBTI. Sites in Harrison, Ark., and La Junta, Colo., will close, and affected employees, currently 61 civilians, will be given the chance to relocate to Texas.

Local opponents of the creation of the Lancer MOA have long worried that it would increase the number of low-level bomber flights in the area. Air Force officials insist that the total number of low-level sorties will not go up. The minimum altitude in Lancer will be 3,000 feet above the ground.

"I am glad the voices of west Texas have been heard," said Rep. Henry Bonilla (R-Texas) in a prepared state-

ment. "The original RBTI proposal by the Air Force called for an increase of 1,100 low-level bomber training sorties over my district. The final report will result in no increase in bombers flying over west Texas."

Pentagon Withholds USAF Report on Kosovo

A United States Air Forces in Europe study on the lessons learned from Operation Allied Force is not going to be made public.

Secretary of Defense William S. Cohen made the decision to not release the unclassified "Air War Over Kosovo" study, which was finished in January and approved for release by Air Force Secretary F. Whitten Peters and Chief of Staff Gen. Michael E. Ryan.

The report, written by Brig. Gen. John Corley, USAF's director of studies and analysis, does not reach conclusions that are significantly different from the Pentagon's own already-released after-action study, according to sources.

But Cohen does not want any more US military studies of the fight against Yugoslavia perhaps confusing issues, said officials. "As far as there being a comprehensive look at Allied Force in its entirety, ... Secretary Cohen ... felt that it was important that we should have one voice," said Pentagon spokesman Rear Adm. Craig R. Quigley.

Saudi Arabia Interested in More F-15s

Saudi Arabian officials discussed the purchase of 24 more F-15S Eagles with Secretary of Defense William S. Cohen during his trip to the Gulf region in early April.

CNN, NPR Give Boot to Military Interns

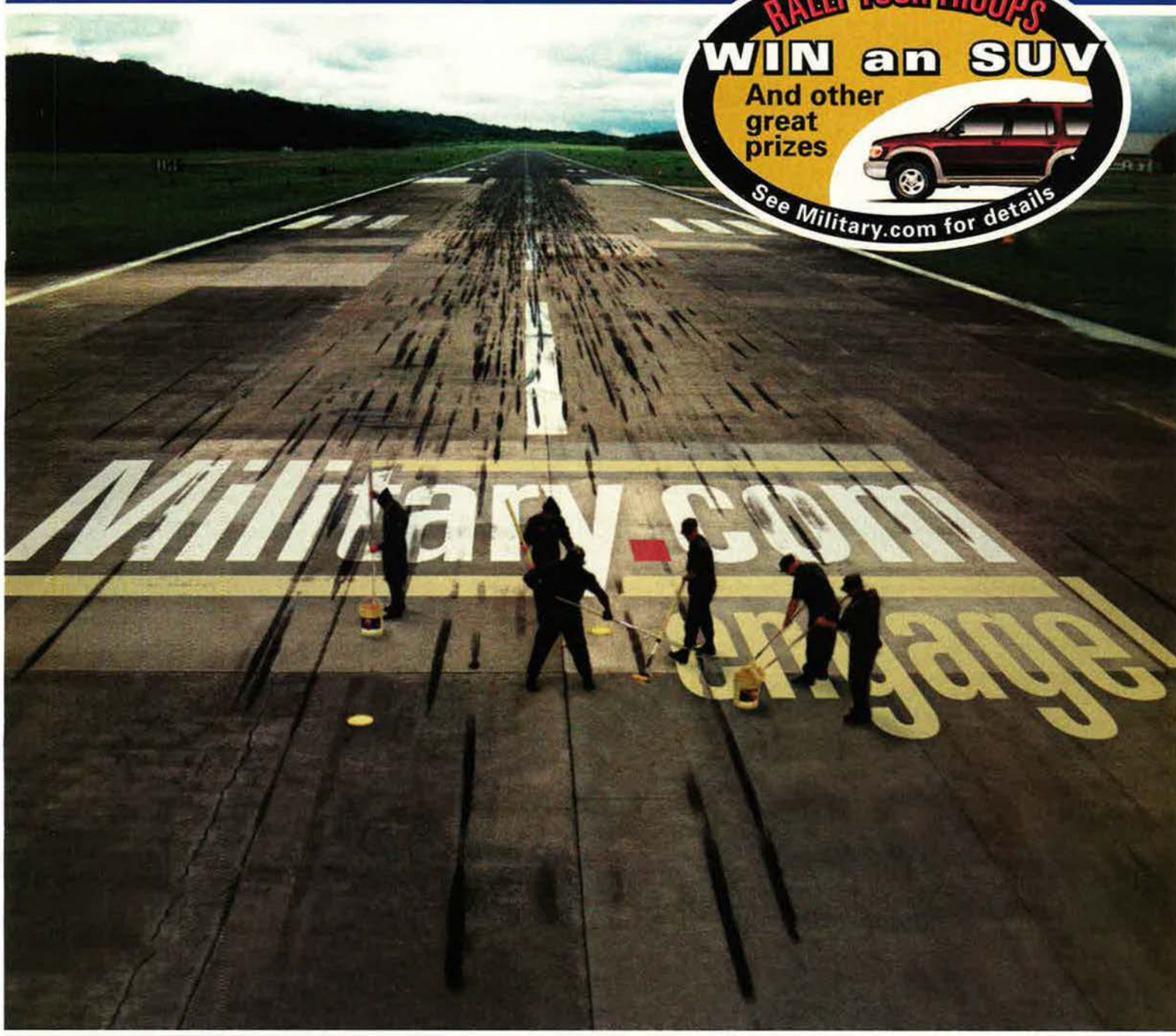
Cable News Network and National Public Radio have given the boot to interns from US Army Psychological Operations units.

According to news reports, top executives say they were chagrined to learn that their organizations were accepting help from such an untraditional source. After the PSYOP presence was made public in European reports, it was quickly ended.

The military duties of PSYOP units include the production of TV and radio material for use in advancing US policy abroad and military goals in particular operations. Military officials were pleased with the PSYOP internships at CNN and NPR, feeling that they were getting good professional training in return for providing some entry-level labor.

CNN accepted five PSYOP interns, beginning in June 1999. NPR had taken in three interns, who worked for varying periods beginning in September 1998.

News officials said the internship programs were approved by human relations personnel, without the knowledge of top executives. But the Army says the PSYOP personnel did nothing to hide their professional origin, and their presence must have been known to news department managers.



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Kremlin Ratifies START II—Finally

After years of delay, Russia's lower house of parliament approved the START II nuclear arms reduction treaty April 14. The move handed Russia's newly elected president, Vladimir V. Putin, his first big legislative victory—and gave him the opportunity to renew warnings that he will resist any attempt by the United States to deploy or even develop anti-missile defenses.

After the vote, Putin said that while he wanted a constructive relationship with the West he also wished to make it clear that Russia's implementation of START II depends on Washington's continued adherence to the 1972 Anti-Ballistic Missile Treaty.

If the US unilaterally withdraws from the ABM pact—a move some lawmakers have called for—Russia will withdraw not only from the START II treaty, but from the whole system of treaties on the limitation and control of strategic and conventional weapons, Putin said in an appearance before Parliament.

The START II treaty was originally signed seven years ago by President George Bush and Russian President Boris Yeltsin. The US Senate ratified it in 1996.

Under its terms both parties agree that they will reduce their strategic warheads to no more than 3,500. The US currently has around 7,700 long-range nuclear weapons, according to US government figures. Russia has approximately 6,400.

Perhaps more importantly, the treaty also bans multiple-warhead land-based missiles, such as Russia's SS-18 and the US's 10-warhead MX. These weapons are so fearsome—and so easy to locate—that they would be tempting targets in a pre-emptive nuclear strike. That makes their existence potentially destabilizing, in the arcane theology of nuclear deterrence.

Russia's upper house of Parliament must still pass muster on the treaty, but its political makeup makes approval a forgone conclusion, say analysts. Final passage would clear the way for Russia and the US to perhaps sign a START III pact, codifying even deeper cuts in strategic weaponry.

Russia wants START III to drive stockpiles down into the

1,500 range. US strategists have resisted such drastic reductions and say the US needs 2,000 to 2,500 warheads to maintain national security capability.

US and Russian negotiators held a two-day preliminary START III negotiating session in Geneva on April 17 and 18.

The ABM Treaty remains a complicating factor in the renewed drive for nuclear weapons pacts. The Clinton Administration has been attempting to convince Moscow that the ABM pact should be amended to allow for construction of limited defenses capable of handling a strike by North Korea or other rogue states.

Russian officials have been immune to American blandishments on missile defense, believing that it would simply create a whole new category of high-tech defense weaponry in which US money and science would dominate.

The Clinton Administration, for its part, chose to ignore the ABM complication and simply welcome the progress on START II.

"This vote is indeed a historic step which will help improve security for all of us," said Secretary of State Madeleine Albright.

But some members of Congress warned that Russia's rhetoric on ABM means that trouble lies ahead.

"We're not going to be blackmailed into leaving the American people exposed," said a spokesman for Senate Majority Leader Trent Lott.

One potential complication is the fact that the US Senate will get a chance to revisit its START II vote. Russian ratification took so long that President Clinton and President Yeltsin signed new protocols on the treaty in 1997.

One of the protocols extends the deadline for implementation of START II to 2007. The other, potentially more controversial, is intended to clarify what counts as a long-range missile and what counts as a short-range tactical weapon. This bears on the ABM Treaty—and thus some senators may be reluctant to approve the protocols because their vote would be an implicit recognition of the durability of the anti-missile pact.

The aircraft would be intended as replacements for 80 aging Saudi F-5s. They would add to the Gulf kingdom's already substantial F-15 fleet: 91 C and D air superiority fighters and 50 multirole S versions specially tailored to Saudi requirements.

Discussions regarding the purchase of the Boeing-made aircraft are still preliminary. Details of how the Saudis would finance the buy are not yet clear.

Boeing is eager to lock up additional foreign F-15 sales. The company's St. Louis, production line is scheduled to complete its final USAF aircraft this summer.

Without new orders, it would have to shut down the line. Members of the Missouri Congressional delegation, most notably Republican Sen. Christopher S. Bond, have been avidly promoting further production of the F-15 for USAF attrition reserve and as a complement to the forthcoming F-22 fighter.

US Will Maintain Current Saudi Troop Levels

The number of US troops in Saudi Arabia is not going to be reduced.

That is a message Secretary of Defense William S. Cohen was eager to convey, following his discussion about regional security issues in early April with Saudi Defense and Aviation Minister Prince Sultan.

The subject never came up, despite news reports that indicated some of the approximately 4,000 US service personnel based at Prince Sultan AB in the Gulf kingdom might be going home.

"We have no plans to reduce the number of airmen or planes at Prince Sultan AB, and the topic of reducing airmen in Saudi Arabia was not discussed ... between Secretary Cohen and Prince Sultan," said Pentagon spokesman Kenneth Bacon on April 10.

For his part, Prince Sultan insisted that the US troops were welcome in

his nation and operated under a UN-agreed framework to conduct no-fly-zone enforcement over southern Iraq.

"These troops are doing their duties to keep [the] peace only, not for aggression," said Prince Sultan at a news conference following the Jeddah talks with his US counterpart.

Other topics that came up between Prince Sultan and Secretary Cohen included Peninsula Shield. Peninsula Shield forces are composed of troops from the six members of the Gulf Cooperation Council—Saudi Arabia, Kuwait, Bahrain, Qatar, Oman, and the United Arab Emirates—who get together for exercises about once every two years. Prince Sultan suggested that the US might join in Peninsula Shield training.

The Saudi defense minister also offered guarded support for recent US efforts to reach out to Iran in hopes of establishing better ties.

"All steps taken by the United States toward this goal are welcome," he said.

Software at Bottom of Global Hawk Accident

A software glitch caused the December mishap involving a Global Hawk Unmanned Aerial Vehicle, according to an Air Force accident report released April 24.

The incident occurred Dec. 6 at shortly after four in the afternoon, after Global Hawk No. 3 had completed a successful mission and a full-stop landing at Edwards AFB, Calif. Suddenly, the UAV accelerated to an excessive taxi speed of 155 knots and veered off the main runway, causing the collapse of its nose gear and damage to its sensor suite.

"The excessive ground speed was introduced by a combination of known software problems between the vehicle's Air Force Mission Support System Core mission planning system and its aircraft/weapon/electronics-specific mission planning system," said Col. James R. Heald, Accident Investigation Board president.



Brig. Gen. Kevin Chilton, 9th Reconnaissance Wing commander, Beale AFB, Calif., presents the Distinguished Flying Cross to the family of Francis Gary Powers at a ceremony on May 1, honoring the late U-2 pilot who was downed over the former Soviet Union in May 1960. Francis Gary Powers Jr. (center, in flight suit) earlier flew in the backseat of a U-2ST.

Senior Staff Changes

RETIREMENTS: Gen. George T. **Babbit Jr.**, Lt. Gen. William J. **Donahue**, Lt. Gen. Tad J. **Oelstrom**, Maj. Gen. Richard R. **Paul**.

NOMINATIONS: To be **General:** Hal M. **Hornburg**. To be **Lieutenant General:** Robert C. **Hinson**, Joseph H. **Wehrle Jr.** To be **Major General:** Craig P. **Rasmussen**.

PROMOTIONS: To **Lieutenant General:** John R. **Dallager**, Harry D. **Raduege Jr.**

CHANGES: Brig. Gen. Anthony W. **Bell Jr.**, from Vice Cmdr., AF Comm. & Info. Ctr., Pentagon, to Dir., Info. Sys. for C⁴, USJFCOM, Norfolk, Va. ... Lt. Gen. Donald G. **Cook**, from Vice Cmdr., AFSPC, Peterson AFB, Colo., to Vice Cmdr., ACC, Langley AFB, Va. ... Lt. Gen. John R. **Dallager**, from Asst. C/S, Ops. & Log., SHAPE, NATO, Mons, Belgium, to Superintendent, USAFA, Colorado Springs, Colo. ... Lt. Gen. Roger G. **DeKok**, from DCS, P&P, USAF, Pentagon, to Vice Cmdr., AFSPC, Peterson AFB, Colo. ... Maj. Gen. Robert R. **Dierker**, from Cmdr., 51st FW, PACAF, Osan AB, South Korea, to Asst. C/S, Ops., SHAPE, NATO, Mons, Belgium ... Brig. Gen. Gary R. **Dylewski**, from Cmdr., SWC, AFSPC, Schriever AFB, Colo., to Dir., Ops., AFSPC, Peterson AFB, Colo. ... Brig. Gen. Randall C. **Gelwix**, from Dep. Cmdr., 16th AF, USAF, Vicenza, Italy, to Dep. Cmdr., Canadian NORAD Region, Winnipeg, Canada ... Maj. Gen. Kenneth W. **Hess**, from Dir., C², DCS, Air & Space Ops., USAF, Pentagon, to Cmdr., 3rd AF, USAF, RAF Mildenhall, UK ... Lt. Gen. (sel.) Robert C. **Hinson**, from Cmdr., 14th AF, AFSPC, Vandenberg AFB, Calif., to Dep. CINC, USSTRATCOM, Offutt AFB, Neb. ... Gen. (sel.) Hal M. **Hornburg**, from Vice Cmdr., ACC, Langley AFB, Va., to Cmdr., AETC, Randolph AFB, Texas.

Maj. Gen. Silas R. **Johnson Jr.**, from Cmdr., Air Mobility Warfare Ctr., AMC, Ft. Dix, N.J., to Chief, US Mil. Tng. Mission, USCENTCOM, Saudi Arabia ... Brig. Gen. Walter I. **Jones**, from Dir., C⁴ Sys., USTRANSCOM, Scott AFB, Ill., to Vice Cmdr., AFCIC, Pentagon ... Brig. Gen. Claude R. **Kehler**, from Spec. Asst. to Dir. of Prgms., DCS, P&P, USAF, Pentagon, to Cmdr., 21st SW, AFSPC, Peterson AFB, Colo. ... Maj. Gen. William R. **Looney III**, from Dir., Ops., AFSPC, Peterson AFB, Colo., to Cmdr., 14th AF, AFSPC, Vandenberg AFB, Calif. ... Brig. Gen. Dale W. **Meyerrose**, from Dir., Comm. & Info. Sys., ACC, Langley AFB, Va., to Dir., C² Sys., NORAD and USSPACECOM, Peterson AFB, Colo. ... Brig. Gen. James W. **Morehouse**, from Dep. Cmdr., Jt. Warfighting Ctr., USJFCOM, Ft. Monroe, Va., to Dir., C², DCS, Air & Space Ops., USAF, Pentagon ... Lt. Gen. Harry D. **Raduege Jr.**, from Dir., C² Sys., NORAD and USSPACECOM, Peterson AFB, Colo., to Dir., DISA, ASD, C³I, Arlington, Va. ... Maj. Gen. (sel.) Craig P. **Rasmussen**, from Vice Cmdr., 15th AF, AMC, Travis AFB, Calif., to Chief, Office of Defense Cooperation to Turkey, USEUCOM, Ankara, Turkey ... Brig. Gen. James B. **Smith**, from Cmdr., 18th Wg, PACAF, Kadena AB, Japan, to Dep. Cmdr., Jt. Warfighting Ctr., USJFCOM, Ft. Monroe, Va. ... Lt. Gen. (sel.) Joseph H. **Wehrle Jr.**, from Cmdr., 3rd AF, USAF, RAF Mildenhall, UK, to DCS, P&P, USAF, Pentagon. ■

Once the vehicle started taxiing too fast, the mission planning and validation processes did not recognize that something was wrong, said Heald. The incident occurred too fast for the Global Hawk's handlers to stop it from leaving the runway.

Damage was estimated at \$5.3 million, according to Air Force officials.

News Notes

■ South African search and rescue divers on March 25 recovered the body of Amn. Jeffrey Costa from the Lisbon River. Costa, of the 352nd Special Operations Group, RAF Mildenhall, UK, disappeared while swimming March 24. His unit was in South Africa participating in flood relief missions in neighboring Mozambique.

■ The 493rd Fighter Squadron, RAF Lakenheath, UK, was awarded the 1999 Hughes Trophy. It marks the second time in the last three years that the unit has won the award, which goes to the best air-to-air superiority fighter squadron in the Air Force.

■ "EAF Online" now offers USAF personnel deploying as part of an Aerospace Expeditionary Force a cybergateway for obtaining information needed to make sure they are fully prepared on arrival in a theater. The address is <http://aefcenter.acc.af.mil/eafonline> and is available only via military computers.

■ A sergeant from the 16th Operations Support Squadron, Hurlburt Field, Fla., was awarded the 1999 Brig. Gen. Sarah P. Wells Outstanding Medical Technician of the year award in the senior noncommissioned

officer category. MSgt. Jerry Maynard is a 17-year veteran who has served in the medical field his entire career.

- Holloman AFB, N.M., officially opened its new German Air Force Flying Training Center on March 31. The new center marks an expansion of the tactical training center for German forces. By 2001 the flying center should be home to 750 German military personnel and 42 Tornado aircraft.

- Boeing has developed a new paint that will increase the stealthiness of the new F-22 Raptor air superiority fighter and thus reduce its vulnerability to infrared threats, company officials announced March 22. The new paint which was applied this spring to Raptor 02 at Edwards AFB, Calif., replaces conventional topcoats and still preserves environmental requirements.

- Rudy de Leon on March 31 was sworn in as the 27th deputy secretary of defense. He previously held the post of undersecretary of defense for personnel and readiness. His boss, Secretary of Defense William S. Cohen, administered the oath of office.

- On April 3, President Clinton nominated Adm. Vernon E. Clark to be the next Chief of Naval Operations and thus replace Adm. Jay L. Johnson as a member of the Joint Chiefs of Staff. Clark is currently commander in chief of the US Atlantic Fleet, headquartered at Norfolk, Va.

- The Navy announced March 31 that the F/A-18E/F Super Hornet has officially met all Milestone 3 criteria—thereby moving the program one step closer to a full-rate production decision.

- Maj. Gen. Claude M. Bolton Jr., Air Force program executive officer for fighters and bombers, recently presented Vice President Al Gore's Hammer Award to the F-117 System

“Name, Rank, and Social Security Number” Is Now a Problem

People in the armed forces used to have actual serial numbers. That changed, however, on July 1, 1969. Thereafter, military people used their Social Security account numbers instead. When thus used, they were often called “service numbers.”

There were jokes about giving an enemy captor your “name, rank, and Social Security Number,” but the new way of things soon became routine.

Now, in the age of the Internet, the 1969 innovation is causing problems. In December, Thomas Ricks of *The Wall Street Journal* reported that an Oil City, Pa., “privacy advocate” had posted Social Security Numbers of 4,000 senior military officers, including the Joint Chiefs of Staff, on his Web site. He got the data from the Congressional Record, which published lists of names and “service numbers” when promotion of the officers was confirmed.

Names and Social Security Numbers were soon used in some 700 fraudulent credit card applications. Among the victims was Army Gen. John M. Shalikashvili, the former Chairman of the Joint Chiefs of Staff. The military officers did not have to pay the charges run up in their names, of course, but cleaning up their credit ratings and other affairs was—to put it mildly—an inconvenience.

The operator of the Web site refused to remove the information, and according to William M. Arkin, the online “Dot.Mil” columnist for *The Washington Post*, the US attorney has declined to take legal action because publication in the Congressional Record put the names and numbers in the public domain.

Arkin adds that “captured American military personnel are required to disclose their SSNs under the Code of Conduct and the Geneva Convention. But now, according to the Marine Corps judge advocate general's office, ‘With the advent of the information age, the disclosure of a service member's SSN to a captor presents a new and unforeseen set of security concerns.’ Using the Internet, enemies might be able to access a prisoner's financial, family, and insurance records. ‘This information can be used by our enemies to attempt to break a [service member's] resistance to enemy interrogations,’ the Marine lawyers wrote in a memo in February.”

Ironically, Arkin notes, the Social Security Number—which service members are required to give to the enemy upon capture—is otherwise protected by the Privacy Act.

Program Office. The Hammer Award is sponsored by the National Partnership for Reinventing Government, which is chaired by Gore, and honors those who have dramatically improved governmental processes.

- For the second straight year, the Army and Air Force Exchange Service at Randolph AFB, Texas, was

named best in the world for customer satisfaction. AAFES at Eglin AFB, Fla., was also named best in customer service.

- Osan AB, South Korea, was named winner of the 44th annual Hennessy Trophy for best Air Force dining facilities, multiple facilities category. Elmendorf AFB, Alaska, won the Hennessy in the single category.

- Crews at Vandenberg AFB, Calif., launched a Boeing Delta II rocket carrying the IMAGE spacecraft March 25. The Imager for Magnetopause-to-Aurora Global Exploration satellite is the first dedicated to imaging Earth's magnetosphere.

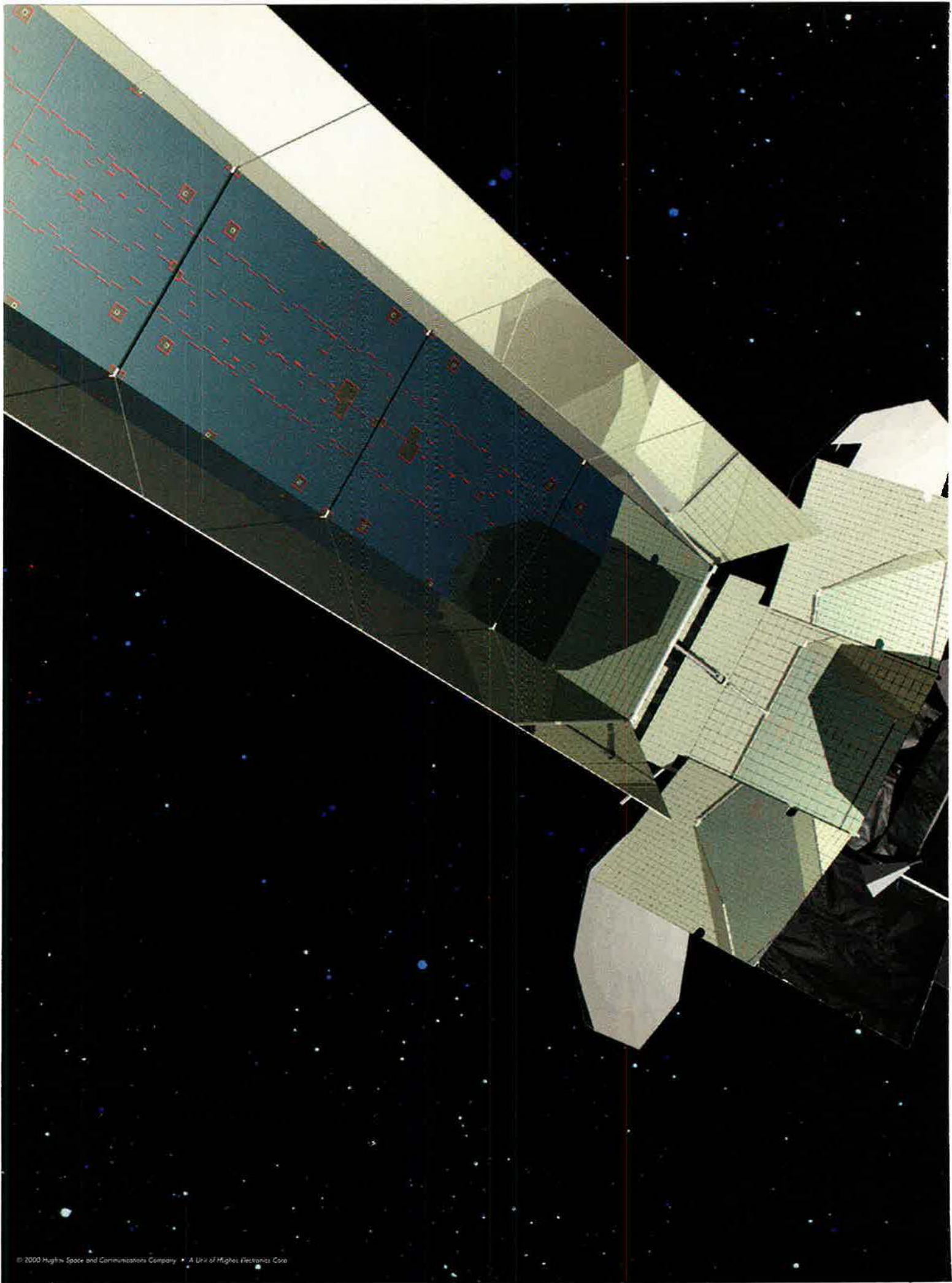
- An Air Force KC-135 pilot has been named one of the 10 recipients of the *Good Housekeeping* Award for Women in Government for 2000. Lt. Col. Kimberly D. Olson, currently a National War College student in Washington, D.C., and formerly commander of the 96th Refueling Squadron, Fairchild AFB, Wash., is the first Department of Defense recipient in the history of the award. ■

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Fifty years ago this month, the new US Air Force was thrust into its first armed conflict when war began in Korea.

The Forgotten War

By Walter J. Boyne



FIFTY years ago this month, the United States Air Force, weakened by demobilization and preoccupied with the threat of the Soviet Union, was thrust into its first war as a separate service when North Korea invaded South Korea. The date was June 25, 1950. USAF opened the war with F-82 Twin Mustang machine guns hammering enemy aircraft into the ground. The war ended on July 27, 1953, on a similar note, this time with a famed F-86 Sabre scoring the final air-to-air victory.

In the intervening 37 months of bitter combat, the newly established Air Force proved to one and all that it was ready to fight and to win, regardless of politics, rules of engagement, gaps in procurement budgets, or the prowess of the enemy. The Korean War marked the creation of a professional Air Force that would grow in size and strength for decades to come.

When the North Korean People's Army swept across the 38th parallel into South



It was the first jet war. And the F-80 Shooting Star was USAF's first jet to be used in combat. These F-80s, from the 36th Fighter-Bomber Squadron, are on the flight line, awaiting their next sortie.

Korea that day in 1950, its troops were well-trained and well-equipped by the Soviet Union. Using Soviet doctrine and equipped with T-34 tanks, heavy artillery pieces, and a small but effective air force, North Korea anticipated an easy victory that would unify the divided nation under the rule of "The Great Leader," Communist dictator Kim Il Sung.

At the time of the North Korean invasion, South Korea had only a constabulary force to defend itself, as the United States had provided it with a minimum of military equipment and training.

Not in the Sphere

The North Korean leadership enjoyed another advantage—the tacit, if somewhat reserved, approval of both Moscow and Beijing. Secretary of State Dean Acheson, in a Jan. 12 appearance at the National Press Club in Washington, said South Korea was not within the US sphere of influence in Asia and therefore would have to defend itself. The Communist leaders well noted the US official's words.

At the time, Acheson's statement reflected a realistic assessment of the state of the US military services, which had suffered a headlong demobilization after World War II and were not adequate to defend US world interests. With the expectation that the US monopoly on atomic weapons would guarantee peace, President Harry Truman had insisted on reducing the annual defense budget



Photo by Bill O'Donnell via Warren Thompson

When North Korea invaded the South in June 1950, South Korea had only a constabulary force. Massive numbers of refugees, like this trainload near Suwon, fled the Seoul area in the early days of the war.

to a less-than-bare-bones level of about \$13 billion, hardly sufficient for any serious operations.

Despite these military realities, Truman surprised the world when he decided to defend South Korea after all. Terming the conflict a "police action" to ease his way around the power of Congress to declare war, Truman got the United Nations Security Council to adopt a resolution accusing North Korea of unprovoked aggression against the South. This move laid the foundation for the establishment of the United Nations Command that would fight the war.

Gen. of the Army Omar N. Bradley, the Chairman of the Joint Chiefs of Staff, advised sending troops to oppose North Korea's invasion. However, he felt the greatest threat was the Soviet Union and favored confining the Korean War after China entered. A war with China, he said, would be the wrong war, in the wrong place, at the wrong time, with the wrong enemy. The USAF Chief of Staff, Gen. Hoyt S. Vandenberg, concurred with Bradley, for he knew that the first priority of his "shoestring Air Force" was deterring the increasingly bellicose and nuclear-capable Soviet Union.

The difficult task of assisting retreating South Korean forces fell upon USAF's Far East Air Forces, commanded by Lt. Gen. George E. Stratemeyer. FEAF's principal component, the famous Fifth Air Force, called upon assets stationed in Japan, Okinawa, Guam, and the Philippines. All told, 365 F-80 fighters, 32 F-82 fighters, 26 B-26 bombers, and 22 B-29 bombers were mustered for action on the Korean peninsula. As events unfolded, many F-51s were also called into service to serve as fighter-bombers, the first 145 coming from Air National Guard stocks.

Despite its old equipment, FEAF readied itself for battle and soon established air superiority over Korea—superiority that it maintained, with few exceptions, until war's end. Constant air superiority allowed the tactical and strategic bombing force



Photo by Charles Trumbo via Warren Thompson

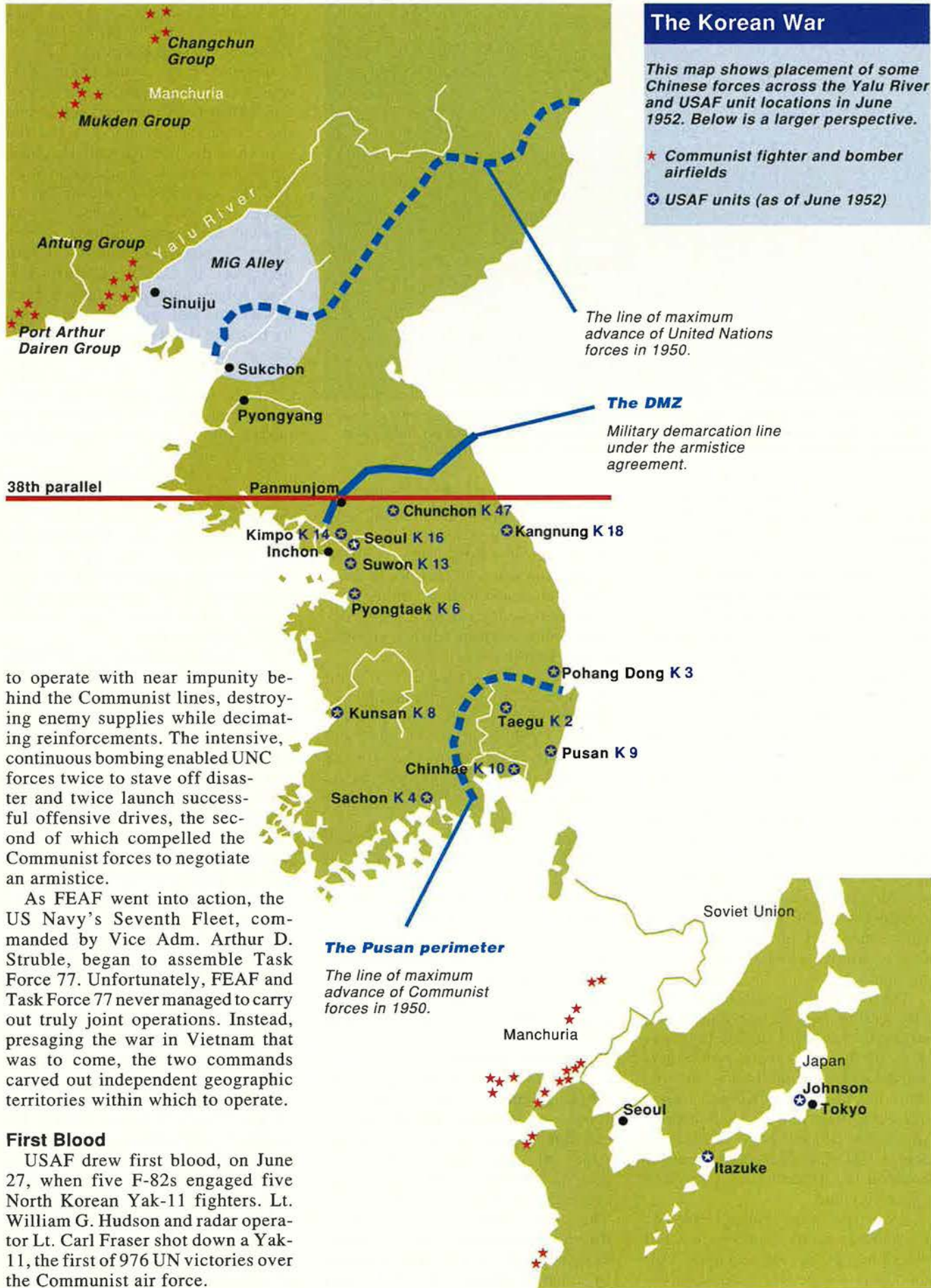
By October 1950, UN forces had pushed the North Koreans almost to the Yalu River. However, with the arrival of the Chinese "volunteers," the tables turned again. Here, a C-119 evacuates UN forces from Seoul in December 1950.

The Korean War

This map shows placement of some Chinese forces across the Yalu River and USAF unit locations in June 1952. Below is a larger perspective.

★ Communist fighter and bomber airfields

✪ USAF units (as of June 1952)



The line of maximum advance of United Nations forces in 1950.

The DMZ

Military demarcation line under the armistice agreement.

38th parallel

to operate with near impunity behind the Communist lines, destroying enemy supplies while decimating reinforcements. The intensive, continuous bombing enabled UNC forces twice to stave off disaster and twice launch successful offensive drives, the second of which compelled the Communist forces to negotiate an armistice.

As FEAFF went into action, the US Navy's Seventh Fleet, commanded by Vice Adm. Arthur D. Struble, began to assemble Task Force 77. Unfortunately, FEAFF and Task Force 77 never managed to carry out truly joint operations. Instead, presaging the war in Vietnam that was to come, the two commands carved out independent geographic territories within which to operate.

First Blood

USAF drew first blood, on June 27, when five F-82s engaged five North Korean Yak-11 fighters. Lt. William G. Hudson and radar operator Lt. Carl Fraser shot down a Yak-11, the first of 976 UN victories over the Communist air force.

The Pusan perimeter

The line of maximum advance of Communist forces in 1950.



B-26s, B-29s, F-80s, and F-82s, like this one, were mustered for action in the opening days of the Korean War. Lt. William Hudson was flying an F-82 Twin Mustang when he scored the first aerial victory of the war on June 27.

The following day, Yak fighters strafed the Suwon airport near Seoul, damaging a B-26 and an F-82 and destroying a C-54. On June 29, 18 B-26s responded by dropping fragmentation bombs that destroyed 25 aircraft at Pyongyang airfield. These and other losses virtually eliminated the North Korean air force.

FEAF assigned its fighters and bombers to two vitally important tasks. The first, which would take only a few days at the start of the war, was to escort the aircraft and ships evacuating American personnel from South Korea to the safety of Japan. The second would take the rest of the war; it was to bomb and strafe Communist positions and supply lines. In the process, arguments would arise as to the relative effectiveness of close air support at the front lines and the interdiction of enemy troops and supplies behind the lines.

These arguments arose from differences in perspective and in the strategic situation. During the early days of the war, profitable targets behind enemy lines had to be forgone because South Korean troops desperately needed close air support since they did not have artillery or armor. The ground assault missions enabled the ground forces to trade space for time.

From the start, United Nations Command aircraft were effective. For example, on July 10, an enemy column was trapped at a bombed-out

bridge near Pyongyang. F-80s, B-26s, and F-82s destroyed 117 trucks, 38 tanks, and seven half-tracks. This attack, along with others, gutted North Korea's single armored division. Had it survived, it could easily have punched through the UN defensive line at Pusan and driven UNC forces into the sea.

The air campaign led Gen. Walton H. Walker, then commanding US Eighth Army, to say, "I will gladly lay my cards right on the table and state that, if it had not been for the air support that we received from the Fifth Air Force, we would not have been able to stay in Korea."

Even later in the war, when such efforts were far less profitable, 30 percent of all United Nations sorties were still close assault attacks in direct support of the troops.

The war in the air and on the ground was divided into five distinct phases. Each phase saw major changes in comparative military power that forced equally wide political swings.

Pusan and Inchon

The first phase lasted from June 25 until Sept. 14, during which UN forces—essentially the South Korean constabulary and a few understrength American units hurriedly rushed to their aid—were driven into an enclave known as the Pusan perimeter. The enemy was unable to break through the besieged force as North Korean supply lines were shredded by constant attacks from B-26s and

B-29s and its front-line troops were decimated by close support from the F-80s, F-51s, and B-26s.

General of the Army Douglas A. MacArthur, commander in chief of United Nations Command, unleashed the second phase and reversed the course of the war with his magnificent counterstroke at Inchon on Sept. 15. The amphibious landing of US forces to the rear of the main North Korean force was coupled with a Sept. 16 breakout from the Pusan perimeter. By Oct. 1, the North Korean forces had been thrown back across the 38th parallel, exhausted by battle and depleted by the merciless air assault. The effectiveness of air interdiction became more than obvious, for the speed of the UNC forces' advance was limited by the destruction the air war had inflicted on roads and bridges.

The rout of North Korea's forces was complete, and Allied leaders decided to pursue the enemy all the way to the northern border of North Korea and destroy him. The idea was that, with that objective achieved, the next step would be the unification of the country under South Korea's president, Syngman Rhee.

As UN forces approached the North Korean border with China, Communist Chinese leadership gave several clear warnings that they regarded North Korea as a state within China's sphere of influence and would intervene militarily if China's interests were threatened. Curiously, neither MacArthur nor the Joint Chiefs of Staff believed the warnings. They assumed that neither China nor the Soviet Union would intervene. These views were corroborated by the independent assessments of the Central Intelligence Agency and the State Department.

On Nov. 25, however, Communist China made good its warning, intervening with overwhelming numbers of "volunteer" troops and initiating a new phase of the war. Using human wave attacks in place of airpower, Chinese Communist Forces savaged the UN forces during the coldest winter in Korea in more than a century, throwing them back down the peninsula with heavy losses. Communist forces recaptured Seoul, depriving the UN of most of its air bases in the area.

If the Chinese forces had possessed an adequate air force, their drive

would probably have forced United Nations Command from the Korean peninsula. However, intense UN air activity maintained from Japanese bases took the momentum from the Chinese advance. By Jan. 25, 1951, the new Eighth Army commander, Lt. Gen. Matthew B. Ridgway, began the fourth phase with a ground advance back up the Korean peninsula, operating always under the cover of continuous air attack on Communist forces. Heavily outnumbered, Ridgway fought a brilliant ground campaign under the umbrella of UN airpower, relentlessly driving the Communists back. Seoul was recaptured on March 15, and the 38th parallel was crossed again by the first week in April.

Changed Objectives

Despite this resurgence of good fortune, the Chinese intervention had in just three months forced a change in UN goals from total victory to negotiated armistice. Continuous air attacks prevented the Chinese from accumulating stores required for sustained offensives, but close air support became less and less effective as Chinese forces protected themselves with elaborate systems of tunnels and dugouts.

The UN air effort was given full credit at the negotiating table at Panmunjom, where the North Korean Lt. Gen. Nam Il said, "Without the support of the indiscriminate bombing and bombardment by your



B-26 Invaders, like the one shown here, bombed a Pyongyang airfield four days after the war started, destroying 25 aircraft and helping to virtually eliminate the North Korean air force.

Photo by Ken LaMoreux via Warren Thompson

air and naval forces, your ground forces would have long ago been driven out of the Korean peninsula."

Nam Il's rhetoric notwithstanding, the bombing was in fact quite discriminate, taking out enemy supply columns, transport facilities, and industrial centers. The fifth and final phase of the war lasted until the armistice was finally signed July 27, 1953. The ground war went on at a subdued level, one that still exacted heavy casualties but did not generate much change in the position of battle lines.

Interdiction efforts were stepped

up, but there was a missing ingredient. Interdiction is more effective when combined with ground attacks that cause the enemy to consume his stores at a faster rate. The intense political requirement to minimize US casualties prevented this from happening, so that even with 90 or 95 percent of their truck and rail transport destroyed, the Chinese Communist Forces were able to maintain their minimum needs.

The Communists hoarded their supplies and made one last reckless attempt at victory with a large-scale offensive in June 1953, but it was repulsed after the enemy suffered nearly 7,000 casualties.

While the ground war could be charted with a series of lines on a map, the air war was a fluid encounter conducted almost solely over North Korean territory. The exceptions were the rare and quickly blunted attempts by the Communists to attack behind UN lines and a few inadvertent excursions across the Yalu River by wandering US airmen.

Public attention quickly focused on the battles between UN and Communist fighter aircraft, not so much because of the importance of the outcome but because of the glamour attached to dogfights between swept-wing fighters.

The fighter aces deserved their acclaim, for the Communist forces were never able to achieve even temporary air superiority. Had they done so, they would have introduced the



Photo by Ward Odenwald via Warren Thompson

The C-46 Commando gained great fame airlifting supplies over "The Hump" during World War II and served again in the Korean War. Here, paratroopers jump from the transport into North Korea during a UN offensive.



B-29s required a large, well-trained crew like this one, with the 19th Bomb Group at Kadena AB, Japan. These bombers were assigned difficult targets such as depots, industrial facilities, and the Yalu River bridges.

large numbers of ground attack and light bomber aircraft available to the Soviet air force, forcing UN ground forces to abandon their positions. At one time, the Communists had more than 100 Il-28 jet bombers in the theater, and they presented a tremendous threat to UN airfields.

Grievous Losses

FEAF suffered grievous losses, losing 1,466 aircraft. The Navy, Marines, and friendly foreign air forces lost an additional 520 airplanes. Of the total of 1,986 aircraft, 1,041 were lost to enemy action (147 in air-to-air combat). Another 816 were lost to hostile ground fire and 78 to unknown causes. Best estimates of the Communist losses indicate that about 900 were shot down in aerial combat, of which more than 800 were MiG-15s. Another 1,800 were estimated to have been lost in accidents.

The single most effective Communist defense against UN air forces was directed against daylight B-29 bombing raids. There were simply too few F-86 Sabres to protect the bomber formations from slashing MiG-15 attacks. Heavy losses forced the B-29s to resort to night bombing attacks. Crews, aided by new equipment such as short-range navigation radar, known as shoran, became adept at night bombing and even engaged in close support. In one instance, radar directed bombs were dropped with great effect within 400 yards of US positions.

The Soviet Union came to North Korea's aid in the fall of 1950 by secretly sending regular Soviet air force fighter units with Soviet pilots who were permitted to fly from Chinese bases under North Korean colors. They came in small numbers at first but soon expanded to a fleet of more than 900 MiG-15 fighters in the theater. In contrast, USAF was never able to field more than about 150 F-86s in Korea, and for much of the time, as many as half of these were out of commission for lack of spare parts.

By May 1952, the Soviets supple-

mented their fighter force with a complete ground-controlled intercept system. From then on, the MiGs operated under close ground control, skillfully using the advantages conferred by geography and the stringent American rules of engagement. Korean geography dictated that American fighters would have to fly the length of the Korean peninsula to arrive in the target area with fuel for only 25 minutes of combat. In contrast, the Communist aircraft could take off from airfields north of the Yalu River, climb to altitude unmolested, engage in combat at will, and then, if necessary, glide back to home base. The US rules of engagement decreed that the Yalu was not to be crossed and Chinese airfields were not to be molested.

The first combat with Soviet MiGs came on Nov. 8, 1950. A flight of the swept-wing MiG interceptors jumped F-80Cs of the 51st Fighter-Interceptor Wing, escorting B-29s in an attack on Sinuiju airfield. Lt. Russell J. Brown, with five of his six .50-caliber machine guns jammed, put his F-80C Shooting Star behind a MiG-15 and shot it down, thus becoming the victor in the first jet-fighter-vs.-jet-fighter combat in history.

It was obvious, however, that the F-80 was no match for the MiG-15. Vandenberg knew that there were only about 150 F-86s available for continental air defense and that fewer than a dozen per month were being



Synonymous with the Korean War, the F-86 began operations there Dec. 15, 1950. Two days later came the first Sabre-vs.-MiG victory. This 16th FS checkertail is returning from a mission over MiG Alley.

built. Nonetheless, on Nov. 8, Vandenberg ordered 49 Sabres of the 4th Fighter-Interceptor Wing into action. Vandenberg also picked the 27th Fighter Escort Wing, flying F-84s, to go to war.

The First Sabre Victory

On Dec. 17, Lt. Col. Bruce H. Hinton, commanding officer of the 336th Fighter-Interceptor Squadron, damaged one MiG-15 and shot down another in the first Sabre-vs.-MiG encounter. It was the first of 792 victories for the Sabres.

The engagement set the pattern for a long series of combats over "MiG Alley," a narrow triangle of land south of the Yalu River in the northwestern corner of Korea. The Sabres, operating in flights of four, would fly all the way up the peninsula, hoping to find MiGs that would engage in battle.

The MiG-15 and the F-86As were well-matched opponents, with the MiG's lighter weight conferring a speed and altitude advantage that often permitted it to dictate whether or not combat would take place. The F-86A was a superior gun platform. It was also more ruggedly built and equipped with redundant flight control systems for safety.

This relative parity in performance meant that the decisive element in combat was the individual pilot. In the opening encounters, both the American and the Communist aircraft were flown by experienced veteran pilots of World War II. The Americans proved to be better trained and more aggressive. In time, the Communists used Korea as a training ground for younger Soviet pilots and their Chinese and North Korean counterparts. In a similar way, the American veterans were soon supplemented by a new generation of eager pilots, fresh from flying school.

Over the course of the war, USAF pilots, aided by the introduction of improved models of the F-86, dominated MiG Alley, achieving a victory ratio of 10-to-1. Thirty-eight USAF pilots became aces, along with one each from the Navy and the Marine Corps. The race to be the leading ace was hotly contested and was finally won by Capt. Joseph C. McConnell Jr., with 16 victories. He was followed closely by Maj. James Jabara, with 15, and Capt. Manuel J. Fernandez with 14.5. Only in recent



Both sides put experienced World War II pilots in the cockpit. In USAF, 38 pilots became aces, including then-Capt. James Jabara (in a World War II A-2 jacket), here discussing his fifth and sixth kills.

years has it been disclosed that the Soviet Union claimed no less than 44 aces during the Korean War, the list being led by Capt. Nikolay Sutiagin with 21 victories. All told, the Soviet pilots claimed more than 1,000 victories.

As important as aces and victories were to the war and to morale, the greatest benefit to USAF from the combat over MiG Alley was the generation of experienced leaders it created. Many World War II aces, such as Col. Francis S. "Gabby" Gabreski, Col. Harrison R. Thyng, and Lt. Col. Vermont Garrison, proved themselves to be first-rate combat unit leaders. Others, such as (later) Maj. Gen. Frederick C. "Boots" Blesse and (later) Brig. Gen. Robinson Risner, rose to leadership positions. Sadly, other potentially great leaders, such as Maj. George A. Davis Jr., Jabara, and McConnell, were killed in combat or in post-war accidents.

The final air-to-air victory of the Korean War was scored by Capt. Ralph S. Parr Jr., who shot down an Il-12 transport on July 27, 1953, after having previously destroyed nine MiG-15s.

Enter Weyland

When Stratemeyer suffered a severe heart attack on May 20, 1951, Lt. Gen. Otto P. Weyland was selected to succeed him. At the same time, Maj. Gen. Frank F. Everest was named commander of Fifth Air

Force. Weyland had greater influence on the course of the air war than any other individual. Famed for his support of Patton's Third Army during World War II, Weyland believed in air interdiction, particularly in Korea, where the enemy was adept at digging in. He had to face opposition from his Army counterparts, who wanted to have the same degree of close air support that Marine air units were providing Marines on the ground. Although Weyland had loyal backers in MacArthur and Eighth Army's Walker, his tactics were often criticized by Maj. Gen. Edward M. Almond, X Corps commander.

Weyland felt that he was achieving the right balance between air interdiction and close air support with the limited means he had at hand. The B-26s flew the first and last bombing missions of the war, along with more than 55,000 others, of which 80 percent were at night. It was a tough and dangerous mission, flying low through the North Korean mountains to seek out trains and supply columns. The B-26s, often flying through the pitch black of thunderstorms, could unleash as many as 10 500-pound general-purpose or cluster bombs on the enemy below.

The B-29s were assigned difficult point targets such as bridges and supply depots, as well as industrial facilities. The bridges across the Yalu were particularly tricky, for the rules of engagement made it necessary for the bombers to fly parallel to the

Photo by Leo Fournier via Warren Thompson



Low and slow, in an extremely dangerous job, T-6s flew forward air control, or "mosquito" missions. The observer in the second seat spotted enemy troops and gun emplacements for the pilot to mark with smoke rockets.

river to avoid an incursion of enemy territory.

Despite their age and accumulated hours, the B-29s flew almost every day of the war. In some 21,000 sorties, they dropped about 167,000 tons of bombs. Equipment and tactics were improved and shoran was introduced to increase bombing accuracy. Losses were heavy—at least 16 were shot down over North Korea, and many more so damaged that they were lost on the journey home.

The Chinese made the series of interdiction campaigns difficult because they had huge reserves of manpower and sufficient trucks to move forward at night the comparatively limited amount of supplies they required. (A Chinese division required about 45 tons of supplies per day, compared to the 610 tons required by an American division.) The transportation routes could not be kept permanently destroyed and the Chinese simply waited until sufficient stores accumulated to continue fighting.

Strangulation Hold

The interdiction campaign was given various titles over time—Operation Strangle being one of the less fortunate selections—but in the end it was the air pressure campaign that operated most consistently for the longest period. The campaign was devised under the direction of then-Brig. Gen. Jacob E. Smart in the spring of 1952 and was focused

on the types of targets that would have the greatest impact on the enemy's capability. Over time, the air pressure campaign restricted the number of Communist troops available to the enemy for action, and, in Nam II's words, enabled the outnumbered UN forces to hold their positions. It may not have been all that Weyland wanted, but it was the one essential key to securing an armistice. Its ultimate vindication lies in the fact that the US objective was achieved without the necessity of resorting to nuclear weapons, as it was prepared to do if either China or

the Soviet Union expanded the war.

Close air support was not overlooked. The B-26s, F-51s, F-80s, and F-84s applied pressure during the day, with F-86s joining in after January 1953. USAF flew a total of 250,000 ground attack sorties. Viewed with some suspicion at first because of their high speed and short loiter time, the jets experienced a loss rate less than that of the Mustangs. Losses to ground fire were high, however, and this, in combination with a chronic shortage of spare parts, reduced the number of aircraft available for sorties.

The F-84s, which had gone into action in early December 1950, proved to be especially effective because of their long range and heavy bomb loads. While they were at a disadvantage in high-altitude combat with the MiGs, a capable pilot could more than hold his own at lower altitudes.

Lt. Jay Brentlinger was assigned to Luke AFB, Ariz., where training losses averaged a man dead every one-and-one-third days. Sent to Korea he soon found himself one of two pilots in the 429th Fighter-Bomber Squadron qualified to make attacks on the front lines, where he flew 70 missions. He recalls today that they used to estimate they got more rounds fired at them on a mission than the average foot soldier experienced in a year. Brentlinger regarded the F-84 as an excellent airplane, rugged and able to place its two 1,000-pound



Then-Capt. Daniel "Chappie" James Jr.—who became USAF's first African-American four-star—takes a break from flying the 101 combat missions he completed in the Korean War.

bombs on target, regardless of the opposition.

The UN air effort was handicapped by the fact that the source of the majority of the Communist army's supplies lay behind the borders of China and the Soviet Union and were off-limits to destruction. As during World War II, the selection of targets shifted over time. Airfields in North Korea were the first priority, and these were soon suppressed, the enemy taking his aircraft behind the Yalu. Rail lines and truck routes were next, but the results were never as satisfactory as Weyland wished. Periodically, the many bridges became the target, although the Chinese proved adept at improvising and making repairs.

The Dam-Busters

In June 1952, a series of attacks were made on the North Korean hydroelectric systems. Over a four-day period, almost 1,300 sorties were flown by US fighter-bombers, including Navy and Marine aircraft, shutting down 90 percent of the power available. Attention then shifted to industrial targets, which were soon eliminated. Airfields became the primary target when it was observed that the Chinese were building many airfields in North Korea for use after the armistice was signed. By May 1953, the focus was placed on the dams that controlled the irrigation system so vital to rice production.

In all these efforts, the Air Force effort was nobly complemented by US Navy and Marine Corps aviation. The Navy's Task Force 77 aircraft flew 167,552 sorties and dropped 120,000 tons of bombs. Naval and Marine Corps aircraft were primarily the piston-engine Vought F4U Corsairs and Douglas Skyraiders, supplemented by Grumman F9F Panthers. The Marines dropped 82,000 tons of bombs during more than 107,000 sorties. Additional ground support was supplied by South Korea (F-51s), Australia (F-51s and Meteors), and South Africa (F-51s and F-86s.)

The success of the bombing effort had depended in large part upon the



Photo by Jim Hanson via Warren Thompson

The success of USAF's bombing effort was largely due to reconnaissance done by pilots such as the 15th Tactical Reconnaissance Squadron's Lt. Norman Fredkin, ready to fly his unarmed RF-80A out of Kimpo AB, South Korea.

excellent reconnaissance provided by a very small number of aircraft and aircrews. The first reconnaissance mission, flown by 1st Lt. Bryce Poe II in an RF-80A, took place on June 28, 1950. More than 60,000 reconnaissance sorties would be flown by the time the war ended.

Then-Maj. Gen. William H. Tunner, who had been the mastermind behind the Berlin Airlift, demonstrated his outstanding leadership and managerial ability in Korea. There, the 315th Air Division used about 210 semiobsolescent aircraft to establish excellent cargo and combat capability. Douglas C-47s and C-54s formed the backbone of the force, supplemented by Curtiss C-46 Commandos, C-119s, and a handful of the new Douglas C-124s. In the worst of weathers, with hodgepodge equipment, the airlifters flew more than 200,000 sorties, carrying 2.6 million passengers and 400,000 tons of freight. They also participated in two major combat operations in the early months of the war. The first, at Sukchon, saw 2,860 paratroopers and 300 tons of equipment dropped in a near-perfect operation on Oct. 20, 1950. The second took place on March 23, 1951, when 3,447 para-

troopers and 220 tons of equipment were dropped at Munsan-ni.

Tunner's concept of centralized control of airlift assets proved to be effective, but he saw the need for a new transport, one that would combine speed, range, cargo carrying ability, and short-field capability. His vision would be fulfilled during the Vietnam War by the C-130, which would make its first flight a year after the Korean War ended.

The war in Korea would see the beginning of another discipline that would reach its high point in the Vietnam War, the Air Rescue Service. In Korea, 254 airmen would be picked up from behind enemy lines by what became the 3rd Air Rescue Group. Ill-equipped initially with Vultee L-5 Sentinel liaison aircraft and converted B-17s, it eventually used the SA-16 Albatross flying boat and the H-5 and H-19 helicopters. From a very small beginning, and with minimal resources, the Air Rescue Service became a vital part of the air war.

The Korean War fought to a stalemate even as the United States Air Force struggled to build a meaningful deterrent to the Soviet Union. When it was over, many conclusions were drawn, some correct, some not.

The most important lesson learned was the necessity of having a professional Air Force, ready to go to war on short notice and not reliant on a long buildup to achieve combat capability. ■

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Korean War Chronology

1950

June 25. North Korean troops, 135,000 strong, invade South Korea, starting Korean War.

June 27. (June 26 in Washington) President Truman orders US air and naval forces to provide military cover and support for South Koreans.

June 27. (June 26 in New York) UN Security Council calls on member nations to help South Korea repel invasion.

June 27. Lt. William G. Hudson, flying an F-82, destroys a Yak-11 near Seoul, first enemy aircraft shot down in war.

June 28. North Korean forces capture Seoul.

June 30. (June 29 in Washington) President Truman authorizes Gen. Douglas MacArthur to dispatch air forces against targets in North Korea.

July 5. Task Force Smith, first US ground unit to arrive in Korea, engages North Koreans at Battle of Osan.

July 7. US designated UN executive agent for action in Korea.

July 8. Gen. Douglas MacArthur named commander in chief of United Nations Command.

July 24. UN Command activated.

Aug. 1. North Koreans push retreating UN forces into Pusan perimeter.

Aug. 4–Sept. 16. UN troops mount successful defense of Pusan perimeter.

Sept. 15. US and allied forces land US Marines and US Army troops at Inchon.

Sept. 16–27. US Eighth Army breaks out of Pusan perimeter.

Sept. 27. US and allies recapture Seoul after week of fighting.

Sept. 28. The 7th Fighter-Bomber Squadron, first jet fighter squadron to operate from a base in Korea, moves from Itazuke, Japan, to Taegu.

Sept. 30. UN forces cross 38th parallel into North Korea.

Oct. 4. Chinese leader Mao Zedong secretly orders "volunteers" into Korea to fight on side of North Korea.

Oct. 19–25. US Eighth Army seizes Pyongyang; UN forces push North Korean forces nearly to Yalu River.

Oct. 25–27. Chinese Communist Forces launch first phase of their Korean offensive.

Oct. 25–Nov. 3. CCF engages South Korean troops 40 miles south of Yalu River, halting US ground forces attack.

Nov. 1. Soviet-built MiG-15 makes its first appearance in Korean War.

Nov. 6. MacArthur charges Chinese with unlawful aggression.

Nov. 8. Lt. Russell J. Brown, flying an F-80, downs a North Korean MiG-15 in first all-jet aerial combat victory.

Nov. 8–26. USAF B-29s and Navy aircraft attack Yalu River bridges in attempt to isolate battlefield.

Nov. 16. Truman declares no hostile intent toward China.

Nov. 25–Dec. 9. Chinese launch second phase of offensive.

Nov. 27–Dec. 9. Battle of Chosin Reservoir. Encircled 1st Marine Division fights southward.

Nov. 29–30. US Eighth Army and US X Corps withdraw in face of Chinese offensive.

Dec. 5. US and UN forces abandon Pyongyang. Communist forces reoccupy Pyongyang.

Dec. 14. UN creates cease-fire committee and presents cease-fire resolution to China.

Dec. 15. F-86 Sabre begins operating in Korea. UN forces withdraw below 38th parallel.

Dec. 22. China rejects cease-fire.

Dec. 25. Communist forces recross 38th parallel into South Korea.

Dec. 26. Lt. Gen. Matthew Ridgway assumes command of ground forces in Korea.

Dec. 31–Jan. 5. Chinese force of 500,000 troops launches third-phase offensive.

1951

Jan. 4. US and UN forces evacuate Seoul in the face of a major Communist assault.

Jan. 25. UN forces launch counteroffensive.

Feb. 11–17. CCF launches fourth-phase offensive.

Feb. 13–17. US Eighth Army retakes Inchon and Kimpo airfield, defeats CCF at Chipyong-ni and other locations.

March 7. UN forces launch Operation Ripper to drive Communist forces back to 38th parallel.

March 14–April 5. US Eighth Army retakes Seoul, again crosses 38th parallel into North Korea, heads toward Yalu.

April 11. Truman relieves MacArthur, who had criticized US war policies, and appoints Ridgway to succeed him.

April 12. War's first major air battle. More than 40 MiG-15s attack a B-29 formation, shooting down two. Eleven MiGs are destroyed.

April 22–30. China's first spring offensive, first step in its fifth phase.

May 16–23. China launches second spring offensive, makes initial gains.

May 20. Capt. James Jabara becomes Air Force's first Korean War ace. CCF advance halted.

May 31. Operation Strangle, massive air interdiction campaign initiated by FEAF and allies.

July 1. Kim Il Sung, North Korea's leader, and Peng Teh-huai, head of Chinese "volunteers," agree to discuss armistice.

July 10. Armistice negotiations begin at Kaesong.

Aug. 22. Negotiations suspended.

Sept. 20. Operation Summit, first helicopter deployment of a combat unit.

Oct. 25. Armistice talks resume at new site, Panmunjom.

Nov. 27. Sides agree on 38th parallel as line of demarcation.

Nov. 30. Force of 31 F-86 Sabres engage 44 enemy aircraft and knock down eight Tu-2 bombers, three La-9 propeller-driven fighters, and one MiG-15.

1952

April 19. UN delegation says only 54,000 North Koreans and 5,100 Chinese of 132,000 Communist POWs wish to return home.

May 2. Communists reject UN proposals for voluntary repatriation.

May 12. Army Gen. Mark Clark succeeds Ridgway, confronts military deadlock, stalled negotiations, violent POW situation.

June 23. FEAF and Navy aircraft launch massive airstrikes against North Korea's hydroelectric power grid.

Aug. 29. In war's heaviest air raid, FEAF and carrier airplanes launch 1,403-sortie assault on Pyongyang.

Oct. 8. Talks break down over POWs. UN delegation suspends negotiations.

Nov. 1. US tests first thermonuclear device at Eniwetok Atoll in Marshall Islands.

Nov. 4. Eisenhower elected 34th President, defeating Adlai Stevenson.

Dec. 25. Battle of T-Bone Hill. US defenders repel Chinese forces in intense firefight, one of many battles fought to gain or maintain control of elevated sites, such as Bloody Ridge, Heartbreak Ridge, Old Baldy, Pork Chop Hill (see below), Punchbowl, and Sniper's Ridge.

Korean War Air Operations Summary

1953

Jan. 20. Eisenhower inaugurated in Washington.

March 5. Soviet Premier Joseph Stalin dies.

March 21. Communists agree to exchange sick and wounded POWs.

March 30. Communists propose that prisoners unwilling to be repatriated be placed in temporary custody of neutral nation.

April 16–18. Battle of Pork Chop Hill. US infantry regiments suffer heavy casualties.

April 20–May 3. Operation Little Switch, exchange of sick and wounded POWs.

April 26. Armistice negotiations resume at Panmunjom.

May 13. Raid on Toksan Dam, dramatic strike by F-84s, destroys a major irrigation system, rice crops, and miles of major highways and railways.

May 25. UN negotiating team proposes nonrepatriated POWs remain in neutral custody for 120 days after armistice.

May 28. South Korea rejects latest proposal and boycotts talks.

June 8. UN and Communist negotiators agree to neutral nation repatriation committee.

June 15–30. Communist forces attack US I Corps.

June 17. Agreement on new line of demarcation for truce.

June 18. South Koreans unilaterally release about 25,000 POWs.

June 30. FEAF F-86s destroy 16 MiGs, largest number shot down in one day.

July 6–10. 7th Infantry Division ordered to evacuate positions on Pork Chop Hill after five days of fighting.

July 13–20. Battle of Kumsong River Salient, last Communist offensive.

July 19. Negotiators at Panmunjom agree on all points.

July 24–26. Final US ground combat takes place in "Boulder City" area.

July 27. Armistice signed at Panmunjom at 10 a.m.

July 27. In war's last air victory, F-86 downs enemy transport near Manchurian border.

July 27. Korean War armistice goes into effect at 10:01 p.m.

Combat Sorties, Far East Air Forces

Counterair	66,997
Interdiction	192,581
Close Support	57,665
Cargo	181,659
Miscellaneous	222,078
Total FEAF (USAF)	720,980

Combat Sorties, All UN Forces

US Air Force	720,980
US Navy	167,552
US Marine Corps	107,303
Allied air forces	44,873
Total UN	1,040,708

Tons of Ordnance Delivered

US Air Force	476,000
US Navy	120,000
US Marine Corps	82,000
Allied air forces	20,000
Total UN	698,000

Far East Air Forces, Ordnance Expended

Tons of bombs	386,037
Tons of napalm	32,357
Rockets	313,600
Smoke rockets	55,797
Machine gun rounds	16,853,100

Enemy Losses to UN Aircraft

Aircraft	976
Tanks	1,327
Vehicles	82,920
Locomotives	963
Railway cars	10,407
Bridges	1,153
Buildings	118,231
Tunnels	65
Gun positions	8,663
Bunkers	8,839
Oil storage tanks	16
Barges and boats	593
Railway cuts	28,621
Troops killed	184,808

Enemy Aircraft Destroyed by US Air Force

Air-to-air	900
MiG-15	823
Other	77
Air-to-ground	53
Total	953

USAF Aircraft Losses to Enemy Action

Air-to-air	139
Ground fire	550
Cause unknown	68
Total	757

Korean War Casualties

United States

Killed in action	33,651
Wounded	103,000
Missing	8,177
POW	7,000

South Korea

Killed in action	59,000
Wounded	291,000

British Commonwealth

Killed in action	1,263
Wounded	4,817

Other UN Allies

Killed in action	1,800
Wounded	7,000

China and North Korea (est.)

Killed	500,000+
Wounded	1,000,000+

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Verbatim

By Robert S. Dudley, Executive Editor

Room Service at Hanoi Hilton

"Though having committed untold crimes on our people, American pilots suffered no revenge once they were captured and detained. Instead, they were well-treated with adequate food, clothing, and shelter."—**Statement currently exhibited in the Hoa Lo prison in Hanoi, as recounted in an April 26 Associated Press dispatch. (See also box, below.)**

No Margin for Delay

"It is clear to me that the maintenance of an aggressive but well-hedged JSF [Joint Strike Fighter] program is critical to the nation's future defenses. The JSF will be the cornerstone of US tactical aviation for decades to come. Under current plans, at least 50 percent of the fighter/attack force structure will consist of JSF variants when the program is completed in the 2020s. ... Roughly 1,500 tactical fighter/attack aircraft—or an average of about 150 per year—are expected to reach retirement age during the decade beginning in FY 2010. By contrast, the United States has procured only about 50 tactical fighter/attack aircraft on average annually over the last seven years. Thus the opportunity afforded by the post-Cold War drawdown to acquire tactical fighter/attack aircraft at levels well below steady-state replenishment rates is over. There is no margin for delay."—**Deputy Secretary of Defense Rudy de Leon, in a May 2 memo to Air Force and Navy secretaries and service chiefs in response to a move in the Senate to delay the program. Reported in Inside the Air Force.**

The Legacy Stops Here

"The news media [are] buzzing with speculation that President Clinton will attempt, in his final months in office, to strike a major arms control deal with Russia. ... White House officials have openly stated their concern that Mr. Clinton faces the prospect of leaving office without a major arms control agreement to his credit. ... That, perhaps, would be, to him, a

personal tragedy. Mr. Clinton wants an agreement, a signing ceremony, a final photo-op. He wants a picture [of him] shaking hands with the Russian President, broad smiles on their faces, large ornately bound treaties under their arms, as the cameras click for perhaps the last time, a final curtain call.

"I must observe that, if the price of that final curtain call is a resurrection of the US-Soviet ABM Treaty that would prevent the United States from protecting the American people against missile attack, then that price is just too high. With all due respect, I do not intend to allow this President to establish his legacy by binding the next generation of Americans to a future without a viable national missile defense."—**Sen. Jesse Helms (R-N.C.), chairman of the Senate Foreign Relations Committee, in an April 26 Senate floor speech.**

Translation: No No-First-Use

"The Russian Federation reserves the right to use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against it and (or) its allies, as well as in response to large-scale aggression using conventional weapons in situations critical to the national security of the Russian Federation."—**From "Military Doctrine of the Russian Federation," approved by Russian presidential decree, dated April 21.**

Joint Control of CAS/BAI?

"[My] hypothesis is that there are half-dozen or so key military areas in which the joint equities supersede the service equities. I have a list of those things. I've given that list to my staff as a watch list and any doctrinal issues, organizational issues, training issues, procurement issues which hit that list, I said this is what we should focus on. ... [Items are integrated air and missile defense; command and control; combat identification; intelligence, surveillance, and reconnaissance; battlefield strike; joint fires; and strategic mobility and deployment.]

"That list is not approved by the Secretary of Defense and the Chairman [of the Joint Chiefs of Staff]. I briefed them on it. They said [it was] interesting. ... I briefed the service chiefs on it, and, once again, I got neither a yes nor a no. It is simply a work list. ... Some day the Chairman and the Secretary of Defense are going to have to take my private list and turn it into an official list and say that, in these areas, ... the joint guys have equality or even precedence. ... [The idea received] great support from [regional Commanders in Chief]. When I briefed the CINCs on it, they actually added another item—Close Air Support and Battlefield Interdiction. They added that. That wasn't on my list."—**Adm. Harold W. Gehman Jr., CINC, US Joint Forces Command, in April 27 remarks to the Defense Writers Group.**

Lest We Forget Dept. (Vietnam Div.)

"Vietnam should teach us an important lesson. Hanoi [is creating] a collectivist society ... likely to produce greater welfare and security for its people than any local alternative ever offered, at a cost in freedom that affects a small elite."—**Stanley Hoffman, Harvard professor and Vietnam War opponent, in May 3, 1975, The New Republic.**

"The greatest gift our country can give the Cambodian people is not guns but peace. And the best way to accomplish that goal is by ending military aid now."—**Rep. (now Sen.) Chris Dodd (D-Conn.), House floor speech, March 12, 1975.**

"It is ironic that we are here at a time just before Vietnam is about to be liberated."—**Producer Bert Schneider, Academy Awards presentation, April 8, 1975.**

■
Vintage anti-war sentiments recollected by James Webb, former Navy Secretary and decorated USMC combat veteran, in an April 28, 2000, article in *The Wall Street Journal*.



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If the computers and satellite links are good enough, the combat support force can be located half a world away.



During Operation Allied Force imagery from U-2s, like this one, was transmitted via satellite back to Beale AFB, Calif., analyzed, then sent back to the European theater—in short, the intelligence guys got to stay home. This type of capability is known as reachback. Still in its infancy, the process is expected to reduce the need for support forces within a theater by at least a third. That would mean that the additional 900 personnel needed at the Combined Air Operations Center (right) at Vicenza, Italy, during Allied Force could telecommute instead.



Reachback

By Richard J. Newman



THE U-2 aircraft taking photographs of targets in Kosovo during Operation Allied Force were bedded down in the theater with strike aircraft sent to bomb those same targets, but the pictures taken by the U-2s traveled halfway around the world and back before the photo intelligence found its way back to the pilots of the strike aircraft.

The U-2 imagery was transmitted to a ground station in southern Italy and then bounced off a satellite to Beale AFB, Calif. At Beale, intelligence experts analyzed the pictures and transmitted refined imagery, suitable for selecting targets, back to command posts in the European theater—sometimes in less than 30 minutes. This satellite arrangement meant

that 200 USAF intelligence specialists did not have to deploy to overcrowded European bases. They essentially telecommuted to the war.

The Air Force hopes the next conflict will be, to an even greater degree, a stay-at-home affair—the result of a concept called “reachback.” The Air Force is experimenting with ways to dramatically reduce the number of people physically present in a combat theater. Typically, the staff at a theater air operations center triples or quadruples during war. In Allied Force, for example, the staffing at NATO’s Combined Air Operations Center in Vicenza, Italy, grew from 400 to more than 1,300. Breakthroughs in telecommunications could let many of those people

do the same jobs from remote sites.

High-capacity computers linked by satellite could let weather forecasters or logistics analysts in the United States provide information to commanders as easily as if they were standing next to them. Some officials think complete Air Tasking Orders, which coordinate the entire flow of aircraft during a war, could be formulated at US bases such as Langley AFB, Va., and then sent forward to theater commanders. Reachback proponents think the concept ultimately could lower the need for people at forward command posts from 1,500 to about 300.

Reachback would, in effect, make available to local, tactical commanders all of the benefits of the military



Allied Force only used a limited reachback, but it highlighted bandwidth limitations. Graphics-intensive reports, imagery products, such as this bomb damage assessment photo, and even e-mail threatened to overload the system.

network's basic communications infrastructure. It would provide high-speed data transfer, efficiencies, high reliability, and security of information as well as security of personnel.

More Tooth, Less Tail

"Reachback offers a solution to the Air Force's commitment to reduce its forward footprint," says Col. Joseph May, a top command-and-control expert at Air Combat Command, headquartered at Langley. "I see more tooth and less tail going forward."

This smaller forward footprint would translate into fewer gas masks, beds, tents, mess halls, and other equipment needed to support troops. That would free the Air Force's cargo airplanes to ship more bombs, missiles, and other items for combat operations. In certain places—such as the air operations center at Osan AB, South Korea, which is within striking range of North Korean missiles—fewer people would be put in danger. Reachback would also give commanders in the theater the ability to quickly tap into expertise where it resides—at bases back in the United States. The latest weather forecasts from the Air Force Weather Agency at Offutt AFB, Neb., or airlift data from Scott AFB, Ill., would be just a few clicks away.

In the Gulf and Balkan wars, officers had months to work up campaign plans. In the future, com-

manders may have to send warplanes into action in unfamiliar places with little notice. They may not even know at the outset where their troops are going to sleep or how food will be supplied. That will require far more help from facilities such as the Operations Support Center at Langley.

The transformation won't be easy. The push for reachback confronts some serious real-world obstacles.

Chief among these are technical limitations. The Air Force is not certain it will have computer networking capacity that is sufficiently large and sufficiently reliable for transmitting data as vital and voluminous as an Air Tasking Order from the US to a combat theater.

"If we're going to do things like that," remarks one Air Force officer, "you can't just say, 'If one line goes down, well, I can't do the ATO.'"

Last September, the Air Force tested reachback during its Joint Expeditionary Force Experiment, or JEFX 99. USAF demonstrated the ability to send an ATO from a rear base in the United States to a forward command post in South Korea. However, one computer system repeatedly crashed, forcing battle managers into the time-consuming process of manually figuring out which airplanes should attack which targets, slowing down the decision-making cycle.

Allied Force featured reachback of modest scope. Even so, NATO

struggled with bandwidth limitations. "Numerous graphically intense briefing presentations, reports, imagery products, and e-mail threatened to overload systems throughout the theater," read the Pentagon's after-action report, released Feb. 7. "People had difficulty identifying and locating real-time sensitive data. The overwhelming amount of information also caused severe problems with network file servers, slowing the acquisition of needed information."

Building Up Bandwidth

The Air Force is trying to solve the problem. For example, it is developing a Global Broadcast System, which should help to ease that kind of crunch by providing extra satellite bandwidth. However, GBS won't be fully operational until at least 2006.

Even when newer systems are in place, there still will be concerns about whether USAF's communications backbone is robust enough to handle reachback. Much will hinge on where the war occurs. South Korea, for instance, boasts a modern fiber-optic network that would make it easier to transmit huge amounts of data to and from the United States. Countries in the Persian Gulf theater are less well-wired, and some Third World regions have very little standing communications infrastructure. The rigors of operating in such places would raise the demand for satellite communications, already in short supply. And it could test the Pentagon's ability to conduct space control, which includes preventing an enemy from disrupting or attacking friendly satellites. American policymakers have yet to resolve the sticky question of how the Pentagon would respond to a hostile act in space.

Of more immediate concern is the threat of attacks on military computers, especially as reachback blends many computer networks into a global, umbilical lifeline to commanders. In reachback experiments over the last two years, the Air Force set up a "red team" of hackers to try cracking into the computer systems shipping data back and forth. While data on information warfare is highly classified, Air Force officials say the mock attacks revealed some vulnerabilities that have been addressed. The Air Force has since designed a defensive system that includes numerous firewalls, internal networks,

and sophisticated software for detecting intrusions. In an upcoming experiment this fall, the Air Force plans to demonstrate new software that can predict the kind and intensity of risks that enemy information attack would pose to a mission and to recommend the most effective countermeasures.

Also complicating the drive for reachback are questions about how to handle coalition partners, whom strategists expect to be an integral part of future operations. Last September's JEFX was unable to involve coalition representatives in air combat planning and other aspects of the mission. The biggest barrier was the requirement to keep all classified information in US-only channels. The exercise revealed that routine reliance on a classified US Internet computer system often reduced allies to limited over-the-shoulder access to information—a situation allies would be unlikely to tolerate in a war.

"The amount of reachback will be tempered by coalition members' capabilities and sensitivities," observes one Air Force official. "If the [South] Koreans are a large part of planning, and they're not good in English, they'll probably want to do a lot of face to face."

Up to Here With Teleconferences?

Even US commanders were uncomfortable with the daily video-



Staff photo by Guy Aceitro

E-8 Joint STARS radar aircraft mission crew members, like these, provided intelligence and targeting data directly to the CAOC during Allied Force. They even directed some strike missions against moving targets.

conferences conducted between senior staffs at various European headquarters and the Pentagon during Allied Force. "The widespread use of video teleconferencing and other advanced technologies for command and control and collaborative planning presented numerous limitations and challenges," reads the Pentagon's after-action report. While the report found that real-time sharing of information enhanced situational awareness and should be developed further, it also concluded, "It was very apparent that there is still a need for written documenta-

tion and dissemination of decisions."

Air Force officials who ran last year's JEFX proposed extending the use of a Coalition Wide Area Network, making it accessible, as needed, to all members of an alliance. They argued that US forces must develop an information system to make all data relevant to a combined operation releasable within the coalition. In such a system, highly classified US-only information would be automatically sanitized and dumped into the coalition system. That would make US forces less dependent on their own classified Internet system, which the experiment identified as a key condition for making reachback succeed.

While Air Force officials disagree over just how much reachback will be feasible in future wars, there is little doubt that greater connectivity and information sharing will provide a key advantage.

The 1999 experiment linked together more than 5,000 airmen operating from 11 major locations and covering a range of functions—intelligence from Kelly AFB, Texas, and Vandenberg AFB, Calif., weather data from Offutt, airlift input from Scott, sophisticated target analysis from the Joint Warfare Analysis Center at Dahlgren, Va. The experiment affirmed the Air Force's ability to bring together data from dispersed locations. "We have accepted that we can do distributed operations," says Col. Terry S. Thomp-

USAF photo



At Langley AFB, Va., SSgt. Joseph Checho (right) and MSgt. Paul Moreau review a checklist during JEFX 99, one aspect of which tested the ability to send an Air Tasking Order from a rear US base to an overseas command post.



As part of reachback experiments, USAF wants to do short-notice tasking that would redirect strike aircraft to ground targets not on an ATO. Here, SrA. William Mitchell marshals an F-15E, bound for an Allied Force mission, into a parking spot at RAF Lakenheath, UK.

son, director of the Air Force Experimentation Office at Langley.

The 1999 experiment left lots of work. A key requirement identified by that experiment was the need for commanders to plan for the war while they are en route to an operation. That is more than just a theoretical requirement. During the early hours of Operation Desert Fox, the four-day bombing campaign against Iraq in December 1998, Lt. Gen. Hal M. Hornburg was still airborne on his way to the theater. From his airplane, US Central Command's senior Air Force commander could talk on the phone to subordinates running the first night's attack out of Saudi Arabia. But until he arrived at the operations center in Riyadh, he couldn't receive intelligence data, review the status of the forces under his command, or download the Air Tasking Order that detailed which aircraft were being sent to bomb what.

In the Rearview Mirror

The Air Force hopes to develop the capability to do all of that from a command-and-control aircraft, without relying on an existing air operations center in the theater. "As we become more of a garrison Air Force, more expeditionary, we've got to be able to get out of Dodge pretty quickly," says Thompson. "We've got to have dynamic command and control."

Moving information around quickly isn't enough, though. As the 1999

experiment demonstrated, there's also a critical need to organize it effectively and efficiently.

"What we have to do through further experimentation is refine the information further," says Thompson. "We got a lot of information coming forward to the [air operations center], but we didn't catalogue it well. We need an information management process to get information much quicker."

Further experiments, including JEFX 2000 this fall, will work on developing doctrine for distributed operations, further integrating intelligence and planning information, and establishing a team that can rapidly assemble Internet-style Web pages containing war planning information during a contingency.

USAF officials will put increased emphasis on dynamic planning—that is, short-notice retasking—after a daily Air Tasking Order has already been established. Many commanders viewed the lack of dynamic tasking as a key shortcoming in the Kosovo air war.

Experiments this fall will test USAF's ability to retask transports to deliver spare engines or other critical supplies on short notice. There will be other tests of how quickly the Air Force can redirect strike aircraft

to ground targets not identified in the Air Tasking Order. After the 1999 experiment, officials at Langley recommended that such scenarios be worked into Red and Green Flag exercises at Nellis AFB, Nev., and other regular training events.

Other kinds of reachback have already been validated and will soon be fielded. Medical corpsmen, for instance, will soon be equipped with a device called RAPID (for Ruggedized Advanced Pathogen Identification Device), which will help determine whether a stricken service member has been infected with a biological agent. The corpsman will take a fluid sample from the airman, insert it into a portable detector, and then plug the detector into a communications device that transmits key data via satellite to a lab in the United States. The lab should be able to transmit results within four hours.

Today, a fluid sample would be put in a pouch and then shipped to a theater hospital, a process which may not produce a result for three days. While waiting for an answer, commanders may have no choice but to order their troops to wear cumbersome protective gear, even if the danger turns out to be a false alarm. The Air Force plans to start buying the RAPID devices in 2002.

Meanwhile, senior Air Force officials will continue to tussle with the trade-offs between being there with a large on-scene contingent and being there in a virtual sense, with electronic links to other locations.

"You'd like to have everybody face to face, but it's not practical," says Lt. Col. Sean Kelly, an intelligence expert based at Langley.

USAF commanders already have learned to make such sacrifices. During the Kosovo war, says Kelly, "There were times when [commanders] wished they had the image right in front of them and they could talk to the analyst." Instead, the analysts back at Beale did the next best thing: They placed a phone call to a commander in the theater when he needed additional expertise on "hot" targets requiring immediate attention. Even in war, sometimes help is just a phone call away. ■

Richard J. Newman is the Washington-based defense correspondent and senior editor for US News & World Report. This is his first article for Air Force Magazine.

Flashback

Goblin

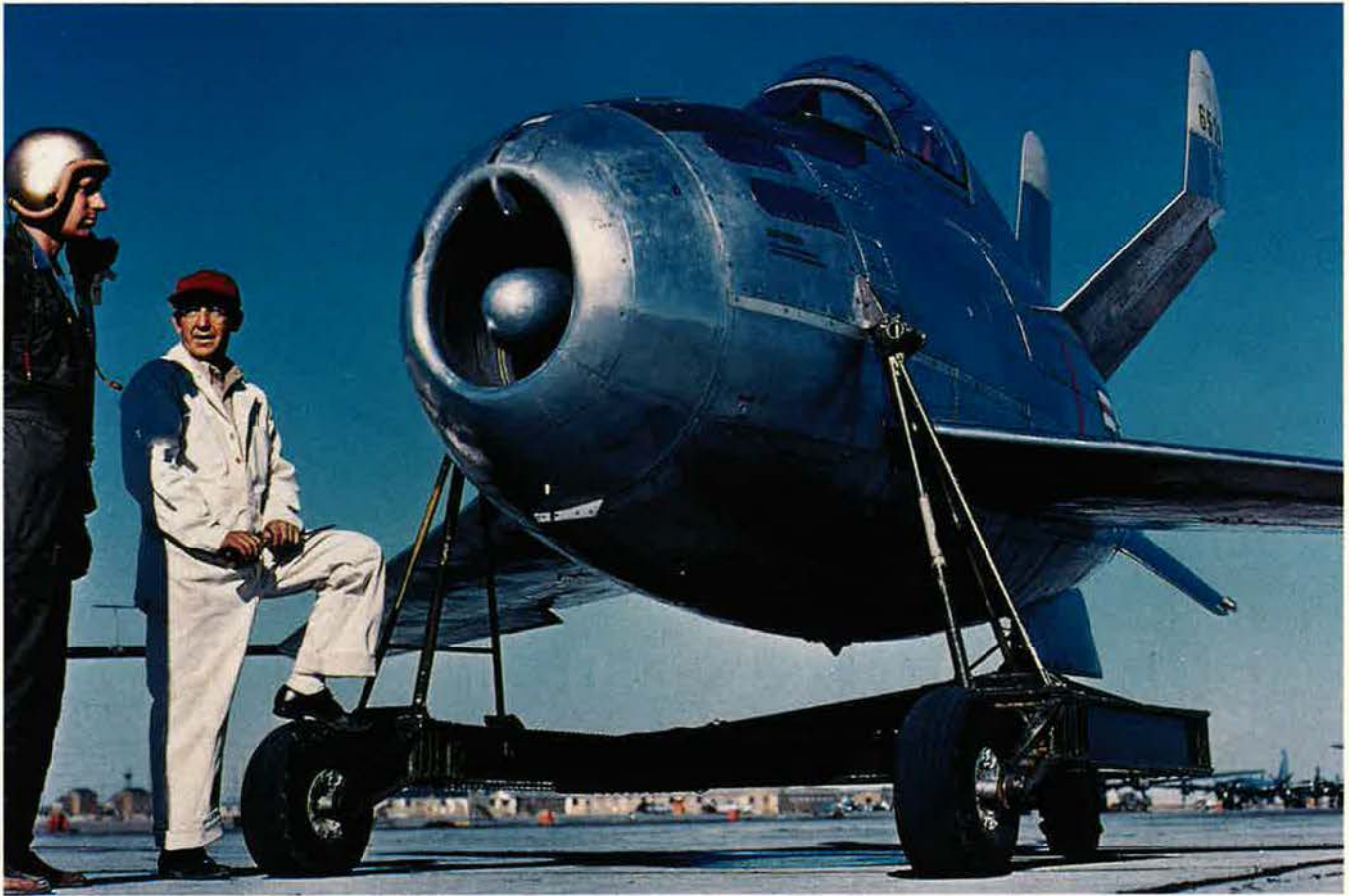


Photo via Robert F. Dorr

Answering the need for a jet fighter with the range to escort heavy bombers, McDonnell Aircraft Corp. came up with the XF-85 Goblin. Plans called for the 14-foot-11-inch-long parasite airplane to be carried in the bomb bay of a B-36. The Goblin would be launched from a retractable trapeze beneath the bomber and—having successfully fought off enemy aircraft with its four machine guns—would use a retractable hook in its forward fuselage to snag the trapeze. The Goblin could then fold its wings and be tucked back into the B-36.

Free-flight tests began in August 1948, but it proved difficult to control the Goblin while engaging the hook. Also, development funds dried up, and mid-air refueling of fighter aircraft was beginning to show greater promise. USAF canceled the program in October 1949.





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JUSTIFY

One year after Operation Allied Force, some strange notions have taken root.

Nine Myths About Kosovo

By Rebecca Grant

// **V**ICTORY through airpower was a seductive slogan in the US around the time of World War II, but this is not the time to re-embrace that myth." Thus warned a *Los Angeles Times* editorial in June 1999, just as Operation Allied Force was ending.

Actually, we've witnessed the emergence of a new and different crop of myths—numerous untruths and half-truths which have clouded the role of aerospace power and the outcome of the air campaign. Over the past year, doubters have made many claims about what NATO's airmen did and did not do. They've made it look as though the operation was more failure than success.

It is fashionable now to claim that allied airmen did not hit Yugoslav tanks or artillery, that it took a Kosovo Liberation Army ground offensive to push Slobodan Milosevic's Serb army forces out of hiding, that airmen shied away from operating at low altitude for reasons of personal safety, and that pilots mostly hit decoys instead of real targets. In extreme cases, doubters have said that the air war was just too immaculate and broke the rules of "just war."

Operation Allied Force was a hard-won success for NATO. Diplomacy and determination played their roles in resolving the Kosovo crisis, and, even now, Kosovo's long-term fate remains unclear. However, as the



USAF photo by SRA Jeffrey Allen

"The past year has seen the operational lessons of Kosovo become encrusted with old myths about airpower and warfare. Each myth touches on deeper questions about strategy and military force and reflects pre-existing beliefs and doctrines." An Air Force F-16 at Aviano AB, Italy, just before an April 4, 1999, mission.

top NATO commander, US Army Gen. Wesley K. Clark, told Congress, the one indispensable condition for victory was the success of the air campaign.

Unfortunately, the past year has seen the operational lessons of Kosovo become encrusted with old myths about airpower and warfare. Each myth touches on deeper questions about strategy and military force and reflects pre-existing beliefs and doctrines. Each myth also represents a potential stumbling block in con-

sidering how to allocate national resources and lay plans for maintaining national security in the future.

Myths often contain grains of truth, but the myths about aerospace power and Allied Force threaten to distort the findings from this unusual campaign. If these myths were to be credited, one would have to conclude that aerospace power is nothing more than a flashy, unreliable tool of military force. No leader would long rely on such a force to protect national interests.

Myth 1: Kosovo proves that the "halt phase" strategy is a non-starter.

Since the mid-1990s, defense plans have called for the air component to rapidly halt invading enemy ground forces in a regional conflict. Yugoslav regular military and special police forces had been engaged in fighting with the Kosovo Liberation Army for a year before the start of Allied Force, making it too late to prevent an "invasion." However, in March 1999, another contingent of Yugoslav army forces massed and began Operation Horseshoe, Milosevic's attempt to drive the ethnic Albanian population out of Kosovo.

At first glance, Operation Horseshoe seemed to be a chance to prove

or disprove the halt phase theory. One such opinion came from the commandant of the US Army War College, Maj. Gen. Robert H. Scales Jr. He concluded, "The Serbian dash into Kosovo demonstrates the particular futility of attempting to preempt an enemy force using airpower alone." Scales went on to suggest that land forces made better tools for strategic pre-emption.

The mythmakers might believe that the halt phase failed, but the facts were that, for political reasons, there was no opportunity for NATO airpower to halt or reverse the drive of the Yugoslav army. Long-standing intentions called for

a few days of bombing on a limited set of targets. From the operational perspective, it was too late for a halt phase operation. With refugees, the Kosovo Liberation Army, and Yugoslav forces colliding across Kosovo, the situation had long since become a morass of close combat without a traditional front line. NATO did not have enough forces in theater to provide 24-hour coverage of Yugoslav troops on the move. Attacks on mobile ground targets did not begin until the second week of April. NATO's desire for a limited air campaign took the halt phase strike option off the table before it could even be considered.

Myth 2: Air attacks on fielded forces ultimately were of no importance to the outcome of the war.

This is a myth of classical proportions, for it reaches back as far as the earliest employment of airpower in World War I. The stalemate on the Western Front led to a desire to attack the arms-producing industries that fed the war and to target the morale of the enemy's nation. Yet even in 1918, airpower also proved its value in strikes against enemy airpower, army troops, command posts, lines of communication, and rear-area supplies.

In every conflict since, theater commanders have tasked air to attack fielded forces, from World War II to Korea and Vietnam. In Operation Desert Storm, ground order of battle targets made up 65 percent of the targets in the air tasking order of Central Air Forces. These included 33,560 of 51,146 total targets.

The rule of thumb is that Commanders in Chief always want to target adversary ground forces that are active in the battle area. In Kosovo, the Yugoslav ground forces were burning houses and driving out refugees, so the pressure to target them came from all sides. Ultimately, one of NATO's major goals was to inflict damage on the Yugoslav army and degrade its ability to threaten Kosovo's population. Targets like military barracks, ammunition dumps, and lines of com-



"One of NATO's major goals was to inflict damage on the Yugoslav army. Targets like military barracks, ammunition dumps, and lines of communication also made up a significant fraction of fixed targets. It is just a myth to claim that these attacks were of no importance." A bombed-out storage depot used by Yugoslav forces.

munication also made up a significant fraction of the fixed targets.

The case can be made that NATO should have prepared earlier to sustain air attacks on Yugoslav army forces, but it is just a myth to claim that these attacks were of no importance. Indeed, the serious point that emerges from this myth is that command of aerospace power includes

identifying ground force targets and that this is part of the joint forces air component commander's job for the CINC, from Day 1. Responsibility lies with the air component, not just with the land component. In the end, it was the combination of pressure on the armed forces and attacks on major strategic targets that made the air war effective.

Myth 3: The Yugoslav army got away unscathed.

Within days of Milosevic's capitulation, Serbian generals told Western newspapers their army had lost only 13 tanks to NATO airmen. *The Sunday Times of London* reported that the 11-week NATO bombing campaign did almost no damage to Serb fielded forces in Kosovo. Many were eager to demonstrate that the claims of aerospace power were exaggerated.

Serb propaganda played directly into a powerful myth that aircraft are not good at destroying mobile ground targets. Behind that myth is the premise that it takes ground forces to achieve decisive results against enemy armies and that air plays only a supporting role, scoring an occasional lucky hit or two, but without the weight and mass central to a campaign of maneuver and fires.

Clark ordered a survey of the evidence of what the air war had done to Milosevic's army. A team of experts reviewed the remaining battlefield evidence, overhead imagery, pilot

mission reports, gun camera video, and all other sources in what must surely have been the most thorough review of data in the history of warfare. To count as a validated "hit," the report had to be confirmed by two or more sources. Validated hits on targets within two kilometers of each other were counted as a single hit. Despite the stringent criteria, Clark's team found that NATO airmen tallied 974 validated hits on tanks, Armored Personnel Carriers, artillery pieces, and trucks.

Raw numbers aside, the percentages also made clear the Yugoslav army sustained heavy damage. Official data show that the Yugoslav army in Kosovo lost 26 percent of its tanks, 34 percent of its APCs, and 47 percent of the artillery to the air campaign. In Desert Storm, the Iraqi army lost 41 percent of its tanks to airmen, 32 percent of its APCs, and 47 percent of its artillery pieces, according to DoD's official report.

The aggregate numbers for Desert

Storm were higher, but, by percentage, airmen of Allied Force inflicted significant damage on the Yugoslav army. In addition, military facilities such as barracks and ammunition depots comprised about a quarter of the fixed or strategic target list.

Clark made these findings public in September 1999. He sent teams to NATO capitals to brief the assessment to allied leaders. Still, in December 1999, *The Washington Post* reported that airmen "did not manage to destroy a large part of the Yugoslav army in Kosovo."

Asserting that the Yugoslav army got away unscathed simply doesn't square with the evidence. During the Cold War, planners believed a division that lost 25 to 30 percent of its equipment and forces would not be effective in combat. By these standards, the Yugoslav army suffered significant attrition. More important, its forces were hunkered down and not in positions to mass for maneuver under the cover of allied aircraft.

Myth 4: Decoys were a major problem.

Doubts about what NATO airmen did to the Yugoslav army echoed in another myth: that NATO airmen hit a significant number of decoys instead of real targets. Here, again, Serbian spokesmen bragged about their use of decoys and pictures of two even made it into the Pentagon's quick-look assessment of Allied Force.

Dealing with decoys is old news. By World War II, belligerent nations were masters of the art of decoys as they attempted to foil aerial reconnaissance and bombardiers. In Seattle, Boeing had a B-17 bomber plant covered with burlap houses and chicken-wire lawns to simulate a housing complex. Picking out decoys became a fine art for photo interpreters. In the Pacific, the Japanese used decoy techniques to camouflage trains and mobile anti-aircraft gun emplacements. Decades later, decoy Surface-to-Air Missile sites became a specialty of the North Vietnamese.



"In short, the myth that decoys mattered reveals another face of doubt about aerospace power." A Yugoslav MiG-29 fighter shot down by NATO forces.

In short, the myth that decoys mattered reveals another face of doubt about aerospace power. Scales asserted that these dummies "proved effective at spoofing aerial observ-

ers and image interpreters." Yet Clark's survey found that in Allied Force, NATO airmen hit just 25 decoys—an insignificant percentage of the 974 validated hits.

DoD photo by Spc. Tracy Trotter

Myth 5: The KLA offensive had a major impact.

Unlike the previous two myths, this myth assumes that NATO airmen did have an impact—but that it took a surrogate ground force, the Kosovo Liberation Army, to make the air campaign a success. Retired Army Lt. Gen. Theodore G. Stroup Jr., writing in *Army Magazine*, distilled the view: “Milosevic lost his nerve when ground power—in the form of the Kosovar offensive and the capability of Task Force Hawk to take advantage of the offensive to illuminate the battlefield with its intelligence, surveillance, and reconnaissance assets—first unlocked the full capability of airpower.” The myth, therefore, is that it takes ground power to make aerospace power effective.

This myth is a complex one. During the last phases of the Cold War in the 1980s, the Army and Air Force joined hands in what the Army named AirLand Battle Doctrine. NATO planning centered on defense against a large Soviet and Warsaw Pact ground force that would initiate the war. The whole effort hinged on using airpower to make up the shortfall in ground fires in both deep battle, where only aircraft could reach, and in close battle, where the line had to be held. Classic joint doctrine still focuses on how the air and land components of the joint force work together to identify, prioritize, and attack targets.

In addition, the Army is the undisputed master of intelligence preparation of the battlefield. That is the art and science of finding the targets in the ground order of battle. Only the Army mans and trains forces for this intricate task. The surest way to pick out key enemy ground force targets is to rely on an experienced Army cell that uses information from counterbattery radars, airborne systems, like Guardrail, and fused Air Force and Navy data to compile a detailed picture of the opposing ground force.

NATO began Allied Force with just a broad sketch of the deployed Yugoslav ground order of battle. When Milosevic’s forces surged through Kosovo, the picture changed hour by hour. While the alliance surged to deploy more aircraft to the

theater and begin intensive operations against ground forces, piecing together the ground order of battle also became a major task. By mid-May, NATO had three times more strike aircraft than it had at the outset, and thus it had a stronger ability to target ground forces. Army analysts at the Combined Air Operations Center, located at Vicenza, Italy, made a major contribution to this effort.

Over the months, as analysts tried to sort out what had happened and why, they developed a view that KLA operations had, in effect, replicated AirLand Battle and had drawn the Serbs out of hiding. While this is a powerful doctrinal credo for the US military, there is little evidence to support this conclusion.

First, the KLA primarily used guerrilla tactics in its ongoing confrontations with the Yugoslav army forces and special military police. According to *Kosovapress*, a quasi-official Kosovo Albanian news agency which published running accounts of KLA activity, the KLA kept up operations in several areas across Kosovo, particularly where enclaves of ethnic Albanian refugees remained. Typical of KLA actions was an early May encounter; a KLA commando unit reported it had skirmished with Serb forces near Junik, on the Albanian border. The KLA claimed it had killed at least seven Serb soldiers and reported several cross-border shellings from Serb artillery. Another report, chronicling actions in the south near the border with Macedonia, claimed destruction of a Serb police “Passat” car and its passengers.

The principal KLA offensive was launched May 26, 1999. According to Operative Communique No. 79 from Hq. General Staff of the KLA: “The KLA has organized and ordered an operation code named ‘Arrow’ to begin along the political boundaries of Albania with the specific goal of eliminating Serb units in and around the Albanian border.” Operation Arrow was limited to one sector, and even so, it was not a success. A US intelligence official, in fact, claimed the KLA was “creamed.” The KLA forces came under heavy Serb artillery

fire, and while some areas changed hands, no major gains were claimed by the KLA. The KLA itself kept publicity to a minimum. Despite that, some concluded that this offensive must have been what made Allied Force effective. *USA Today*, for example, maintained, “Capitulation came only after the KLA belatedly shooed the Serb troops out of hiding and into the deadly sights of NATO planes.”

If that were true, one could expect the review of hits scored against ground mobile targets to show a strong correlation with KLA activities and an upswing in vehicles struck. However, the after-action assessments showed no strong correlation. For example, the highest number of kills on military vehicles came on May 13, nearly two weeks before Operation Arrow. Tank hits peaked at seven on May 30, APCs at 11 on June 8, and mortars at 13 on June 3. Hits on artillery pieces crested at 34 on June 1, but the second-highest count for a single day was 29 on May 27.

Across the five categories, the only suggestion of a correlation comes in hits on artillery, but the results are not conclusive. Hits on artillery rose to 15 on May 25, 12 the next day, and 29 on May 27, dropping off to 13 on May 28 and just three on May 29. The best three-day period for hits on artillery came long after Operation Arrow, between June 6 and June 8, when NATO claimed a total of 61 validated hits.

Many factors contributed to the hit rates. After May 13, better weather and more forces in theater allowed allied airmen to rack up more than 65 percent of the total hits. From May 25 onward, a steady period of good weather helped; they claimed 45 percent of total hits in the last 16 days of the campaign. The KLA launched attacks along the Albanian border, but NATO registered hits all across Kosovo.

Without substantial evidence of coordination, the notion that the KLA offensive is what made NATO’s air campaign effective must be treated as a myth. It is possible for airmen to find and hit targets without army forces in place.

Myth 6: Threat of a ground invasion worked.

This myth suggests that Milosevic folded his cards not because of 78 days of air attacks but as a result of speculation in the press about a forthcoming ground offensive. "To the extent there was victory, it became possible because the Administration did escalate its public wrestling with the idea of possible ground intervention," concluded Michael E. O'Hanlon of the Brookings Institution. This myth is the final echo of the assumption that a joint force is only effective when there are boots on the ground.

In reality, NATO was never close to preparing for a ground invasion. Albania welcomed ground forces, but Macedonia refused to let its territory be used to stage such an attack across international borders. Few NATO allies supported the idea, and opinion in the US Congress was against it. A ground campaign "would have meant 150,000 to 200,000 troops,

most of which would have come from us," as Secretary of Defense William S. Cohen later said. "It became very clear to me that it was going to be a very hard sell, if not impossible, to persuade the American people."

Politics was not the only factor constraining the NATO ground option. It also made good operational sense to let the air campaign have the time it needed to apply pressure. Clearly, that was the view of Army Gen. Henry H. Shelton, the Chairman of the Joint Chiefs of Staff. Shelton, responding to a reporter's question just after Belgrade threw in the towel, explained his view of the situation.

Said Shelton: "I think all of us understand that if the decision had been made to send in ground troops, we still would have had an air campaign, and that air campaign would have lasted probably at least as long

as this one has lasted, if not longer. ... You wouldn't send in your ground troops until you'd started to pound the capabilities" Milosevic had in Kosovo.

The Department of Defense's quick-look report on the war said, "US and allied leaders decided that execution of a phased air operation was the best option for achieving our goals."

Whisperings about ground forces took a back seat to NATO's main agenda: Make the air campaign work. The Western alliance's 50th anniversary summit in April focused on cementing allied agreement to intensify and stick with the air campaign. Leaders of the alliance were determined to prevail and eventually said they would not take any option off the table. However, it was the NATO air campaign that was the prime tool of military action.

Myth 7: Operation Allied Force validated joint doctrine.

Myth No. 7 took shape as bland and harmless praise for jointness. For example, the DoD report described Allied Force as "a real-world laboratory for gaining insights into the capabilities envisioned in Joint Vision 2010" and remarked on how "we successfully integrated air, land, and sea operations throughout the conflict."

The attempt to read and critique Allied Force as an air-land-sea operation does not comport with common sense. There are very few combat lessons here for traditional

combined operations. The "land operations," presumably the deployment of the AH-64 Apache attack helicopters to Albania, never resulted in combat operations. The maritime force under the US Navy's Sixth Fleet was a major player, but its efforts comprised Tomahawk Land Attack Missile strikes and generation of carrier air wing sorties as part of the allied air campaign.

Joint doctrine is a guide for commanders, not a ready-made analytical framework for assessing campaigns. With its emphasis on combined op-

erations, joint doctrine naturally speaks best to how the components work together. The components do not get an equal share of the action in every campaign. In fact, the modern definition of jointness should be that the components do not have to be equally balanced to achieve results.

Operation Just Cause, the invasion of Panama in 1989, had more lessons about land force and airborne operations. Operation Allied Force was an aerospace campaign, and its major lessons lie with aerospace doctrine, not validation of a vision.

Myth 8: No one flew lower than 15,000 feet.

This myth accuses the allies of overprotecting the airmen at the expense of operational results.

The first problem with this myth is the implication that only low-altitude attacks get results. It is true that the allies did not want to lose pilots for fear of shattering the political cohesion backing the campaign. Initial restrictions reflected a desire to hold the alliance—and the air campaign—together by mini-

mizing risks to pilots. Low-altitude tactics had proved disastrous in the early stages of Desert Storm, and, after that, most strikes were carried out from medium altitude. During Allied Force, the initial guidelines for a 15,000-foot "floor" were put in place to reduce the risks from shoulder-fired SAMs and anti-aircraft guns.

When target identification became a problem, USAF Lt. Gen. Michael

C. Short, the allied air component commander, worked with the wing at Aviano AB, Italy, and the restrictions were soon changed. For strikes in Kosovo, forward air controllers flew as low as 5,000 feet and strike aircraft could attack from as low as 8,000 feet, at the pilot's discretion, when necessary. Systems like the stabilized binoculars on the A-10 made very-low-altitude work unnecessary.

Myth 9: "Just war" demands that airmen shed their own blood.

Shortly after the end of the war, retired Marine Corps Lt. Gen. Bernard E. Trainor wrote that "high-tech weaponry permitted pilots to fly high out of harm's way while visiting destruction below." Trainor added, "Another troubling and similar aspect of the so-called 'immaculate' air campaign is the ability to drive an enemy to his knees without shedding a drop of the bomber's blood."

Sen. John McCain (R-Ariz.), the former Presidential candidate, called the conduct of Allied Force "the most obscene chapter in recent American history" as US military forces "killed innocent civilians because they were dropping bombs from such ... high altitude."

Do pilots have to die to make it a just war? According to various myth-makers, the answer is Yes. This myth assumes that the aircrews in Allied Force took no risks and that war is not legitimate at all unless soldiers put themselves in peril, marching shoulder to shoulder to close with the enemy.

The first thing that needs to be said is that Allied Force was not an air show. It was real and dangerous combat. One analysis found that air-



USAF photo by TSgt. Blake Ft. Borsic

"Allied Force was not an air show. It was real and dangerous combat. One analysis found that aircrews were three times more likely to have been targeted and attacked by Surface-to-Air Missiles than was the case in Desert Storm." USAF Capt. David Easterling in an A-10 bound for combat.

crews were three times more likely to have been targeted and attacked by SAMs than was the case in Desert Storm. The Serbian air defenses resorted to canny tactics to keep alive both themselves and their chances of shooting down a NATO warplane.

More important, the validity of military action rests on principles: in this case, a reluctant decision by NATO to use force to stop Milosevic's ethnic cleansing of Kosovo. Bloodshed, or the lack thereof, is not the measure of justice in war.

These nine myths touch something much deeper than yesterday's news. Kosovo myths flourish because aerospace power still is not accepted as a leading tool in military campaigns. Myths about the centrality of ground forces and exaggerated claims about aerospace shortcomings and failures all have in common an important element: the belief that aerospace power on its own can achieve only limited results. Those who keep looking for evidence to fit the maneuver-firepower framework blind themselves to the new patterns formed by the constant use of aerospace power in a variety of joint operations.

The defense debate, rather than fo-

cus on a search for vindications of combined arms doctrine and dwelling on decades-old superstitions, should center on how to make aerospace power more effective. The air arm has long been an indispensable tool for joint operations and a primary weapon for shaping theater-level strategy. Over the last decade, joint and allied airpower formed the backbone of major offensive operations, from Desert Storm in 1991 to Deliberate Force in Bosnia in 1995 and to Allied Force in 1999. Each campaign had its political complexities, but the utility of aerospace power stood out every time.

Britain's John Keegan, perhaps the world's leading historian of military affairs, saw Allied Force as the end of the road for many airpower myths and

recanted his own longtime skepticism about airpower. "After this war, ... there will be no grounds for debate or dispute," he said. "Aircraft and pilotless weapons have been the only weapons employed. The outcome is therefore a victory for airpower and airpower alone."

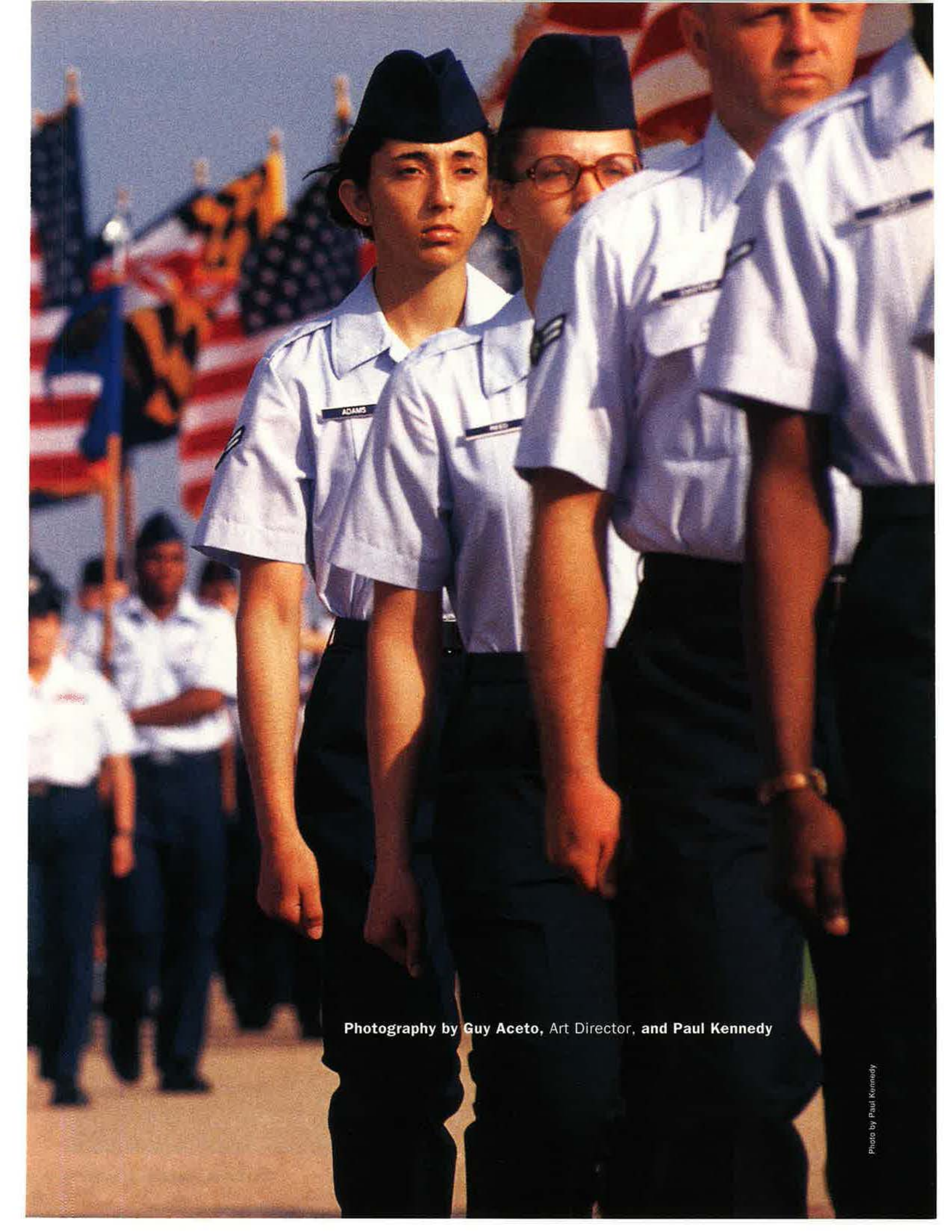
Operation Allied Force was in many respects a unique and difficult campaign. But above all else it showed that aerospace power has become a tool of choice, not only for joint operations, but for operations with allies. The Kosovo crisis holds many lessons relevant to future defense planning and to programs for improving aerospace power. With that work ahead, it is time to leave the myths behind. ■

Rebecca Grant is president of IRIS, a research organization in Arlington, Va. She has worked for the RAND Corp., in the Office of Secretary of the Air Force, and for the Chief of Staff of the Air Force. This article is based on an analysis she performed for the Air Force Association and the Aerospace Education Foundation. Her previous article for Air Force Magazine, "Eisenhower, Master of Airpower," appeared in the January 2000 issue.

At the "Gateway to the Air Force" young people prepare to become a part of USAF's Expeditionary Aerospace Force.

BASIC 2000

For these newly minted airmen, the graduation parade on the huge parade field at Lackland AFB, Texas, marks not only the end of Basic Military Training but also the beginning of an Air Force career.



Photography by Guy Aceto, Art Director, and Paul Kennedy

Photo by Paul Kennedy

Military Training Instructors from the 737th Training Group guide recruits—and test their limits—through six weeks of intensive military training.

The 737th TG at Lackland provides Basic Military Training for all enlisted recruits entering the Air Force, Air National Guard, or Air Force Reserve. Each year about 35,000 young men and women report to the 737th, which is part of the 37th Training Wing, USAF's largest training wing.



Staff photos by Guy Aceto



At left, new recruits just arriving at what is called "shipping and receiving" are wearing typically colorful civilian attire—for which the MTIs dub them "rainbows." Below, TSgt. Michael Zuniga confronts a rainbow, quickly demonstrating that the training will focus on discipline and attention to detail.



Photo by Paul Kennedy

Gone are the civilian clothes. At right, the trainees are issued everything from socks and running shoes to Battle Dress Uniforms and combat boots—and a duffle bag to hold it all. Even this process becomes an exercise in precision and in following instructions to the letter. Here, the trainees do not remove the tag from their BDU caps until ordered to do so.



Photo by Paul Kennedy



Nothing points out attention to detail—or the lack of it—like a locker inspection. TSgt. Kevin Planck is exceptionally thorough on his rounds. The trainee at left, above, holds on to an out-of-place thread. In the photo at right, other trainees await their turn as MTIs conduct an inspection.



Above, SSgt. Xavier King explains his findings to a trainee. At right, Planck makes notes on his clipboard. The MTIs must themselves meet stringent qualifications and focus on standardized training to produce a uniform product—a motivated and disciplined airman. They also use teamwork to mold that product and will admonish any trainee with a clean inspection to share the secret of his or her success.

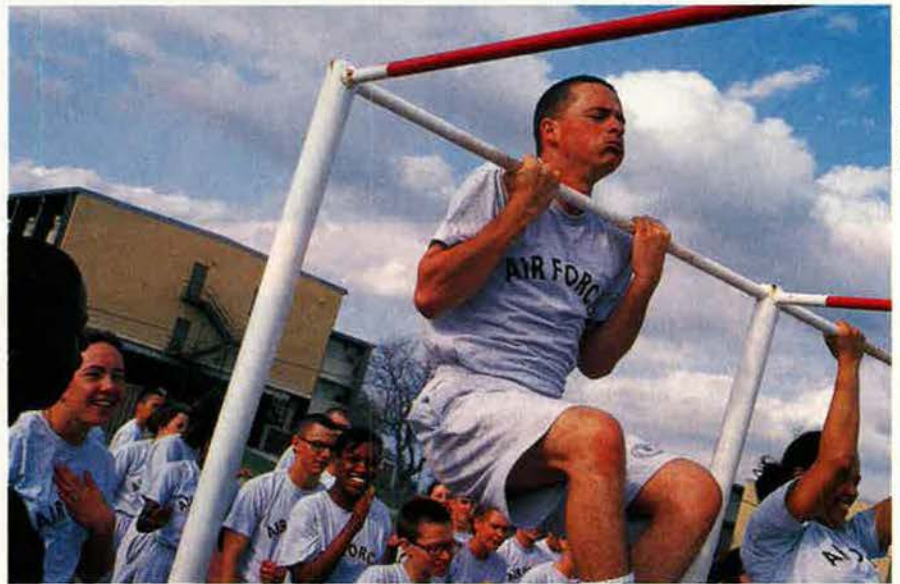




"The more fit you are when you arrive," according to the 737th's pre-basic instructions, "the better your chances are for avoiding injury and graduating from BMT." Physical conditioning takes place at least six times a week. At left, trainees work on sit-ups.



Physical training involves running and stretching and strengthening exercises. Above right and here, trainees do chin-ups. Minimum physical requirements for males include 30 push-ups and 45 sit-ups in two minutes and a two-mile run in 18 minutes. For females, the requirements include 38 sit-ups and 14 push-ups, both in two minutes, and a two-mile run in 21.



Steff photo by Guy Aceto



With an MTI making notes, trainees turn the straightforward action of walking into a precision drill. They are also learning to function as a unit and to rely on each other.

On the academic side, trainees attend classes to gain knowledge of the Air Force and its history; military laws, customs, and courtesy; and human relations, among other topics. Each trainee receives the Airman's Manual. It imparts basic information on everything from host nation sensitivities to chemical decontamination procedures. Also known as Air Force Manual 10-100, the thick booklet lets every trainee know from p. 1 that USAF is an Expeditionary Aerospace Force.



About two years ago, the Air Force added a field training experience to basic training. That evolved into Warrior Week, which helps prepare trainees for on-going deployments, often to austere locations. During the week, trainees set up at a camp on the edge of Lackland. Later, they march to another site that provides more of a combat-oriented setting.

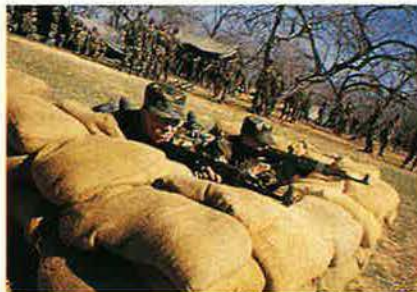


Photo by Paul Kennedy



Toward the end of the week the trainees make a 5.8 mile hike. The environment, for some, can be dangerous. In a tragic turn of events last Sept. 12, 18-year-old trainee Micah J. Schindler died two days after collapsing near the end of the hike. He was the first USAF recruit to die at Lackland in five years.

Since then, the service has made changes to the Warrior Week program.



One of those changes is the presence of medical personnel—like the medic in the blue vest (above)—who accompany each group on its hike.

Above and far left, trainees set up modular, metal-frame tents. At left, others set up defensive positions to protect the base. Erecting tents, small arms training, and use of chemical protection gear are just some of the skills practiced during Warrior Week.



Mud at the field site doesn't excuse a trainee from looking as sharp as possible. At left, a female trainee works to put some shine back on her boots after a march.



It's not all Meals, Ready to Eat, but food served during Warrior Week sticks to the basics. It's just one more way to prepare trainees for conditions they will likely face in the field during real-world Air Force deployments.



Photos by Paul Kennedy



Since surviving Warrior Week marks the successful completion of a milestone in the basic training cycle, the week culminates in a ceremony. At the ceremony, trainees receive US collar insignia to wear on their Class A uniforms and a special coin, shown here. From this moment, they are no longer trainees. They are airmen.



Photo by Paul Kennedy

The final week of Basic Military Training is filled with inspections, picking up orders, and preparing to move on to technical training.

The graduation parade gives the new airmen a chance to display for family and friends the polish they have acquired in a mere six weeks.



After the graduation ceremony, Airman Basic Tom Lucas, in photos above, poses for pictures with his family.



Staff photos by Guy Aceto



At Basic Military Training, a disparate group of young civilians undergoes a transformation. From there they embark on an Air Force career as part of an enlisted force—the backbone of the service—that is recognized for its professionalism among militaries around the world. ■

The Recruiting and Retention Problems Continue

By Bruce D. Callander

The Air Force is not attracting enough new people, and it is not keeping enough of those who are already on board.

“**W**E are approaching this challenge with a combat mentality, as though it were a war.” Carol A. DiBattiste, the undersecretary of the Air Force, was referring to the challenge of turning around USAF’s worrisome recruiting and retention rates before they cripple the service’s combat readiness.

“We’ve been through these problems before,” said the Air Force leader, who served in recruiting both as an enlisted member and an officer before retiring in 1991. “The trouble this time is that we have retention and recruiting problems hitting us at the same time.”

To combat the losses, USAF is beefing up its recruiting forces, in-



By Bruce D. Callander



USAF photo by SSgt. Angela Stafford

creasing enlistment and re-enlistment bonuses, buying more advertising, and appealing to Congress and the civilian community for help.

There is more to come. Following a recruiting summit last October and a retention summit in January, the Air Force set up a Recruiting and Retention Task Force. It will work on the more than 200 initiatives generated at the two summits and develop still more ideas.

Brig. Gen. Paul M. Hankins, deputy director of USAF's Legislative Liaison Office, is the task force commander. Hankins compares the effort to a combat operation.

"One of the things you do when you go to war is deploy people to meet the immediate threat," said

Hankins, "so we are going to deploy people who have been recruiters or who are working in [Air Force] Recruiting Service headquarters and various staffs. We're going to TDY them out [send them on Temporary Duty] to the field for the next 120 days to help our recruiters. At the same time, we're working hard on an initiative to [increase] our recruiter force by a significant amount by the end of September so that once the TDY force goes away, we're up to the number we think we need to do a good job next year."

More Than Better Recruiting

However, said DiBattiste, just bringing in more people is not the whole solution.

As SSgt. Joe C. Kyle discovered during his recruiting tour in New York City, recruiting is tough duty. It is tough no matter what the location in these boom-economy times, so the Air Force is adding manpower and dollars to boost its efforts nationwide. What makes this latest recruiting challenge more troublesome than those in the past is that it comes at the same time as a drop in retention. In addition, other services face similar recruiting and retention problems—making the competition stiffer than normal.

"Recruiting alone cannot address the challenges," she said. "We also have to arrest the decline in retention. The deficit in middle skill levels is what's hurting. It's when our mid-level pilots leave and our mid-level navigators leave and, even more, when our five- or seven-level enlisted members leave. Recruiting a new three level doesn't give us back that five- or seven-level member for five to eight years."

One difficulty facing the Air Force is that it has just completed the largest sustained drawdown in its 53-year history and is at its lowest strength since the late 1940s. At the same time, it is being tasked with contingency operations, peacekeeping missions, and humanitarian deployments on a scale unprecedented in peacetime. Taking on added responsibilities with fewer people has stressed both active duty and reserve forces and has many members looking longingly at 9-to-5 civilian jobs.

Through the decade-long drawdown, the service cut accessions and accelerated losses. When the cuts ended, officials faced the daunting task of retaining the remaining members, replacing losses, and rebuilding experience levels.

Recruiting and retention statistics for 1999 show that the rejuvenation process is going too slowly. The Air Force's 1999 goal was to attract 33,800 new enlisted members, but it recruited only 32,068. Despite recent surges, the outlook for 2000 is not much brighter. The service is aiming for 34,000 enlistees this year, but, so far, the per-month average is not large enough for the Air Force to predict it will make the goal.

Equally worrisome, enlisted retention has fallen off. USAF's aim is to retain 55 percent of first termers, 75 percent of second termers, and 95 percent of career enlisted troops. For 1999, however, the first-term rate fell to 49 percent, second-term rate to 69 percent, and career rate to 91 percent.

Even though the January and February 2000 rates (the most recent for which data are available) were higher than last year's results for the same months, cumulative figures still fell short of goals for this point in the fiscal year.

Among officers, the picture also is discouraging, particularly in the retention area. Air Force uses a cu-

"When we have a booming economy, it puts extra pressure on the Air Force, both to recruit and retain." — DiBattiste

mulative continuation rate to show how many officers who enter their fourth year of service (sixth year for rated officers) will complete 11 or 14 years. In 1995, the cumulative continuation rate for rated officers climbed above 85 percent. By 1999, however, it was down to 41 percent for pilots and 62 percent for navigators. The rate for nonrated operations officers was at 54 percent in 1995, went up the next year to 62 percent, and fell to 56 percent in 1999. For mission support officers the rate dropped from 51 percent in 1995 to 44 percent in 1999.

Far-Term Effects

Effects of these low recruiting and retention rates will persist well into the future. The service depends on healthy enlisted accession rates to provide an adequate base for future retention. Among officers, the need is even more critical because of the long lead time needed to recruit and, for rated officers, the time to train them.

During the drawdown, the service reduced recruiting for enlisted ranks

and restricted enrollment into its main officer training programs. Enlistments and officer enrollments have since been increased, but it will take time to make up the shortfalls that developed over the 1990s.

The Air Force has trouble attracting potential airmen and officer candidates, particularly in the engineering, scientific, and medical fields. Maintaining a pool of rated officers is even more difficult. So far, USAF is having no problem accessing rated trainees, DiBattiste said, but retaining experienced fliers is a continuing difficulty.

A major cause of the service's problems is the improved economy, the same factor that has the civilian world euphoric.

"When we have a booming economy," said DiBattiste, "it puts extra pressure on the Air Force, both to recruit and to retain. It pulls people away from the service and creates recruiting difficulties because young people have many more opportunities."

The Air Force is moving on several fronts to combat the problems. In the retention area, it is offering more bonuses and special pays and moving to improve promotion rates. It is eliminating job-reservation constraints that have barred enlisted troops in some skills from re-enlisting and waiving some of the high-year-of-tenure restrictions that force experienced but unpromoted members to retire.

These moves are in addition to the ongoing efforts to improve the quality of life for all members by raising pay, reducing the stress of daily operations (optempo), and upgrading health care, housing, family programs, retirement benefits, and education opportunities.

In recruiting, USAF is beefing up its sales effort and trying to increase its visibility in the civilian world by moves such as adding more Air Force Junior ROTC units and building bridges to business, industry, and civic organizations.

It also is making enlistment more attractive. "We've taken a number of restrictions off," said Hankins.

"We're also going to look at things such as a college loan repayment program like ones the Army and Navy offer and at paying additional bonus money for people who come in during the months where we need them

most, in the April and May time frame.”

While the task force looks for new solutions, the Pentagon is hoping to win additional inducements from Congress.

The new 2001 budget proposal, for example, includes funds to continue incremental pay raises. Long range, DoD wants money to reduce and ultimately eliminate members’ out-of-pocket expenses for off-base housing and to reform the pay table. Other efforts are aimed at improving the Tricare health plan and giving members more counseling on managing their finances.

Beyond the money problems and the recruiter shortages, however, the Air Force sees a need to change public perceptions of the military itself.

Trusted, but Not Attractive?

“Recent surveys have shown that the military is the most trusted institution in the country,” DiBattiste said. “At the same time, however, young peoples’ inclination to come into the military has declined.”

One study showed that 17 percent of young men considered joining the Air Force in 1989, but the figure dropped to about 12 percent from 1994 through 1999.

“They have so many choices now and so many opportunities,” said DiBattiste, referring to recruiting-age young persons. “We also have to let them know that we are hiring. I was at Columbia University recently, talking to educators, and they thought that, because we have been downsizing, we aren’t taking people.”

Hankins echoed her concern.

“The people in the community—the scout masters, church leaders, and the adults in the YMCA and Boys Clubs who were our role models 20 years ago or 30 years ago—usually had some military experience from serving in World War II or the Korean War,” said Hankins. “They just aren’t there any more. The same is true in Congress. The percentage who have ever had any contact with the military is decreasing every year.

“That’s a problem for the military. ... Long term, our biggest problem probably is that of keeping the mission in the public eye.”

The undersecretary contends that the Air Force has much to offer today’s youth. “People want to be

part of something bigger than themselves,” she said. “They like the idea of learning a skill and contributing to a mission that means something for our country. Studies at DoD are showing that even though the propensity to enlist has dropped, these young people are not the same as their parents who grew up in the Vietnam era. They are more appreciative and patriotic, and we need to find those people and attract them to the Air Force.”

Discipline

“They tell us, too, that they are getting something out of service that they can’t find in today’s civilian world. In January, I swore in the first two [USAF] recruits of the millennium, and I went to Lackland [AFB, Texas] six weeks later to see them graduate. I asked them what they got out of basic training, and the first thing both said was, ‘Discipline. It taught us discipline that we will have for the rest of our lives.’ And they liked that.”

The Scourge of Optempo

If patriotism will draw more members into the force, however, the undersecretary concedes that keeping them is another problem. “Ops tempo is at the top of the list of reasons to get out,” she said. “That’s why Air Force implemented the Expeditionary Aerospace Force.”

The EAF, now being implemented throughout the Air Force, is designed to put combat forces together in packages to meet contingency requirements and give people predictability and stability, which they say they need to consider staying in the force.

“Although it is too early to tell, we think it is going to make a difference in their lives,” said DiBattiste. “We are asking people to give it 18 to 24 months to see if it really reaps the benefits that we think it will for them.”

If optempo is causing retention problems, it apparently is not causing potential recruits to shy away from the service.

“We are not getting feedback from our recruiters that this is a major issue,” said Hankins. “Recruits are told about the tempo. They learn about it in Warrior Week in enlisted basic training and in the officer Aerospace Basic Course. They know we

don’t have the overseas bases that we had during the Cold War and that we’re lean and mean.

“The young people coming in still tell us that the main reasons they are joining are the skills, the benefits, and the education benefits. We tell them, ‘You’ll get your education but remember, now we have a very high optempo. The mission comes first. You’ll still satisfy your education goals, but it may not be at the speed you originally planned.’ ”

To make good on the education promise, USAF will continue to offer tuition assistance, the Community College of the Air Force, and GI Bill benefits. And for deployed members who can’t train on base or campus, it is continuing to develop interactive distance-learning programs.

Getting USAF’s message to the country will be expensive, officials concede. The service planned to bring its recruiting force up to full strength by mid-year. By the end of this fiscal year, it plans to add 300 more recruiters, for a total of 1,450. The goal is 2,000 recruiters, twice the number of a year ago, by June 2001.

“It’s going to strain the force to pull these recruiters from other career fields where they are needed,” DiBattiste said, “but we believe that the investment now will fix us for the future. We have to turn this thing around and we will.”

Just adding to the sales force and advertising budget may not be enough to work a lasting solution, officials say.

In February, Lt. Gen. Donald L. Peterson, the Air Force deputy chief of staff for personnel, told the Senate Armed Services Committee’s Subcommittee on Personnel, “I think the propensity to join is down, and I’d say that’s certainly because of the footprint we have around America. We’ve reduced our force here by about 40 percent. Our CONUS bases are down 25 percent. Our overseas bases are down 65 percent. We don’t have the influencers out there that we had. If you take the World War II veterans out, only about 6 percent of our population has served in the military.”

Gagged

He added, “It’s not that our young people don’t like the military, don’t want to be a part of it. It’s just difficult for them to see it. They’re not exposed to it.”

**"I'm
cautiously
optimistic,
but we
have to
keep
focused." —
DiBattiste**

At the same hearing, SSgt. Reggie Hamilton, a USAF recruiter in Georgia, cited some of the difficulties he has had trying to reach high school students. They range from being denied lists of students to being thwarted by counselors with other agendas. "The schools are graded on how many of their kids go off to college," Hamilton said, "so a lot of the counselors will hold us back from going in because they are trying to push their kids to go to schools and colleges."

Hankins agreed that gaining access to schools is a major concern for all services. He said, "We're sending letters to every member of Congress to tell them what schools in their states or districts don't allow recruiters access to the school or provide student directories so they can contact students and provide them information about the armed services. We need access, and young people ought to be able at least to have the opportunity to get information."

"There also is some movement on the Hill to do something similar to what they did for ROTC a few years ago, when they considered cutting

federal funds to schools that don't allow access. We're not there yet but, long term, there may be instances where Congress says, 'If you let other people come in and recruit at your school, you have to let the military come in.'"

The remedy, said DiBattiste, is to raise public awareness of what the service has to offer. Toward that end, the Air Force has mounted a major promotional effort among educators, community leaders, and industry officials.

Internally, USAF is asking military members, civilian employees, retirees, and veterans to talk up the service in the private sector. It has appealed to military associations and veterans groups to lend a hand. It has beefed up its ad campaign to put USAF recruiting in prime time, and it has increased its exposure on the Internet.

Early this year, the service went on the road with another weapon in the recruiting war, a high-tech exhibit dubbed "The Air Force Experience." Mounted on two customized 18-wheelers, the road show includes an F-16 fighter, giant-screen video shows, and simulators on which visitors can "fly" make-believe combat missions.

Some Encouragement

Officials have their antennae out for signs of improvement in the manpower picture and, in recent months, have felt some encouragement. In a March interview, DiBattiste said, "In retention, we've seen positive trends now for two months in a row, and in recruiting, we have positive trends in our delayed-enlistment program, which banks applicants for future enlistment."

"Also very important is prior-service recruiting. Last year, we brought back 600 prior service. We've raised our objective for this year and we're offering bonuses to bring them back. So far, we're making our objectives and that really helps because we bring back people at the five and seven levels, where they need very little training to get back on the job."

Hankins said this effort to lure back former members is intensifying. "We intend to take back as many prior-service people as we can," he said. "We're going to remove all restrictions, too, and we're considering opening up enlistments to prior-service folks from other services who have skills we can use. In the past we have not done that."

The undersecretary is quick to admit, however, that she is not breathing easy yet. "I'm cautiously optimistic," she said, "but we have to keep focused."

She cited several areas in which the Air Force is pushing for further improvements. One effort is aimed at mending some features of the Tricare medical program and expanding pharmacy benefits. Another push is to continue replacing barracks with private dorm rooms and improve family housing. "In other areas of infrastructure, we're just doing the bare minimum to maintain real property, but in housing and dorms, we are spending some money."

On the personnel front, the service is applying the recent 4.8 percent pay raise and hoping for more. DiBattiste said, "Is the 4.8 percent pay raise enough? No."

"Congress also ruled that for the next five years, the raises are going to be 0.5 percent above the civilian [employment] cost index. Retirement pay is back where it should be. That's all good, but we have to do even better because the bottom line is that our people are being offered a lot on the outside."

The Long Haul

Nor does DiBattiste want the effort to stop with the first signs of a turnaround. "We don't want this to be a quick fix and then five years later find that we're back in trouble," she said. "The drawdown happened too fast and, depending on who you talk to, too much. It hurt us most in the shaping we had to do as we drew down, and we are paying the price, now. We recognize that and we're doing everything we can to assure that doesn't happen again." ■

Bruce D. Callander, a regular contributor to Air Force Magazine, served tours of active duty during World War II and the Korean War. In 1952, he joined Air Force Times, serving as editor from 1972 to 1986. His most recent story for Air Force Magazine, "The Surge in Junior ROTC," appeared in the April 2000 issue.

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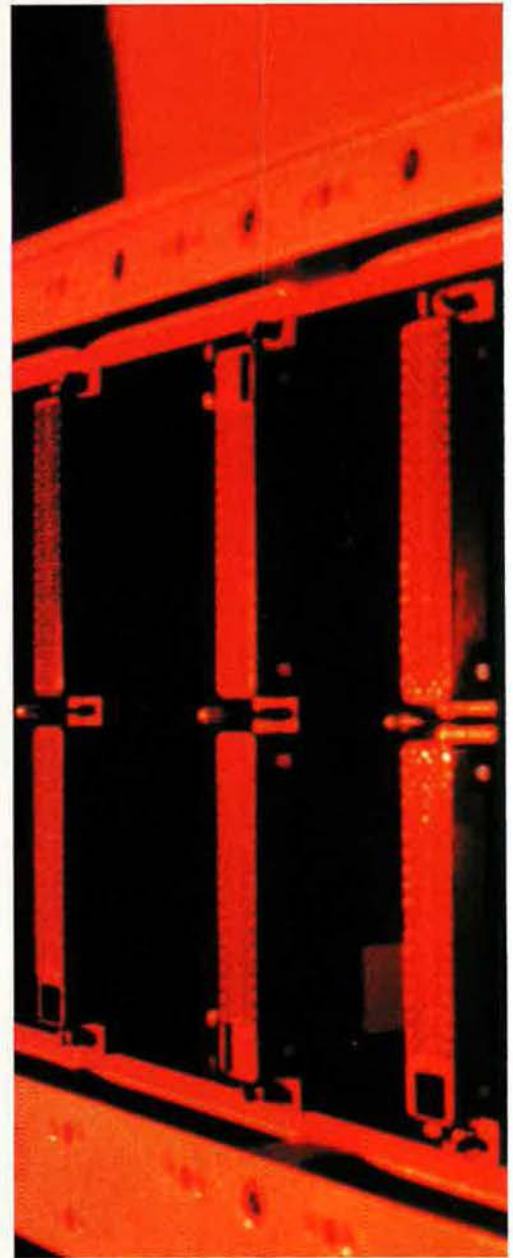
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**The B-52 still has vacuum tubes
—but even the newest aircraft have
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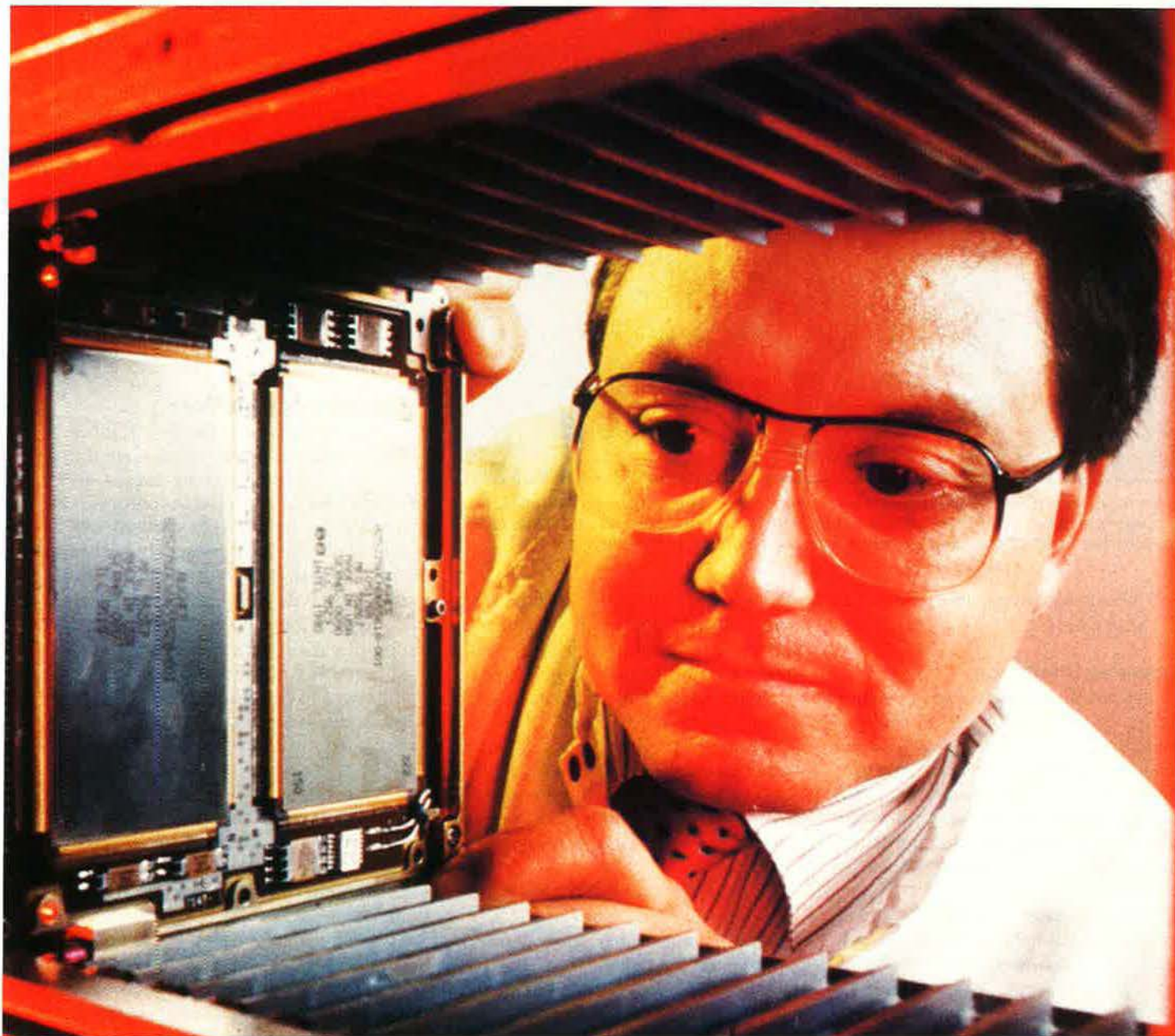
The Problem of Outdated Avionics

USAF photo by SSgt. Mary Smith



They don't make 'em like they used to in the old days—or even like they did just a few years ago. Avionics obsolescence is a snowballing problem as the pace of new technology accelerates and upgrades can't keep up. It affects not only the obvious platforms like the warhorse B-52 at left, but even the F-22's state-of-the-art avionics, shown above.

By John A. Tirpak, Senior Editor



DoD photo by Thomas W. Goosman

THE rapid growth of computing power has given the Air Force many of its pre-eminent capabilities—stealth, sensor fusion, uninhabited aircraft, and precision guidance, to name a few. It has also put the service in a bind. The quickening pace of turnover in the state of the art of digital electronics means that avionics also become obsolete very rapidly, making it more and more difficult to sustain the fleet.

Manufacturers of microprocessors—computer chips—and related hardware used in USAF aircraft are increasingly opting to discontinue production of yesterday's technology in favor of the latest thing. Of-

ten, this happens with little warning, leaving Air Force program managers scrambling to either quickly locate an alternate source or hastily throw together an unplanned upgrade to a new standard. Unfortunately, neither fix will guarantee that the service won't have to go through the same drill only a few years down the road. Stockpiling old parts is neither affordable nor desirable, considering the speed with which they become obsolete.

Not even the newest weapon systems are immune to the problem. Managers of the F-22 fighter, still at least five years away from being fielded in squadron strength, must now budget \$50 million a year to

replace "old" F-22 avionics with new hardware and software. Moreover, the Air Force designed the F-22 to have an open avionics architecture, one that is designed to accept a change out of avionics with relative ease.

Older aircraft pose major problems. For example, the almost 40-year-old B-52H bomber contains a hodgepodge of electronic systems of a wide variety of vintages, including 1950s-era vacuum tubes. The B-52 provides an example of a closed system, one that is unique and unable to operate with other avionics equipment not made specifically for it. The B-52H is not the only aircraft in this situation; 41 percent of the



The relatively new B-2 was designed in the early 1980s, when its 286-mHz computers were cutting edge. USAF passed on buying more B-2s in the 1990s in part because of the cost of required new avionics and software.

USAF aircraft inventory is more than 24 years old.

Massive Challenge

The problem poses a massive challenge. Lt. Gen. Robert F. Raggio, commander of Aeronautical Systems Center, headquartered at Wright-Patterson AFB, Ohio, gets the job of trying to keep the Air Force on top of the avionics problem. He reports that it has been a snowballing issue for the service.

"Anyone who's bought a computer" can appreciate the problem, Raggio told *Air Force Magazine*. "We've all experienced this: ... to find our computer out of date a few months after we buy it, [when] there's a new chip that's come out." Multiply that typical household experience by an inventory of more than 6,000 aircraft and the magnitude of the Air Force's predicament becomes more comprehensible. Moreover, all the services are similarly affected. "They're grappling with the same problem we are," said Raggio. "We've got cases where the chips and the piece parts that are in these aircraft literally are reaching the point where we can't even procure them anymore."

One example is a flat-panel display found in modern "glass cockpits." A major supplier of the unit went out of the business last year, affecting a wide array of platforms in several services.

The American defense industry is not trying to be uncooperative,

Raggio said. It's just that the business outlook in electronics has undergone a dramatic change. Once, military requirements dominated the demand side of the market in ultrasophisticated electronics. Now, service needs are dwarfed by the enormous consumer market. The industry follows the market, and the military niche now is simply too small to generate much interest in some companies.

"One day, [computer chip maker] Intel called and said they're not going to make any more government-specific chips," Raggio reported. "Motorola has done that [too], and it's purely a business decision. There's not enough business base for them to [continue to provide the military with unique hardware], so they go out of the business."

In the early 1990s, Pentagon policy and outright necessity pushed all of the services toward the use of commercial-standard parts. In one sense, costs have gone down as a result of using off-the-shelf equipment. It is produced in vast quantities and is unencumbered by reams of documentation and expense attending the creation of a military specification—or milspec—item. In another sense, however, the "cost" has gone up. The services now lie at the mercy of market forces which, like clockwork, make electronic systems obsolete every 18 months.

"Computing power is the coin of

the realm" in modern aircraft, according to Gen. Michael E. Ryan, Air Force Chief of Staff. While computing power has been doubling every year and a half, he noted that it often takes at least that long to state a requirement for a new system, get it designed, out on contract, and installed. "That presents you with a problem of being at least one step behind," Ryan said, noting that, every time USAF installs new avionics in a system, "industry out there is already two new issues of hardware and software" beyond.

Cutting Edge No More

A case in point is the B-2 bomber. The stealth aircraft was designed in the early 1980s and is one of the newer platforms in the inventory. Its quad-redundant flight-control system is powered by 286-mHz processors—cutting edge at the time, but now not even fast enough to power computer games for toddlers. This complication affected USAF decisions about how many of the new bombers to procure. Great amounts of money would be needed to create newer avionics architecture with rewritten flight-control software and testing, said budgeteers.

So far, older technology has not yet led to serious shortfalls in combat capability. Gen. John P. Jumper, commander of Air Combat Command, Langley AFB, Va., said he "can't point to one thing ... where we are limited by computational power in what we have either ongoing or planned in upgrades to our systems." However, he added, "there's probably something out there."

Empty parts bins, though, do represent a combat weakness. "It's not a question of having the latest and greatest," said Raggio. "It's a question of whether you're going to be able to sustain [a system] for the next three, four, or five years. It's very short term."

When an update isn't possible, any contractors the service can talk into making the out-of-date parts it requires may charge "an arm and a leg" to provide them, Ryan said. The service can ill afford spending "premium buck" on keeping old warbirds flying with bygone technology, he observed.

Yet, Raggio said, it was just such a pile of mounting, unexpected bills that caused Ryan to direct ASC to

confront the avionics turnover issue. The issue got its own acronym: DMS, or Diminishing Manufacturing Sources. The initial marching orders were to develop a plan to preclude the obsolescence of avionics, Raggio said.

"Well, you can't preclude obsolescence," Raggio noted. "That's going to happen whether you plan for it or not. You work with the obsolescence that's going to occur."

Raggio established an Aging Avionics Office, in addition to its Aging Aircraft Program Office. Both fall under Col. Joseph Shearer, who is director of ASC's Subsystems System Program Office. Raggio asserted that the Aging Aircraft Program Office will become, for Air Force Materiel Command and USAF, the "focal point for affordable avionics architectures." A new position of ASC chief avionics architect has been taken on by David G. "Butch" Ardis, who is a technical advisor for avionics systems architecture at ASC. He will work with Shearer and try to pull all of the diverse systems in a common direction.

Toward Open Architectures

After brainstorming the problem, ASC concluded there was only one way to keep current with electronics technology: require that every new electronics system installed in USAF aircraft be of open architecture, meaning that it could easily accept new technology as it arises, and also

be capable of working with all related products and of talking to older systems, as well.

Air Force officials compare such a system to the home Personal Computer running with the Windows operating system. The PC can use a wide variety of hardware and software, from a broad array of manufacturers. It can be upgraded and will work with just about any kind of peripheral equipment—scanners, faxes, printers, etc.—because everyone in industry observes common manufacturing standards for cables, interfaces, and wires.

"Everybody's using it, so everybody writes [software] to it," Raggio said. "It also allows you to plug-and-play anything you want to put into it."

Moreover, there is an industry standard for connections, impedance, and other factors that make all the gear work together well. All of these things—interoperability, a diversity of vendors, potential for growth, and adoption of a recognized standard—will be incorporated into a new program directive from the Air Force leadership, mandating the use of open avionics architectures on every flying platform.

The Air Force argues that requiring open architectures in avionics will lower costs by expanding the number of vendors that can compete for work as well as reduce life-cycle costs by using common equipment rather than one-of-a-kind types.

Plans called for Ryan and Air Force Secretary F. Whitten Peters this spring to sign and release a letter outlining the policy to program managers. A high-level directive was required, because program managers have to devote resources—personnel, as well as financial—to make open architecture work, and those resources will have to be pulled from other assigned tasks.

"I needed advocacy for this initiative," Raggio said.

While some programs have, on their own, already made great progress in open architecture, some have devoted very little study to it. "Now, you might say, why didn't we do this all along?" Raggio asked rhetorically. Answering his own question, he observed, "We have gotten a lot smarter about what constitutes an open system in the last few years. We thought we understood open systems back in the 1990s, but we didn't really." Computer architectures are "a moving train." They change very rapidly, he said, noting a successful open architecture policy "was probably not possible a decade ago."

It's one thing to require that future avionics be open, but to make it really work, there has to be a plan to make it happen. Ardis told *Air Force Magazine* that each aircraft program office will have to produce a specific plan for reaching an open architecture by mid-2001. These sub-plans will add up to a single master plan, which will be a major factor in calculating future budgets, considering the massive dependence of the service on electronics.

One Part at a Time

Raggio said that, given the constraints on the Air Force budget for the foreseeable future, it's doubtful that the avionics problem will ever be fixed totally. Instead, each aircraft will have to be brought up to par incrementally, in an "evolutionary" way, until each is open to easy avionics upgrade and replacement. This will require fixing one part at a time—a radar, perhaps, or a diagnostic system.

Ardis noted that the F-15 is getting a new radar. It won't solve the vendor problems with the F-15 but will eliminate much of the headache and cost of fixing the airplane when it breaks. Savings can then be devoted to other upgrades. The radar



Old dog, new tricks: This is the glass cockpit being installed in KC-135s. USAF hopes to avoid being held hostage to a single supplier of parts, as it was when a maker of flat panel displays suddenly went out of the business.



It would be prohibitively expensive to change out all of a type's electronics at once. By converting avionics systems piecemeal, USAF hopes to gradually achieve an open architecture friendly to new chips as they come along.

"is a totally open system embedded in a closed system," Raggio said, making it an open architecture subsystem. As these continue to be added, the whole system becomes "more and more open."

Ardis pointed out that "there's tremendous benefit" to even a partial improvement. "If we could take the items that are driving our support costs the highest and work those off first, ... there will still be a tremendous benefit to us," said Ardis.

The C-17 airlifter is the beneficiary of an interim step called "software wrapping," a technique in which a closed avionics system "can appear to other systems as open," Raggio said. This alternative method is being explored in Air Force labs. The objective is to get to a fully open architecture as soon as possible.

Open architecture allows not only for cost reductions but for adding new capabilities quickly, as they become available. These updates will have to happen more frequently than they now do if USAF is to maintain pace with the state of the art.

Raggio said the new open avionics strategy will likely propose a two-year turnover in avionics on those platforms that are most in need of highest technology—most particularly, fighters and bombers. He likened this to the current "tape change" in which, every year or so, new threats, capabilities, weapons, and improvements are added to the software of combat systems. In addition

to software, Raggio envisions a hardware change.

Today, "we have modernization requirements coming in at various times" after the initial development of a weapon system, he observed. Some of these "blocks" are large, some small, "and they're really not timed to any point in time. They're usually when you can afford it."

An upgrade could stem from an operational shortfall against a new threat or an opportunity to drastically reduce costs by shifting to a newer, more easily maintained system.

Threshold of Pain

Under the current acquisition scheme, upgrades are budgeted as funds allow. However, when a vendor suddenly departs the business and leaves no supplier or airplanes don't have a desired readiness rate—"when the threshold of pain gets high enough," as Ardis puts it—operational forces come demanding an upgrade. Because the change is unplanned, the opportunity for a well-thought-out, cost-saving, and effectiveness-boosting upgrade is sidelined by a mad dash to get the airplane back up to its status quo.

"The Air Force, I believe, has got to make the commitment ... to upgrade the avionics of weapon systems on a periodic ... block basis, at a scheduled time, ... and that block upgrade will include hardware and software enhancements," Raggio

asserted. Vendor problems can be assessed at each upgrade and solved as they occur, "but only if we do this as a conscious effort and as a conscious plan." This, he said, "is the only way we can figure out to get ahead of and stay up with the avionics changing challenge."

He acknowledges that this would be ambitious and may require a bigger chunk of the Air Force budget than is now available for avionics improvements.

Commanders in chief and the heads of Air Combat Command and Air Mobility Command would have to make the "operational trades" between competing priorities for the spending of money, he asserted. Any upgrade deferred would go "into the pot" for the next round, but there would have to be an understanding that "delaying something to another block has consequences," since this would only push the system further behind and create more opportunities for a parts crisis in that system later.

The Air Force has sponsored two no-cost studies, one led by Boeing and one by Lockheed Martin, on the feasibility of moving rapidly toward an open avionics architecture. The Boeing effort, called the Open Avionics Systems Integration Study, looked at Boeing platforms including the B-1, B-52, C-17, F-15, and, with Northrop Grumman, the B-2. While results are not yet in, "we do know that the more common" the avionics systems of the fleet are, "the better this solution is," Raggio said.

At Lockheed Martin, a study called Systems, Technologies, Architectures, and Acquisition Reform is also examining the possibilities of open, common avionics in the F-16 and F-22. This study is two-thirds complete, but the company reported it might well be able to go beyond the two fighter types, Raggio said.

Formalizing the idea of routine, by-the-calendar hardware upgrades will require rethinking a sacred cow of program management—the Operational Requirements Document.

The Air Force will have to learn how to accept "ORDs that are structured to allow for incremental delivery of capabilities," Raggio asserted. No longer can a new program requirement be stated in terms of the

ultimate capability wanted. Programs take too long and the technology will turn over too often before completion for that approach to work anymore. New systems will forever be a hybrid of many generations of electronics, updated at a consistent pace. If the finished, all-up system is demanded at the outset, the program will collapse.

"The first time we test, ... if the ORD says 'full capability,' the first increment fails the test," Raggio asserted.

The early managers of the F-22 program did not structure it along the lines of incremental capabilities, Raggio said, but the new Joint Strike Fighter is being managed that way.

"You can see that we're coming around to this, but this is a real mindset change," Raggio said. The original threshold capabilities for the JSF won't be reached until the third version of the system. "The first couple of items won't be full up," Raggio noted.

Not Affordable

Industry agrees with ASC that "the status quo will not be affordable," Raggio said.

From primes down to the lowest-tier subcontractors, the consensus has been that an open avionics architecture serves everyone's purpose: It keeps the aircraft up-to-date, and it also creates a steady, predictable cash flow for the companies doing the

work. The predictability of the upgrades will allow for better preparation of bids, more cost-effective contracts, and lower costs.

"There is a definite vested self-interest" in companies buying into a more open avionics architecture, Raggio pointed out.

"The easier it is to upgrade systems, the more readily we will be able to spend the money to upgrade them. If we can't afford to upgrade them, they [contractors] don't get business."

The acquisition system plays a major role in the move toward open avionics architectures. Raggio reported that the request for proposals on a new, very large-scale C-130 avionics update was snatched back at the last minute because it didn't address the open-systems goal. It was revised and released with the new criteria. "It was a tactical win for us," he asserted. "That is what we'd like to do on all systems."

Ardis and Shearer are working with the various system program offices to create templates for new competitions that mandate an open avionics architecture in all future buys. The language of solicitations has to be just right, and there will be more attention on making sure industry understands exactly what is wanted, Raggio explained.

Fixing the avionics problem will require a master roadmap that will vary with each system in it, Raggio said. The Joint Strike fighter—still a

relatively clean sheet of paper—provides the opportunity to start with an open avionics architecture, thus setting the upgrade rhythm right from the start. Older aircraft, however, will take a long time to bring up to date.

The B-52, with "hundreds of [line-replaceable units] ... [will] take a lot of effort over a protracted period of time to get it in the projected funding profile," Ardis observed.

Raggio said the directive from Ryan and Peters will set many things in motion.

System program offices and major commands have "to start planning on these future program increments and to start budgeting" for the upgrades. "[The upgrades] have to fight their way through the [budget] deliberations just like anything else does," Raggio said. "This whole thing has to become part of the formal acquisition program baseline process."

The integrated roadmaps for all systems will force budgeteers to come to terms with the cost of avionics over the whole life of the system, not just answer a short-term operational requirement.

"These kinds of things don't happen unless you make them part of the requirements to be briefed at program reviews," Raggio said, and he has recommended that the avionics issue be part of the quarterly briefs Ryan and Peters take on every major system.

Raggio said the old way of doing business simply won't work anymore.

"The time constant has shrunk," he observed. Technology is advancing at an unprecedented rate.

"When we had the F-4 [Phantom], and a new avionics system came out, we would just do a life-of-type buy" of spare parts, Raggio explained. "We'd say, 'That's good enough. ... That'll last as long as we're going to have the F-4. Another airplane will come along in a few years'" and capture the new level of technology.

However, he went on, "That isn't the case anymore. ... A new airplane isn't coming along" as often as in the past, and the new technology is arriving "at a much more increased rate."

You have to engage and fight the obsolescence battle, Raggio asserted. "You don't have any choice." ■

F-22 team photo by Judson Brohmer



The new generation of aircraft is the most computer intensive yet. Open avionics architectures can keep them fresh and capable against new threats they'll undoubtedly face over their expected 50-year service lives.

Flights on military training ranges are running into flak from environmentalists, landowners, and outdoor enthusiasts.

Flying the Unfriendly Skies of America

By Otto Kreisher

MILITARY aircrews training for possible combat missions overseas are running into intense—and growing—flak right here at home. The Air Force particularly but also the Navy now face a barrage of lawsuits, public protests, and political pressure from environmentalists, landowners, and outdoor enthusiasts. These groups are mounting vigorous opposition to the kind of realistic tactical air training that the services consider essential to maintaining their combat edge.

The opposition, which is aimed primarily at low-altitude flights and practice bombing missions, could cause the imposition of new restrictions on, or outright loss of, access

to some of the military's most valuable training areas and ranges, particularly in the West.

Among the most threatening of recent developments was the filing, on Jan. 27 in Washington, of a sweeping federal civil lawsuit against the Air Force and the Defense Department. In the suit, a coalition of 11 environmental and citizens groups, led by the Rural Alliance for Military Accountability and the Center for Biological Diversity, challenge all of USAF's nationwide military flying training routes.

The plaintiffs seek to prevent the Air Force from "establishing any new low-level flight training route or area, ... expanding or otherwise modify-

ing any existing low-level flight training route or area, ... or continuing to conduct any low-level training operations in any existing low-level flight training route or area" until USAF complies with environmental laws that allegedly are being violated.

Similar protests and lawsuits against major USAF air training ranges have cropped up in Arizona, Idaho, Nevada, and Utah. Local residents are expected to sue to block the plan to establish a low-level route and training area in Texas for the Realistic Bomber Training Initiative. The Navy, which uses many of the same routes and ranges traversed by USAF aircraft, also is threatened by those protests and by challenges to its combined-arms training area at Vieques, Puerto Rico, and to some of its own key air training ranges at NAS Fallon, Nev.

Ralston's Warning

These problems are not exactly new.

Five years ago, when he was commander of USAF's Air Combat Command, Gen. Joseph W. Ralston created a special office designed to deal with the threats to the training areas. These training areas were more important to US military might than any individual weapon system, said Ralston, who went on to become vice chairman of the Joint Chiefs of Staff and now is Supreme Allied Commander Europe and commander in chief of US European Command. "This issue is more important than the F-22 or B-2," he said then. "If we lose our airspace, ... then we're going to be out of business as an Air Force." Far from retrenching on training, the Air Force in some areas "ought to be working on getting more," said Ralston.

The increase in the threat to the air training facilities stems from several factors. First, new and more-advanced weapon systems have made it possible to use new tactics, the training for which often requires more airspace. The Air Force may have shrunk by 40 percent in the 1990s, but the training footprint has actually expanded. Second, the mushrooming growth of commercial and general aviation has greatly intensified the competition for airspace access, with the military viewed as one of many claimants. Finally, the

formerly desolate and sparsely populated American West has become a virtual magnet for people and industry, making it the fastest growing region in the nation. Large and medium-sized cities now can be found in many of the West's formerly vast empty stretches, used during World War II for military training. Mixing people and low-flying aircraft always has been volatile.

The coalition's January lawsuit seeks to compel the Air Force to conduct a Programmatic Environmental Impact Statement that considers the "cumulative and synergistic impacts" on people, domestic animals, and wildlife from the totality of low-altitude air training operations nationwide.

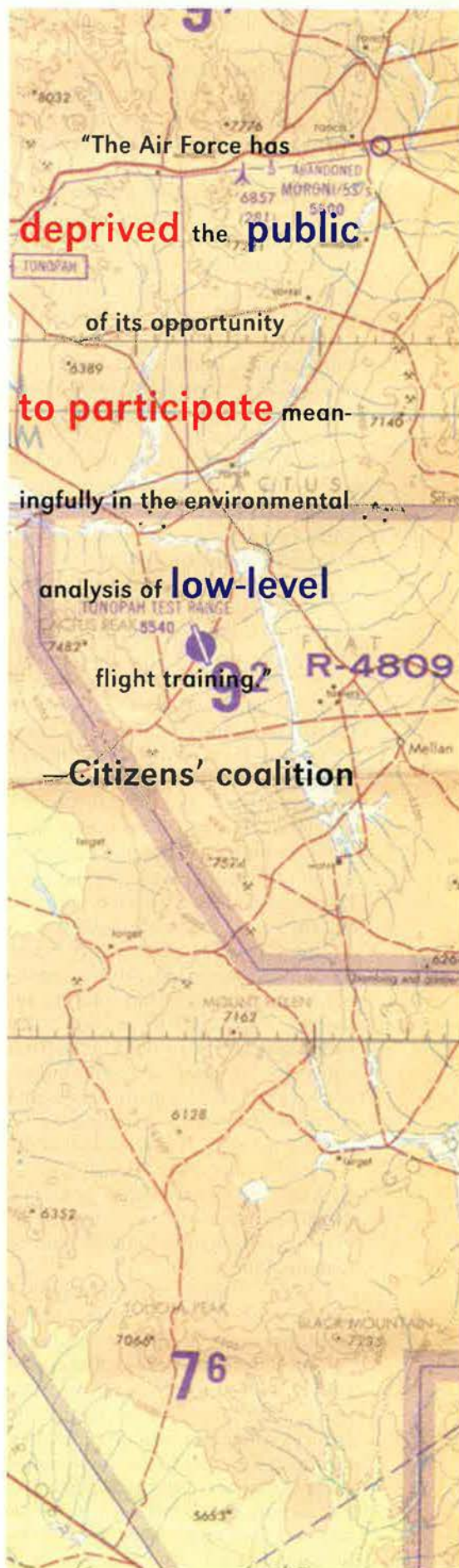
The Air Force traditionally has analyzed separately each segment of its training areas and produced individual EISs for any proposed change. The coalition's lawyers, however, argue that this "piecemeal" evaluation is a violation of the National Environmental Protection Act and Council on Environmental Quality regulations.

"By thus improperly segmenting the environmental analysis of its low-level flight training program, the Air Force has avoided comprehensively addressing the cumulative impacts of the program, as required under NEPA and the CEQ's implementing regulations," the lawsuit argues. "Moreover, by adhering to this piecemeal approach, the Air Force has deprived the public of its opportunity to participate meaningfully in the environmental analysis of the Air Force's low-level flight training program—an opportunity NEPA is meant to guarantee."

In the lawsuit, the negative aspects of Air Force training are presented in graphic terms. One example: "The noise level generated by the Air Force's low-level training flights is extremely loud, even deafening, often exceeding 110 decibels (just at or above the pain threshold for human beings), and is characterized by a sudden onset, giving rise to severe startle effects on human beings and animals."

Stampedes, Bucked Riders

It claims the flights "harm rural ranching and farming communities across the country by causing livestock to panic, stampede, drop calves,



injure themselves, and cause other property damage and by causing horses to buck their riders.”

Further, the suit contends that intense and persistent noise harms numerous species of wild fowl and animals “by interfering with their ability to forage and successfully reproduce and potentially forcing them to abandon suitable habitat.” The low-level flight program also has “cumulative impacts on the viability of communities in undeveloped, rural areas, ... [harms] rural ranching and farming communities,” and “undermines the tourism-dependent economies of undeveloped areas by greatly diminishing their appeal.”

Use of training routes over “sensitive public lands,” such as national parks, wilderness preserves, and wildlife refuges, is “systemically degrading these special use” areas.

The suit also contends that the training “is cumulatively impacting” Native Americans, impeding “their ability to conduct traditional religious ceremonies.” These effects must be analyzed on a nationwide basis, the plaintiffs argue, because all the low-level routes and airspaces “function together as a vast, interconnected network.” To reinforce its argument, the suit cites complaints from a number of federal agencies, including the US Park Service, US Fish and Wildlife Service, and the US Bureau of Land Management.

The suit contends the Air Force recognized the need for a comprehensive analysis by contracting for its own “Generic EIS” of the entire training network in the 1980s. That study was dropped, the suit alleges, because an internal memo suggested it “does not put the Air Force in a favorable light.” That’s not what the Air Force says. An official familiar with the matter said USAF scrapped the GEIS when its own experts reviewed the draft and found it “lacked technical merit.”

USAF’s initial official response to the coalition’s lawsuit was a statement that said: “Realistic training is essential for the United States Air Force. It provides the combat edge that enables victory in battle and reduces American casualties.” That’s not the point, suggested the lead attorney for the plaintiffs, Simeon Herskovits of the Western Environmental Law Center, Taos, N.M. “The lawsuit doesn’t deny that this may

be valuable, necessary training,” he stated. Although some members of the coalition might want to stop all low-altitude training, he added, “that’s not our objective in this lawsuit.”

The main goal is “to have this Programmatic EIS done, so for the first time, there will be a thorough, comprehensive analysis of these operations,” he said.

Seeking Reductions

The plaintiffs also believe that “there is more of this going on than is necessary,” said Herskovits. “Presumably, if we were to win, it would result in a reduction ... or a consolidation [of training], so less area is impacted, or in its being done differently to reduce the impact.”

The lawsuit urges the court, at the minimum, to require the Air Force to fly no lower than 2,000 feet above the ground on its low-level routes. Today, the normal low-level training altitude extends down to 300 feet above ground level.

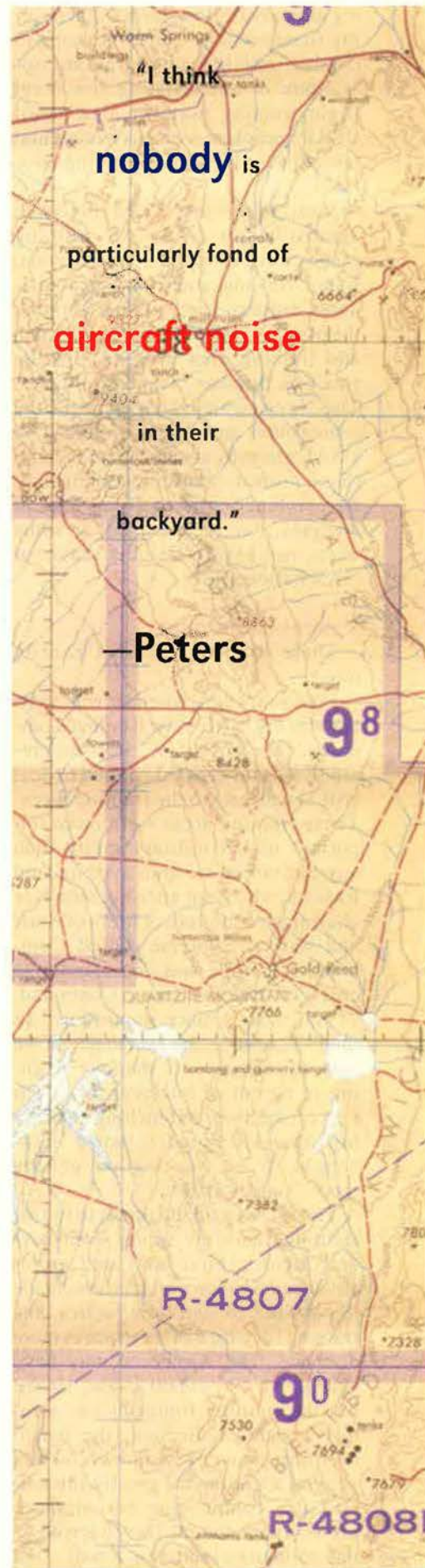
“It may not be realistic to think that the court will have the Air Force stop” its low-level training, Herskovits said, “but because we feel that NEPA requires this PEIS, it’s quite likely that the court would stop the Air Force from expanding” its air operations until that analysis is done. “That could stop it from moving forward with things like the Realistic Bomber Training Initiative,” he added.

So far, Air Force Secretary F. Whitten Peters has downplayed the threats.

“Of course we have been sued about aircraft noise,” he said, “but I’ve been sued about 3,000 times as Secretary.” He added, “I think nobody is particularly fond of aircraft noise in their backyard.” Of the Air Force position, Peters said, “I think we’re right. I think we’ve done what NEPA requires. Right now, we’re looking good.”

Col. Fred Pease, chief of the Air Force Ranges and Airspace Division, was cautious. “I don’t think you can take anything for granted,” he said. Pease called the lawsuits and protests part of the “public feedback,” which, he said, also includes people who say they love to see military aircraft fly by.

The veteran fighter pilot disputed the claim that the nearly 1,000 train-



ing routes, operating areas, and ranges form an integral unit. "It's not one big system that does all this. It is a series of small systems" that are used differently by each wing or command, based on their aircrews' training needs, he said. "Each time that we change any unit's mission requirements, or change the infrastructure, we do the appropriate Environmental Impact Statement."

Pease said the Air Force does look at "the cumulative effect" of its flight operations when there are "units that overlap." Pease and other Air Force officials noted the elaborate steps the service takes to analyze alternative ways to meet its need for new training areas, including extensive public notice and reaction.

"Clear Victory"

That interaction with the public frequently results in adjustments to the proposed training area and operations, the colonel said. An example was the Air Force's agreement with environmentalists last year to change its plans regarding an enhanced training area to be used by the 366th Wing, located at Mountain Home AFB, Idaho. Under the agreement, the Air Force adjusted flight operations over Idaho to reduce the impact on bighorn sheep and the tourist trade in the scenic Owyhee Canyonlands. An environmentalist publication called the agreement "a clear victory for the Canyonlands."

To win Congressional approval to continue using the crucial Nellis Range in Nevada and Barry M. Goldwater Range in Arizona, the Air Force also agreed last year to change its mode of operations and to increase environmental protection efforts at those two ranges.

Although the new lawsuit cites recent additions to air training areas, Pease noted that half of the 30 million acres of military training land set aside during World War II has been returned to local control. This includes 35,000 acres in Nevada and 100,000 acres in Arizona.

In choosing the site for its Realistic Bomber Training Initiative, the Air Force also responded to public protests. USAF selected former training areas southeast of Lubbock, Texas, rather than more politically sensitive areas in New Mexico and west Texas. The RBTI record of decision that was released March 29 would

create the Lancer Military Operating Area by consolidating three small MOAs that had served the former Reese AFB, Texas. This would create a 46-by-92-mile area for training use and return about 1,000 square miles of airspace to civilian use.

The Lancer MOA and an existing low-altitude route that runs into it from the southwest will provide better and more efficient training for crews of B-1Bs at Dyess AFB, Texas, and B-52s at Barksdale AFB, La., according to the Air Force. Currently, those crews waste hours and fuel flying to training ranges as far away as Utah, said Maj. John Boyle, the Dyess spokesman.

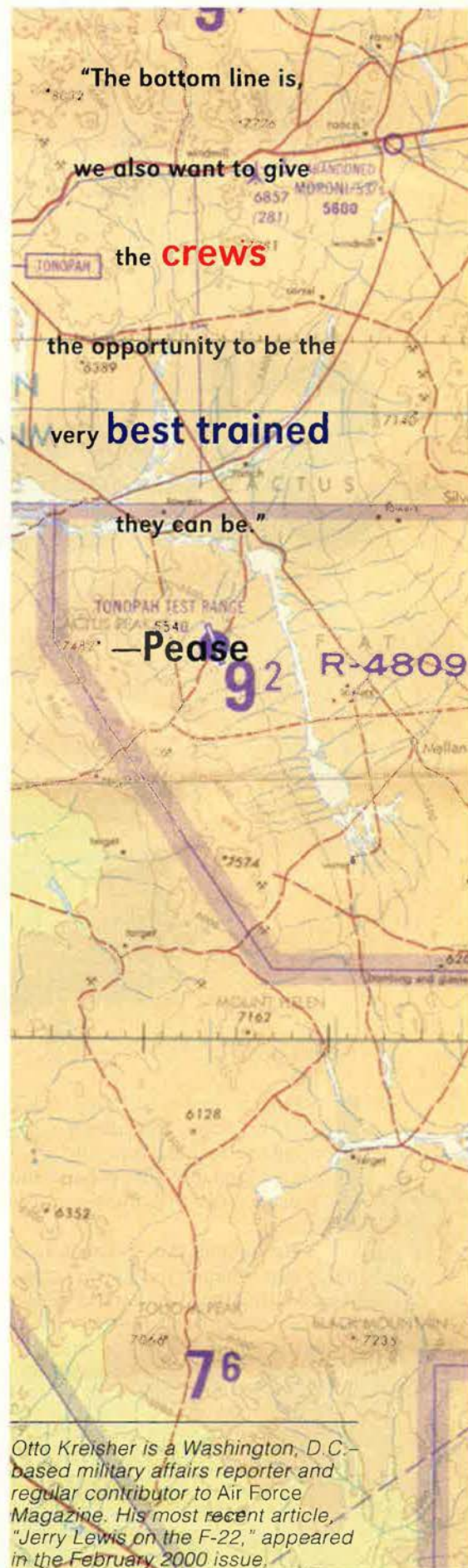
To reduce public objections to the new training area, the Air Force agreed to a minimum altitude of 3,000 feet in the MOA, and 5,000 feet over the town of Snyder, which is situated nearby and would suffer the worst effects of low-level flight.

Even those concessions did not mollify about 1,000 local landowners and business operators who live under the new MOA and the low-level route. Buster Welch, a rancher who formed a protest group called the Heritage Environmental Preservation Association, said they would sue to stop the RBTI from going into operation next year. Welch said the noise from the training would hurt the area's quality of life and its already weak economy, and it would reduce the value of property belonging to him and others.

"I'm for a strong Air Force," insisted Welch. "I'm for a well-trained Air Force. I'm not for taking over private property."

Welch said that area ranchers could not continue making a living raising cattle and relying on tourists and sportsmen who come in to fish, hunt, and enjoy other outdoor pursuits. "Can you visualize city people coming over here and paying us the big bucks to get away from it all," asked Welch, "only to be under a perpetual bombing attack?"

Pease said the Air Force always is willing to talk to people who object to its operations, "to listen closely to what they've got to say, and to try to address their issues." However, he added, "The bottom line is, we also want to give the crews the opportunity to be the very best trained they can be. I think the majority of Americans support that." ■



Otto Kreisher is a Washington, D.C.-based military affairs reporter and regular contributor to Air Force Magazine. His most recent article, "Jerry Lewis on the F-22," appeared in the February 2000 issue.

Ten airmen were awarded the Silver Star for their heroic efforts in the Kosovo campaign.

Silver Stars



By Richard J. Newman

IN Operation Allied Force, NATO forces flew more than 38,000 sorties, and the Serbs shot down just two aircraft. No airman lost his life in combat. To outsiders, the air operation seemed effortless. In fact, so-called human-rights experts and others criticized NATO for not running greater risks with the lives of its pilots to try to protect civilians on the ground.

Throughout the 78-day war, however, the skies over Yugoslavia were much more dangerous than they appeared to be on the evening news. Unlike the Iraqis during the 1991 Persian Gulf War—who fired and promptly lost most of their air defenses in the first days of bombing—the Serbs used their anti-aircraft weapons sparingly. That left much of the Serb air defense system intact



MH-60 Pave Hawks were flown by two Silver Star recipients: Capt. William F. Denehan and Capt. Chad P. Franks.

AMAGRO '00

through the end of the war. The Serbs' sporadic efforts to shoot down NATO aircraft meant that for some pilots, routine flights suddenly became high-intensity combat. The courage of airmen was severely tested, and there were moments of selfless heroism.

On the night of May 2, 1999, for instance, with a full moon glinting off scattered clouds, Capt. Adam B. Kavlick was flying one of four F-16s on a mission to find and destroy Surface-to-Air Missile sites near Novi Sad, in northern Serbia. They found some. The Serbs launched three SA-3 missiles from two separate sites at the four-ship formation. One of the missiles caught Kavlick's wingman, knocking his airplane out of the sky near Belgrade. The pilot ejected safely but spent the next two hours fleeing from Serb forces trying to hunt him down.

Kavlick remained overhead and hastily arranged a rescue effort. First, he made contact with his downed colleague. Then he organized a flow plan for tanker aircraft to keep a constant stream of fighters over the crash site. He coordinated the fighter orbits so that aircraft would be available to knock out any SAMs that popped up. The Serbs still managed to get off a few shots, at one point forcing Kavlick's new wingman to jettison his weapons to outmaneuver a missile.

Against the Sun

Meanwhile, NATO had launched rescue helicopters from Bosnia in a

desperate push to reach the pilot before sunrise, which was to arrive in less than two hours. There was no time to wait for the A-10 gunships that typically accompany such a rescue package, so the helicopters flew without them. For more than an hour, Capt. Kent A. Landreth, as flight leader in an MH-53 *Pave Low*, led the three special operations helicopters through sporadic barrages of SAMs, anti-aircraft fire, and small arms fire. One MH-60 *Pave Hawk*, flown by Capt. William F. Denehan, was targeted by an SA-9 missile, which missed by only 100 feet. Later on, the same helicopter took rounds in the fuselage and left engine cowl from small arms fire.

The rescue aircraft went to the initial coordinates, which proved to be 17 miles from the pilot's actual location. From overhead, Kavlick finally directed them to the pilot's true position. With sunrise moments away, Denehan's helicopter touched down, and the pilot clambered aboard. As the rescue aircraft streaked away, the sun winked over the horizon, giving Serb gunners one last chance to claim an American victim. They missed.

For their performance during Allied Force, Kavlick, Landreth, and Denehan each received the Silver Star, the Air Force's third highest award for valor in combat—after the Medal of Honor and the Air Force Cross.

In total, only 10 pilots who flew

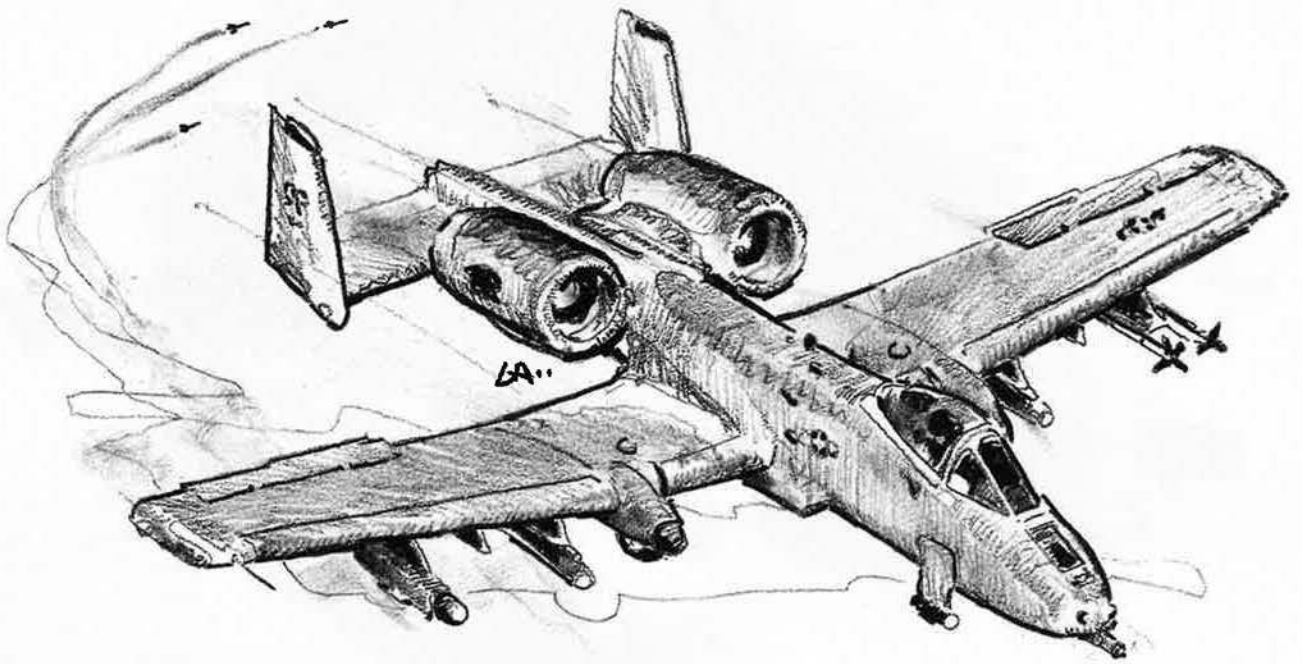
during Allied Force received the Silver Star. Three of them earned the award during the rescue of the F-16 pilot, and three others earned theirs during the rescue of an F-117 pilot who was shot down March 27, 1999. The four remaining Silver Star recipients were recognized for heroic efforts to protect their comrades or for attacks on the Serbs. Nearly 20 other aviators received the Distinguished Flying Cross—the next highest award for valor—and the Air Force is considering other nominees.

The weather was a soupy mess, with near-zero illumination on the night the Serbs shot down the F-117 stealth fighter. Upon getting word that an American pilot had been downed behind enemy lines, a combat search-and-rescue team headed by Capt. James L. Cardoso, in an MH-53, scrambled to launch from a base in eastern Croatia. Three rescue helicopters were quickly airborne, but they faced an unexpected problem when they got to the Serbian border: Fighters, command-and-control airplanes, and other assets needed for the rescue weren't yet ready for the push into Serbian airspace.

Cardoso's flight package hovered for awhile at the edge of Serbian territory, then landed with engines running—and gunners on high alert—to conserve fuel.



Capt. Kent A. Landreth and Capt. James L. Cardoso piloted MH-53 Pave Lows on the rescue missions for which they received Silver Stars.



Capt. John A. Cherrey was the only A-10 pilot to receive the Silver Star.

Goggles at 700 Feet

Still, they would need more fuel to get deeply into Serbia and back out again. Cardoso arranged a high-risk aerial refueling from an MC-130P tanker that itself was running low on fuel. Within three miles of the Serbian border, all the aircraft turned out their lights and shut off their communications gear. The pilots wore night vision goggles. To avoid detection by Serb lookouts or early warning radars, they conducted the refueling at an altitude of just 700 feet.

As Cardoso was refueling, Capt. John A. Cherrey, the overall commander of the combat search-and-rescue task force, was streaking toward the crash site in his A-10, trying to fix the exact location of the downed pilot. He was repeatedly illuminated by Serb SAM systems as he overflew the area. By the time Cardoso's package crossed into Serbia, the downed pilot's location had been determined to within a mile. The pilot was 25 miles outside of Belgrade—but, most alarmingly, was within 10 miles of three Serb army brigades.

With the rest of the rescue package coalescing, the three helicopters led by Cardoso crossed into Serbia and headed for their target. They zigzagged around missile threats, flying less than 100 feet off the ground. The pilots wore night vision goggles and kept their lights and terrain-following radars off. At one

point, Cardoso, in the lead helicopter, approached a set of uncharted power lines and barely pulled the aircraft over them in time, before issuing a warning to the rest of the formation behind him.

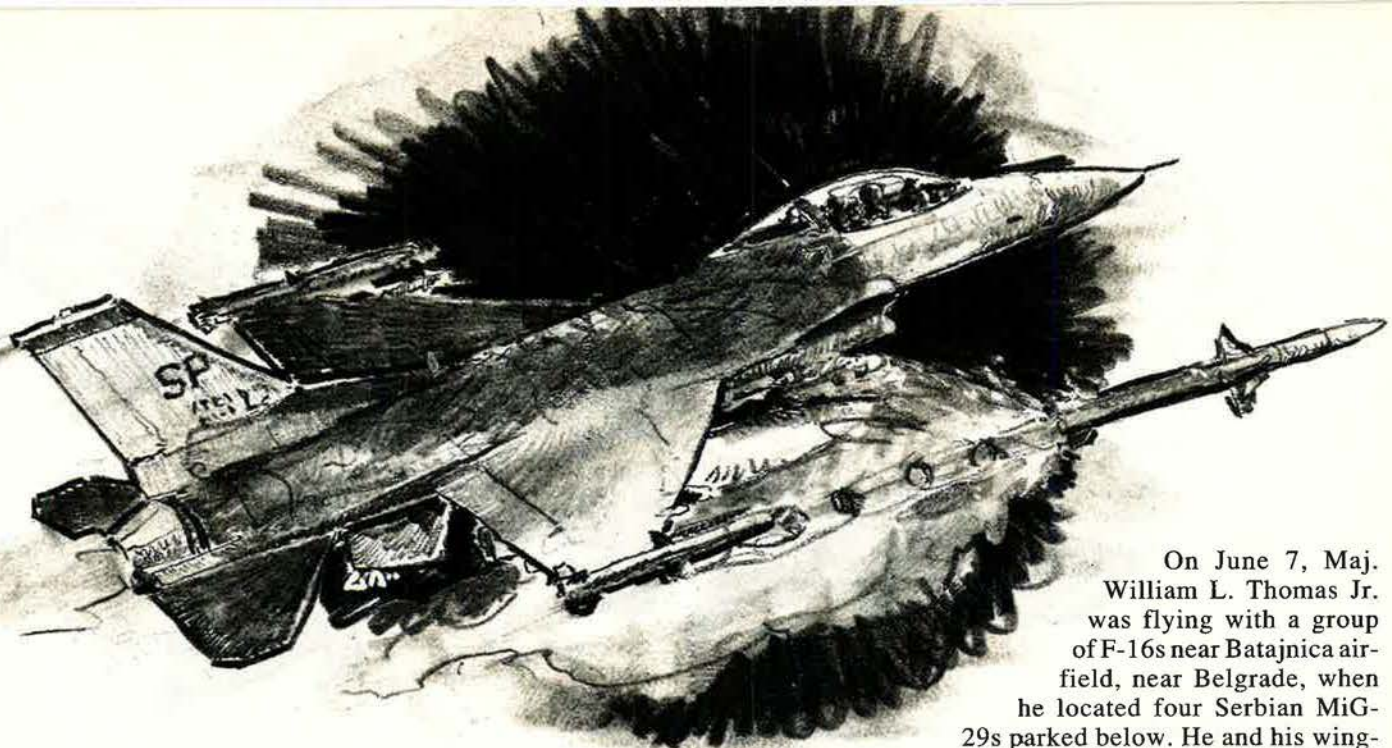
As the helicopters got close to the pilot's reported position, low clouds made it impossible for Cherrey in his A-10 or anyone else overhead to visually spot him. All the rescuers could tell was that the pilot was near a major intersection, where Serb vehicles stopped regularly to unload soldiers and search dogs. The downed pilot reported enemy movement nearby and at one point said that a search dog came within 30 feet of him. From overhead, Cherrey tried to fool the Serbs on the ground into thinking that the intended pick-up site was elsewhere, by flying his jet away from the pilot's general position—and into the lethal range of SA-3 and SA-6 missiles. The odds of saving the pilot seemed minimal. "The task of locating the survivor and recovering him safely was formidable at best," reads Cardoso's award citation.

The rescue forces decided their only option was a high-risk gamble. They radioed to the pilot, telling him to set off his daytime flare. That would let them spot him instantly—but it would be a race against the Serbs, who would also start to close in immediately. The pilot popped his flare. Cardoso in his helicopter turned out to be just a half-mile away,

and he quickly moved his MH-53 and one other into position between the pilot and approaching Serb forces. The third helicopter, an MH-60 piloted by Capt. Chad P. Franks, touched down and within 60 seconds was airborne again with the downed pilot on board. The helicopters flew at treetop level to Bosnia, dodging Serb searchlights, small arms fire, and anti-aircraft guns the entire way. They landed at Tuzla AB five-and-a-half hours after they had taken off.

A Strike at Belgrade

Attacking Serb air defense sites was another mission that was far more dangerous than ever portrayed on the evening news. On April 14, Capt. Cary N. Culbertson was leading a flight of F-16CJs that was providing suppression of enemy air defenses for B-2 bombers on a strike mission near Belgrade. The Serbs fired three SA-3s—presumably at the F-16s and not at the stealthy and much higher B-2s. Culbertson turned his F-16 toward the rising missiles and attacked the SA-3 site with a High-speed Anti-Radiation Missile. Then the Serbs launched two more SA-3s, this time directly at Culbertson's jet. "At this point," says Culbertson's Silver Star citation, "Captain Culbertson would have been justified to discontinue his attack and defend against the incoming missiles, but instead, with total disregard for his own personal safety and [with] the lives of his flight mem-



Four F-16 pilots received Silver Stars: Capt. Sonny P. Blinkinsop, Capt. Cary N. Culbertson, Capt. Steve R. Giovenella, and Maj. William L. Thomas Jr.

On June 7, Maj. William L. Thomas Jr. was flying with a group of F-16s near Batajnica airfield, near Belgrade, when he located four Serbian MiG-29s parked below. He and his wingman each destroyed one of the jets on a first pass over the airfield. On a second pass Thomas destroyed a third MiG. But the Serbs, meanwhile, had fired two SA-3s, which forced Thomas's wingman into evasive maneuvers. The plume from one of the missiles temporarily blinded the wingman, who went into a low-altitude dive in the midst of a AAA field. Thomas flew into the AAA zone and dispensed flares, so the artillery barrages would target him instead of his wingman. It worked. Both pilots escaped. ■

bers foremost in his mind, he continued his attack." He fired another HARM, which took out the SAM radar. Then he evaded the SA-3s. The Serbs tried one more time from a different site, firing another salvo of SA-3s—and drawing a HARM from Culbertson's wingman.

Capt. Sonny P. Blinkinsop also took unusual risks to protect his fellow pilots from Serb missiles. While he led a group of F-16Cs against some SAM sites near Obrva, Yugoslavia, on May 2, the Serbs launched several SA-3s at the formation. As one of the F-16s turned to fire a HARM at the SAM battery, another salvo of SA-3s was launched. Blinkinsop turned his aircraft toward the launch site—and into the path of the oncoming missiles—to fire a HARM at the battery. That act silenced the site. Then as the F-16s were reforming, the Serbs launched two more SA-3s at a second wave of NATO strike aircraft entering the area. Blinkinsop fired his last HARM at that SAM battery, shutting it down and letting the strikers escape safely. Blinkinsop's disregard for his own safety during this mission earned him the Silver Star.

Capt. Steve R. Giovenella was the last pilot to earn the Silver Star for attacking Serbian air defenses. On May 12, he led a two-ship flight of F-16s on a search for an SA-6 missile site near heavily defended Pris-

tina airfield, in central Kosovo. While the F-15s were collecting imagery of the area, Serb gunners opened up with a thick stream of Anti-Aircraft Artillery fire from three different AAA sites. Giovenella controlled his wingman during successful attacks on two of the actively firing AAA sites. With the wingman out of bombs, Giovenella went after the third. "With rounds detonating above and perilously near his canopy," according to his Silver Star citation, Giovenella guided his bombs directly onto the AAA site. "This mission," reads the citation, "sent a sorely needed message to Serbian forces that there was a price to pay for shooting at NATO forces."

The final Silver Star recipient may have done as much to save a colleague as any of the rescue forces.

The Silver Star

The Silver Star is awarded by all branches of the armed forces to any person who, while serving in any capacity, is cited for gallantry in action against an enemy of the United States while engaged in military operations involving conflict with an opposing foreign force or while serving with friendly forces against an opposing armed force in which the United States is not a belligerent party. The award is for actions not of a degree to justify an award of the Medal of Honor or the Air Force Cross.



Richard J. Newman is the Washington-based defense correspondent and senior editor for US News & World Report.

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AFA / AEF National Report

By Frances McKenney, Assistant Managing Editor

AFA President Visits Expeditionary Force

Air Force Association National President Thomas J. McKee gathered information on Aerospace Expeditionary Force lead combat wings and listened to the concerns of airmen during a two-week tour of six Air Combat Command bases.

He also met with local AFA groups to encourage leadership development and share information on the association and about issues on Capitol Hill.

Along with information briefings and tours of ACC base facilities, McKee had breakfast and lunch meetings with enlisted members and company grade officers. They told him how the Air Force's declining end strength has led to overwork. They enumerated difficulties with Tricare and spoke about what some feel are continuing inequities in the basic allowance for housing, despite recent adjustments. At every stop, they asked McKee about issues ranging from the new Air Force logo to anthrax vaccinations and wanted to know the Air Force Memorial's status. McKee learned that increasing numbers of Air Force families have turned to home-schooling to maintain quality and consistency in education as they move from base to base.

Infrastructure was a problem nearly everywhere, he said later. At one base, he saw areas of a runway that had sunk and family housing units with cracks in the walls, caused by shifting foundations. "The American public has no idea what these men and women have to deal with," the AFA national president said.

Beginning at Langley

Langley AFB, Va., was McKee's first stop, where he met Gen. John P. Jumper, ACC commander, and learned the details of everything from smart munitions to streamlining acquisition and low observable maintenance. Jumper also told him that Congress needs to value our airmen as much as they use them.

That evening, the **Langley Chapter** hosted a dinner at a Radisson Hotel, attended by approximately 50 guests, including ACC and 1st Fighter



USAF photo by A1C Marie Casselty

AFA National President Thomas McKee (third from left) received a B-1 orientation flight at Dyess AFB, Texas, during a tour of ACC bases. With him are (l-r) 28th Bomb Squadron crew chiefs SSgt. Steve Byard and TSgt. Mark Stewart; flight crew Capt. James Clark and Capt. Scott Hamilton; and Maj. Ron Morrell from the 7th Operations Support Squadron.

Wing leaders and staff and many defense industry representatives. The 1st FW is the combat lead for AEF 10.

McKee spoke to the group about AFA's goals for the year and its involvement "inside the Beltway" on behalf of the Air Force, reported Chapter President Stephen A. Mosier.

Swamp Fox Stop

Lt. Gen. Charles F. Wald, 9th Air Force commander, welcomed McKee at his next stop, Shaw AFB, S.C., home of the 20th Fighter Wing, combat lead for AEF 6.

Wald and Col. Dana T. Atkins, 20th FW commander, were also special guests at a **Swamp Fox Chapter** dinner for about 60 people at Shaw, including Chapter President Jimmy W. Wylie, Secretary James Rogers, and Treasurer Donald P. Adeo.

In a highlight of the evening, McKee presented AFA coins to aviation artist Bill Reynolds and John C. "Casey" Klapthor, both charter members. McKee's speech kicked off the chapter's membership drive, Wylie said, and

helped them reach potential active duty members at Shaw.

Airmanship at Barksdale

The **Ark-La-Tex Chapter** held a lively Cajun dinner for McKee at his next stop in Louisiana. Hosted by Chapter President Peyton Cole Jr., the dinner was attended by chapter members Lt. Gen. Thomas J. Keck, who became 8th Air Force commander in January, and Brig. Gen. William M. Fraser III, 2nd Bomb Wing commander.

A B-52H flight highlighted the next day's visit to Barksdale AFB, where the 2nd BW is the combat lead for AEF 7. McKee said flying in the bomber gave him a greater appreciation for airmanship. He was impressed by the crew's enthusiasm for their work.

Referring to McKee's background as an A-7D pilot and T-38 instructor pilot and check pilot, Chapter President Cole joked, "For a 'little airplane driver' to get into a B-52 is a significant emotional event."

Wings

The Bone

Rep. Charles W. Stenholm (D-Texas) joined McKee as special guest for a Texas steak house dinner in Abilene, home of Dyess AFB and the 7th Bomb Wing, the AEF 2 combat lead.

Brig. Gen. Joseph P. Stein, wing commander, and C.N. "Buster" Horlen, Texas state president, were also among the VIPs at the dinner, hosted by the **Abilene Chapter**, whose president is Bruce R. Sutherland.

AFA Texas executive committee members participated in McKee's tour of Dyess, receiving mission briefings from the wing and the 317th Airlift Group and viewing aircraft static displays and simulators.

McKee particularly admired the state-of-the-art equipment in the crew briefing room. At the flight line, he operated weapons loading equipment, including a jammer, and flew in a B-1B, participating in an aerial refueling.

In Arizona

The **Tucson Chapter** hosted both a dinner and luncheon for McKee's visit to Davis-Monthan AFB, Ariz.,

home of the 355th Wing, the combat lead for AEF 5.

Col. Bobby J. Wilkes, wing commander; CMSgt. Gary Coleman, command chief master sergeant from 12th Air Force; and CMSgt. Ronald G. Kriete, 355th Wing command chief master sergeant, were among the honored guests at the evening event.

AFA officials included Scotty Wetzel, region president (Southwest Region); James M. Trail and R.L. Devoucoux, national directors emeriti; Angelo DiGiovanni, state president; James I. Wheeler, Tucson Chapter president; Peter J. Morris, **Richard S. Reid Sr. Chapter** president; and Hector Evans, president of the **Phoenix Sky Harbor Chapter**.

At a chapter luncheon the next day, McKee helped present awards to four outstanding performers for 1999 from the base.

At Davis-Monthan, McKee had breakfast with wing first sergeants and chief master sergeants and throughout the day spoke to groups of enlisted and junior officer personnel. He received briefings from several units on base and toured an EC-130.

Thank You, AEF

A grateful recipient of an Air Force Spouse Scholarship from the Aerospace Education Foundation thanked McKee for the award during his visit to Whiteman AFB, Mo.

Lori J. Williamsen, a graduate student at Central Missouri State University, was among 30 students who received one of the \$1,000 scholarships in February.

At Whiteman, the **Earl D. Clark Jr. Chapter** is headed by Stacie F. Toole.

McKee spoke at the Airman Leadership School and the First Term Airman Center and toured everything from a B-2 and a missile launch control facility to the base recycling center. He joined Brig. Gen. Leroy Barnidge Jr., 509th Bomb Wing commander, for lunch with company grade officers. Barnidge reminded the group that AFA has had "a lot of victories, but they're still fighting a lot of battles for us."

Several photos taken by ACC public affairs offices during McKee's tour of AEF wings were posted on the military joint combat camera Web site. They also included coverage of Patricia McKee's visit with Barksdale's Starbase educational program for at-risk fifth-graders.

McKee said such information-gathering tours motivate him to work for changes to help USAF service members. AFA members appreciate the effort, too. 1st Lt. Ramon Carlos "Archie" DeJesus, from Dyess AFB, e-mailed a thank you note to Patricia McKee, saying, "I'm glad to see my AFA reaching out to the very people it represents."

Myths at Breakfast

Speaking to an audience of about 60 Air Force, defense industry, and local business leaders in Los Angeles, Rebecca Grant debunked several myths that have casted doubt on the success of airpower in Allied Force. (See "Nine Myths About Kosovo," p. 50.)

President of the Washington independent research firm IRIS, Grant has been a frequent contributor to *Air Force Magazine* and participant in AFA symposiums.



Before his B-52 orientation flight at Barksdale, AFA National President McKee receives assistance from TSgt. David Williams, 20th Bomb Squadron, to ensure that his helmet fits well.

USAF photo by A1C Rebecca Luquin



The conference table is awash in papers as AFA's senior advisors listen to a briefing by Brig. Gen. David Deptula on the Quadrennial Defense Review. Among those at this recent senior advisors' meeting were (l-r, from far end) AEF President Jack Price, R.L. Devoucoux, Russell Dougherty, Deptula, AFA National President McKee, William Spruance, and John Alison. Other AFA senior advisors are George Douglas, John Gray, Jack Gross, Martin Harris, William McBride, Julian Rosenthal, and Walter Scott.

After her presentation, she fielded questions from the audience members, including one who asked what she thought a similar group in Belgrade might be saying about their side of the war. Grant replied they were probably agreeing that the most important lesson they learned was to turn on their radars only to take out NATO forces. The tactic made their air defense sites much harder to find.

The Los Angeles breakfast meeting was arranged by AEF trustee E. Robert Skloss and Roy Wuchitech, with Henry H. Sanders from the **Gen. B.A. Schriever Los Angeles Chapter** among those handling the logistics support. Among the chapter members in the audience were James Gates, Robert J. Wickwire, Robert Peterson, Robert H. Krumpe, and Don K. Tomajan.

Grant was invited to give the same briefing to other AFA chapters, and Brig. Gen. William M. Wilson Jr., vice commander of Space and Missile Systems Center, Los Angeles AFB, Calif., met with AEF representatives to discuss the possibility of similar presentations in other cities.

More on Kosovo

Lt. Gen. Michael C. Short, commander, Allied Air Forces Southern Europe, spoke to an after-work joint gathering of the **Wright Memorial (Ohio) Chapter** and the local National Defense Industrial Association

at Wright-Patterson AFB in February.

Short, who headed NATO air operations in Kosovo, described the conduct of the air war, including initiatives that worked, as well as problem areas, such as target selection and coalition coordination.

Dan el E. Kelleher, chapter president, said the audience of about 160 people appreciated Short's candor.

Women of Distinction

Ana Maria Salazar, deputy assistant secretary of defense for drug enforcement policy and support, served as keynote speaker for the **Thomas W. Anthony (Md.) Chapter's** annual Women of Distinction banquet at Andrews AFB, Md., in April.

Salazar worked in counterdrug law-enforcement policy at the White House and State Department for more than a decade before assuming her current post in 1998. She began her remarks by describing her five years as a judicial attaché at the US Embassy in Bogota, Colombia, in the early 1990s. She then spoke about the importance of empowering women and how this can be achieved.

The 10 military and civilian honorees—from Andrews AFB, Md., and the local community—were Col. Judith F. Kaetz (an AFA member), Col. Suellyn Wright Novak, Lt. Col. Loraine H. Anderson, Maj. Jacqueline R. Jones, CMSgt. Daisy Jackson, CMSgt.

Catherine D. Waters-Williams, ANG MSgt. Kristin K. Hunt, TSgt. Wanda M. Joell, and educators Gwendolyn E. Allen and Arlyn G. Sweeney.

In addition, Charles X. Suraci Jr., chapter president, received a chapter Member of Distinction award.

Special guests at the banquet, attended by about 200 people, included Brig. Gen. James A. Hawkins, 89th Airlift Wing commander, and CMSgt. Francis R. Estevez, the 89th AW command chief master sergeant. AFA officials at the Andrews AFB event were John E. Craig II, region president (Central East Region); R. Donald Anderson, Raymond C. Otto, and Mary Anne Thompson, all national directors.

Europe's Top Teacher

Joseph Koziar, a fourth-grade math and science teacher at Feltwell Elementary School at RAF Feltwell, UK, received the Chapter and European Region Teacher of the Year award from the **United Kingdom Chapter** in March.

Capt. Christopher J. Urdzik, chapter president, joined several members of the chapter's executive committee in presenting the \$500 award to Koziar at a school staff meeting, attended by more than two dozen teachers.

Koziar, son of an Air Force chief master sergeant, has been teaching for 17 years and incorporates aerospace topics, such as space flights, astronauts, and the International Space Station, into his classroom curriculum.

Visions

Debby Dodge, *USA Today's* national sales coordinator for education, recently shared with AEF letters she received from fifth-graders in Stacy Dorner's classroom at Sun Path Elementary School in Shakopee, Minn. The children participate in the *USA Today*-AEF Visions of Exploration program that encourages an interest in math and science.

Student Joe Ganske wrote: "Every week our class has to pick one article out of your newspaper to read. I like doing that. It is fun and interesting. Why do you spend all of that money on us?"

Doreen Trevis, a regional account manager for *USA Today* newspaper, helped explain why when she was guest speaker at an Ohio state AFA meeting, hosted by the **Frank P. Lahm Chapter** in March in Bellville, Ohio.

Representatives from Ohio's six chapters—**Capt. Eddie Rickenbacker**

Memorial, North Coast, Lahm, Greater Cincinnati, Steel Valley, and Wright Memorial—listened to Trevis talk about the role of AFA in Visions.

AEF's largest nationwide program, Visions of Exploration uses *USA Today* to incorporate material into the curriculum for fourth- through sixth-graders for an 18-week period. It also gives AFA chapters an opportunity to get their foot in the door at local schools; chapter members have, for example, visited classrooms, worked with the students on specific projects, and even taught lessons.

Visions involves nearly 1,300 classrooms of fourth- through sixth-graders, this year, and three AFA chapters in Ohio sponsored 49 of them. After the state meeting, the Ohio chapter representatives agreed to sponsor more in the coming school year.

Resources for Teachers

The **John W. DeMilly Jr. (Fla.) Chapter** and several county organizations held their annual aerospace education symposium to highlight for local educators the vast amount of aviation resources available in the county.

The all-day meeting in April informed local educators about Homestead ARB's 482nd Fighter Wing (AFRC) and Det. 1, 125th Fighter Wing (ANG); Air Force JROTC and the Civil Air Patrol; aviation magnet and aviation theme elementary schools; and university-level programs, to name a few topics.

David R. Cummock, region president (Florida), gave a presentation on AEF's educational grants available to teachers. Steven A. Bachmeyer, winner of the AEF's 1997 Christa McAuliffe Memorial Award for Teachers, spoke about programs and venues that showcase aerospace education. **Brig. Gen. James R. McCarthy Chapter** member Patricia J. Ryan, from the FAA/Embry-Riddle Teacher Resource Center in Daytona Beach, donned period costume and pretended to be Harriet Quimby, America's first licensed female pilot (in 1911) and the first woman to fly the across the English Channel (1912).

There were so many organizations and programs to be covered that chapter member Michael E. Richardson, symposium coordinator, warned speakers ahead of time that he would "ruthlessly enforce" a 15-minute limit on their presentations.

Richardson said that along with informing teachers about tours, internships, and speakers available, the symposium allows educators to network with others who use aviation topics in the classroom and helps

them plan aviation-related activities for the coming school year. Symposium attendees receive a useful tool, too: a points-of-contact list for resources.

Florida Drill

Representatives from several Florida chapters and Region President Cummock were on hand to present trophies to the cadet winners at the 12th annual AFA Florida AFJROTC drill competition at Daytona Beach, Fla., in March.

Held on the campus of Embry-Riddle Aeronautical University and organized by the school's AFROTC Det. 157, the competition pitted 26 drill and 33 color guard teams against each other. They came from 17 AFJROTC units in the state. Twenty-eight judges evaluated them.

AFA chapters sponsored 49 trophies, with most of the first-place ones going to Pine Ridge High School of Deltona, Fla. Presenting them were Marguerite H. Cummock and James W. Council from the **Brig. Gen. James R. McCarthy Chapter**, Robert F. Cutler from the **Gen. Nathan F. Twining Chapter**, William Quigley from the **West Palm Beach Chapter**, and Ransom Meriam of the **Gold Coast Chapter**.

William L. Sparks from the McCarthy Chapter, served as master of ceremonies for the meet.

Good Job!

The **Blue Ridge (N.C.) Chapter** donated \$100 and certificates of appreciation to East Henderson High School in East Flat Rock, N.C., to honor five AFJROTC cadets who

received AFJROTC Cadet Humanitarian Awards.

Chapter member retired Lt. Col. Robert S. Clark, senior aerospace science instructor at the school, presented the awards to Christy Bullman, Luke Conner, Brent Coston, Joe Fox, and Matthew Nichols in a ceremony at the school's media center. The chapter also provided certificates of appreciation for each cadet and a certificate to display at their AFJROTC department.

Chapter President Mike Hunsucker and William T. Stanley, chapter vice president for veterans affairs, attended the ceremony.

The cadets earned their humanitarian award because of their actions last summer. They had been on a field trip to the Kennedy Space Center in August and were on a cadet night security patrol at a Cocoa Beach, Fla., motel one night when they saw a man attacking a woman. They called the police and awoke their chaperones, scaring off the assailant.

Outstanding

The **Spirit of St. Louis (Mo.) Chapter** held its 25th annual Outstanding Airmen of the Year awards dinner at a St. Louis conference center in March, with ANG Maj. Gen. Loran C. Schnaidt as guest speaker.

Schnaidt spoke about the contributions of World War II veterans to our country's defense.

Fifty-nine dinner guests honored the eight award recipients: SMSgt. David Cowger and TSgt. Calvin Gray from the National Imagery and Mapping Agency's St. Louis facility; MSgt. Carmen Lepper and SSgt. Beth



At the statewide AFJROTC drill competition sponsored in part by Florida AFA chapters, David Cummock, region president (Florida Region), presents the trophy for overall excellence to cadets Evie Dunbar (left) and Serena Wilson.

Photo by James G. Mohan



The Spirit of St. Louis Chapter honored outstanding airmen from the area in March. Front row (l-r): SSgt. Cathleen Pearl, MSgt. Carmen Lepper, MSgt. Susan Rauss, and SSgt. Beth Ready. Back row (l-r), SMSgt. Mitchell Wilson, SMSgt. David Cowger, TSgt. Calvin Gray, and TSgt. Paul Velleca Jr.

Ready from the Missouri Air National Guard headquarters in Jefferson City, Mo.; MSgt. Susan Rauss and TSgt. Paul Velleca Jr. from the 131st Fighter Wing, Lambert-St. Louis IAP; SSgt. Cathleen Pearl, 157th Air Operations Group; and SMSgt. Mitchell Wilson, 218th Engineering Squadron.

James Whalen, chapter president; Gary M. Young, membership vice president; and Flo Murphy, secretary, planned and hosted the event.

Change in Colorado

AFA National President McKee, AFA National Secretary William D. Croom Jr., National Director Emeritus George M. Douglas, and several AFA state and Colorado Springs/Lance Sijan Chapter officials attended the change of command ceremony for US Space Command in Colorado Springs, Colo., in February.

The group, which included Joan Sell, chapter president; Ted D. Kerr, Frederick Gervais, Curt Emery, Brian Carron, and Larry D. Fortner, also joined Space Command's welcome party for Gen. Ralph E. Eberhart the incoming commander, held in a hangar at Peterson AFB.

Outgoing SPACECOM Commander Gen. Richard B. Myers had earlier received a thank you from the chapter, in the form of a statuette of an eagle, presented in his office by Sell and Kerr.

In another February event, the chapter hosted its annual pizza party at the US Air Force Academy, serving 150 guests just before the school

conducted its Wing Open Boxing Championship. The event traditionally raises funds for charity. This year, the wing earmarked the money to defray medical costs for two youngsters who are military dependents.

The chapter contributed nearly \$1,500 toward this effort, helped by donations from 15 Community Partners that also provided door prizes (the grand prize was a DIRECTV system).

New Membership Directory In The Works

Production of the 2001 edition of the *Air Force Association Membership Directory* is under way.

The new directory will be the most comprehensive source of information ever compiled on AFA's more than 155,000 members. The Bernard C. Harris Publishing Co., which developed previous AFA directories, will begin the research phase on this one by mailing questionnaires to all AFA members this summer.

The association shares members' concerns about privacy and confidentiality. The Harris Co. will not use member names or addresses for any reason other than the directory. The directory cannot be used for mailing lists, and only current members will be able to buy it—the information will not be available to the general public.

Only AFA members who complete the questionnaire, or otherwise give permission, will be included in the directory.

The chapter has supported the charity event for more than 14 years.

Scholarship Winners

At its Board of Trustees' winter meeting, AEF awarded seven \$1,000 scholarships to cadets from Embry-

AFA Conventions

- June 1-4 California State Convention, Palm Springs, Calif.
- June 3-4 Mississippi State Convention, Biloxi, Miss.
- June 9-10 Arkansas State Convention, Fort Smith, Ark.
- June 9-11 Ariz.-Nev.-N.M. State Convention, Albuquerque, N.M.
- June 9-11 New York State Convention, Lockport, N.Y.
- June 10-11 Ohio State Convention, Cincinnati
- June 16-17 Washington-Oregon State Convention, McChord AFB, Wash.
- June 16-18 Missouri State Convention, Whiteman AFB, Mo.
- June 30-July 1 Oklahoma State Convention, Altus, Okla.
- July 7-8 Louisiana State Convention, Shreveport, La.
- July 7-8 Minn.-N.D. State Convention, Minneapolis, Minn.
- July 21-23 Pennsylvania State Convention, Pittsburgh
- July 21-23 Texas State Convention, Dallas
- July 28-29 Alabama State Convention, Birmingham, Ala.
- July 28-30 Florida State Convention, Homestead AFB, Fla.
- Aug. 11-13 Georgia State Convention, Robins AFB, Ga.
- Aug. 11-13 Indiana State Convention, Indianapolis
- Aug. 18-19 Colorado State Convention, Aurora, Colo.
- Aug. 18-19 Virginia State Convention, Roanoke, Va.
- Aug. 25-26 Illinois State Convention, Springfield, Ill.
- Sept. 10-13 AFA National Convention, Washington
- Sept. 16-17 Delaware State Convention, Dover, Del.
- Sept. 29-Oct. 1 New Hampshire State Convention, Portsmouth, N.H.

Riddle Aeronautical University, Daytona Beach, Fla. The scholarships are funded by AEF board member William W. Spruance, also a member of the **Diamond State (Del.) Chapter**.

The Thomas J. McKee Scholarship winner was Thomas A. Neil. The Doyle Larson Scholarship winner was Daniel S. Haugh. The Jack C. Price Scholarship went to John T. Pearce, while the Michael Dugan Scholarship went to Amanda Stevens. Other winners of scholarships named for AFA Executive Director John A. Shaud, former Executive Director John O. Gray, and Assistant Executive Director Dan Marrs were Carmen R. Juana-rena, Jan H. Stahl, and Michael J. Lewis, respectively.

More AFA/AEF News

■ For the fifth year, AEF participated in the National Congress on Aviation and Space Education in March in San Diego. More than 700 educators attended the conference, sponsored by CAP. AEF trustee Mary Anne Thompson led a discussion on AEF and its programs during one session. In the exhibit hall, AEF was part of a display sponsored by the National Coalition for Aviation Education, a group of organizations that promote aerospace education.

AFA Councils

AFA National President Thomas J. McKee has appointed these council members and advisors for 2000.

Air National Guard Council: Maj. Gen. W. Reed Ernst II (chair), Lt. Col. Craig A. Noll (vice chair), Maj. Tracey L. Hale (liaison), Lt. Col. Marshall Bronston, Capt. Michael A. Cavender, MSgt. Larry D. Harris, Capt. Timothy R. Kern, Lt. Col. Scott R. Leitner (Ret.), Lt. Col. Bob B. Newman, CMSgt. Carroll Rousseau (Ret.), SrA. Pete Terry, and Brig. Gen. Craig R. McKinley (advisor).

Civilian Advisory Council: Dennis H. Alvey (chair), Rick Beaman (vice chair), James H. Carlock (liaison), Judy Adamcyk, Edward W. Garland, Pete Jones, Lucy J. Kuyawa, Laura L. Loflin, Merlin L. Lyman,



George Apostle, Maryland state president (far left), and Erwin Nase, College Park Chapter vice president, present an AFA plaque at the National Geographic Society to Gustavus McLeod of Gaithersburg, Md., who made the first flight to the North Pole in an open-cockpit airplane—a 1939 Stearman—on April 17.

Michael D. McAdams, Teresa A. Warren, Randall B. White, and Gregory W. Den Herder (advisor).

Enlisted Council: CMSgt. Paula Campa (chair), CMSgt. Marie Ashmore (liaison), MSgt. Michael T. Barrie, SSgt. Gregory A. Coleman, SSgt. Angela L. Coyle, SSgt. James C. Lee, SSgt. Aaron F. May, MSgt. Darin L. Miley, SMSgt. Deiadra J. Moore, SSgt. Edward J. Moore, TSgt. Joseph J. O'Keefe, SrA. Margaret S. Rawls, SMSgt. Albert M. Romano Jr., MSgt. Larry E. Williams, TSgt. Patricia M. Woodham, and CMSAF Jim Finch (advisor).

Junior Officer Advisory Council: Capt. Jeff Tyrcha (chair), 1st Lt. Kelly Ayer (liaison), 1st Lt. Paula Branson, 1st Lt. Gregory A. Davis, Capt. Dexter Harrison, Capt. Jonathan Herrmann, Capt. P. Brent McArthur, Capt. Andrea C. Miller, Capt. William Price, Capt. Elizabeth A. Rogers, Capt. Peter P. Santa Ana, Capt. Gary A. Town, Capt. Jeanette Voigt, 1st Lt. Bryan Winter, and Maj. Gen. John F. Regni (advisor).

Reserve Council: Brig. Gen. Jack Gingerich (chair), SMSgt. Troy McIn-

tosh (liaison), Maj. Richard C. Ahlquist, Col. (sel.) Paul L. Bailey, Maj. Christine B. Boyette, Capt. David R. Calland, TSgt. Patrick C. Cassidy, Maj. Peter Dettelis, Col. James W. Graves, Maj. Dona M. Iversen, Capt. Sharon M. Johnson, SMSgt. Cheryl A. Kerwin, CMSgt. Cherry A. Maxwell, TSgt. Cassandra McMillan, MSgt. Gil Morales, Brig. Gen. Michael J. Peters (Ret.), CMSgt. Jeffery Rooding, and Wayne R. Gracie (advisor).

Veterans/Retiree Council: Thad A. Wolfe (chair), David J. Campanale, Richard Carr, James H. Chaney, Maralin K. Coffinger, Gloria Crawford, Richard G. Galloway, David A. Guzman, Ann A. Hollinger, Bev Hooper, Charles E. Lucas, Russell W. Mank, Jimmy L. Miller, Tommy A. Roberts, Pat L. Schittulli, James S. SeEVERS, Thomas G. Shepherd, Richard Siner.

Have AFA/AEF News?

Contributions to "AFA/AEF National Report" should be sent to *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: afa-aef@afa.org. ■

Unit Reunions

reunions@afa.org

3rd Hospital Gp/7510th USAF Hospital, Wimpole Park, UK. Sept. 21-24, 2000, at the Best Western Palmer House in Colorado Springs, CO. **Contact:** Rowland D. Garver, 182 E. 5th St., Peru, IN 46970-2340 (765-473-7184) (dutchgarver@netusa1.net).

19th ARS, 8th AF, SAC personnel, Homestead

AFB, FL, and Otis AFB, MA (1957-65). Oct. 1-4, 2000, in San Diego. **Contact:** Frank Szemere, 711 E. Sunset Blvd., Fort Walton Beach, FL 32547 (850-862-4279) (fszemere@gnt.net).

38th TRS (previously 160th TRS), Germany (1951-55). Aug. 14-15, 2000, in Pigeon Forge, TN. **Contact:** Bill Shell, 11163 Thornton Dr.,

Knoxville, TN 37922-2927 (865-966-9641).

39th BG, Guam (1945). Aug. 10-13, 2000, in Savannah, GA. **Contacts:** James W. Wyckoff, 2714 Hayts Corners E. Rd., Ovid, NY 14521-9768 (607-869-2574) or Bob Weiler, 2045 Hyde Park St., #3, Sarasota, FL 34239-3941 (941-365-8287).

Unit Reunions

40th ARS, Schilling AFB and Smoky Hill AAF, KS. Oct. 3-7, 2000, in Bossier City, LA. **Contact:** Dick Glogowski, 102 Arrowhead Ln., O'Fallon, IL 62269 (618-624-6115) (dglogows@apci.net).

47th BG Assn (WWII). Aug. 20-23, 2000, at the Excalibur Hotel Casino in Las Vegas. **Contact:** Costa Chalas, 75 Ellisville Dr., Plymouth, MA 02360 (phone: 508-224-4982 or fax: 508-224-3930).

50th TFW, at Hahn AB, Germany. Aug. 31-Sept. 2, 2000. **Contact:** Martin Aguera, F-16 Viper Pilots Assn, Goethestrasse #2, Büchenbeuren, Germany 55491 (011-49-6543-3135) (ague3301@uni-trier.de).

52nd FG, Hq. and 2nd and 5th FS (WWII). Sept. 21-23, 2000, at Wright-Patterson AFB, OH. **Contact:** Tom Thacker, 1334 Walnut Bend Ct., Fairborn, OH 45324 (937-879-3832) (thothacker@aol.com).

59th FIS, Otis AFB, MA; Goose Bay, Labrador, Canada; and Thule AB, Greenland (1950-60). April 11-14, 2001, in Fort Walton Beach, FL. **Contacts:** Donald Schipke (937-426-1852) (schipke@erinet.com) or Larry Ellgass (706-692-4325) (fasu@mindspring.com).

70th FS (WWII-present) final dining-out and inactivation ceremony. June 28-30, 2000, at Moody AFB, GA. **Contact:** Capt. Steve Latham, 8223 Knights Way, Moody AFB, GA 31699 (912-257-3800) (steve.latham@moody.af.mil).

90th BG Assn, southwest Pacific (WWII). Oct 2-5, 2000, at the Imperial Palace Hotel and Casino in Las Vegas. **Contact:** Jim McAteer, 1230 Camino Del Lago, Lake San Marcos, CA 92069-

Mail unit reunion notices well in advance of the event 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.

5259 (760-744-7997).

100th AREFS, Pease AFB, NH. Sept. 21-24, 2000, at the Comfort Inn at Yoken in Portsmouth, NH. **Contact:** Stan Klepper, 202 Snead Ln., Westminster, SC 29693 (864-972-2520) (stanleyo@worldnet.att.net).

307th BG (WWII), B-24s. Sept. 27-30, 2000, in San Antonio. **Contact:** John T. Reeves, 3460 Four Mile Rd. NE, Grand Rapids, MI 49525-9637 (616-365-1228) (ranger1able@juno.com).

361st FG Assn (WWII). Sept. 14-17, 2000, at the Comfort Inn Airport in North Linthicum, MD. **Contact:** William Hild, 811 Lynvue Rd., Linthicum, MD 21090 (410-789-9280).

380th BG. Nov. 8-12, 2000, at The Menger Hotel in San Antonio. **Contact:** Carnevale and Assoc., Inc., PO Box 1230, Sonoita, AZ 85637 (phone: 800-659-8808 or fax: 520-455-5866) (carne@dakotacom.net).

442nd TCG and 464th Service Gp (WWII). Sept. 28-30, 2000, in Dayton, OH. **Contact:** Marvin Ledbetter, 102 Sheffield Ln., Taylors, SC 29687-3926 (864-244-5861) (popled@juno.com).

459th BG, Fifteenth AF (WWII). Sept. 14-17, 2000, at the Four Points Hotel by Sheraton Riverwalk in San Antonio. **Contacts:** Maurice L. Griffith, 234 LaJolla Dr., San Antonio, TX 78223 (210-654-6558) or John Devney, 90 Kimbark Rd., Rochester, NY 14610 (716-381-6174).

484th BG, Fifteenth AF, Italy (WWII), including all ground and air personnel. Oct. 25-30, 2000, in Dallas. **Contact:** Bud Pressel, 436 Hunting Park Ln., York, PA 17402 (717-757-1218).

485th BG (WWII). Sept. 27-Oct. 1, 2000, in St. Louis. **Contact:** Earl L. Bundy, 103 N. Tennessee Ave., Chanute, KS 66720-1445.

526th FIS, Landstuhl AB, Germany. Sept. 29-Oct. 1, 2000, in Dayton, OH. **Contacts:** Jerry Burton (310-217-9317) (jpburto@twa.com) or Ed Lauderback (937-890-5889).

793rd Military Police Battalion (1942-present). Sept. 27-30, 2000, at the Holiday Inn Select Vanderbilt in Nashville, TN. **Contact:** Frank De Rosa, 640 S. Kaspar Ave., Arlington Heights, IL 60005-2320 (847-255-3977).

857th Medical Gp. July 28-30, 2000, at the Ramada Inn in Clinton, OK. **Contact:** H. Clerval, 1021 Richfield Dr., Newark, DE 19713 (302-368-0474) (sac857@aol.com).

910th/757th Veterans Assn of the Youngstown ARS, Ohio. Sept. 22-24, 2000, in Vienna, OH. **Contact:** 910th/757th Veterans Association, Youngstown ARS, 3976 King Graves Rd., Unit 58, Vienna, OH 44473-5958.

1708th Ferrying Wg. Sept. 14-17, 2000, at the Marriott Hotel Dayton in Dayton, OH. **Contact:** Bob Groszer, 8187 Capitol Dr., Cincinnati, OH 45244 (513-474-2112) (rgroszer@cs.com).

Air Rescue Assn. Sept. 24-28, 2000, in Branson, MO. **Contacts:** ARA, 222 Greycliff Dr., San Antonio, TX 78233-2507 or Shad Shaddox (phone: 210-656-0306 or fax: 210-656-5311) (www.pedroairrescuechopper.net/ara/).

B-47 Stratojet Assn, in conjunction with the Confederate Air Force Air Show. Oct. 5-8, 2000, in Odessa, TX. **Contact:** Dick Purdum (402-291-5247) (dickpurdum@aol.com).

BAD 2 Assn, Warton, UK. Sept. 13-17, 2000, in Alexandria, VA-Washington, DC, area. **Contact:** Dick McClune, 527 Quarterfield Rd., Newport News, VA 23602.

Berlin Airlift Veterans Assn. Sept. 26-30, 2000, at the Best Western Executive Inn in Fife, WA. **Contact:** J.W. Studak, 3204 Benbrook Dr., Austin, TX 78757-6804 (512-452-0903).

Big Safari. Sept. 14-16, 2000, at the Hyatt Regency Dallas-Fort Worth at Love Field, TX. **Contact:** John Reynolds, 4448 W. Beach Dr., Greenville, TX 75402 (903-883-2080 or 903-457-4990 on Monday) (jreynolds@903internet.com) (www.903internet.com/~kibbeb/index.html).

Charleston AFS, ME, 765th Radar Sq., 765th AC&W, Det. 6, 14th MWS, and other units assigned since 1952. July 14-15, 2000, in Bangor, ME. **Contact:** Woody Breedlove, 211 Maple St., Bangor, ME 04401 (207-947-6426) (woodyb@mint.net).

Class 55-V. Sept 21-24, 2000, in Dayton, OH. **Contact:** Richard Brown, W3269 Orchard Ave., Green Lake, WI 54941-9521 (520-625-9294).

Johnson High School Alumni Assn, near



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Yokota AB, Japan (1960-73). June 15-18, 2000, at the Monte Carlo Resort & Casino in Las Vegas. **Contact:** Marilynne Sebastian Ayers, 1894 Foxhills Ter., Vista, CA 92083 (760-598-3955) (jhsalumni@hotmail.com).

Pilot Class 42-A (Brooks Field, TX). Sept. 7-10, 2000, at the Gold Coast Hotel & Casino in Las Vegas. **Contact:** Capt. H.R. Staeben, PO Box 1135, Eagle River, WI 54521 (Phone: 715-479-9043 or fax: 715-479-5106) (hrsb29@yahoo.com).

Pilot Class 55. Sept. 14-17, 2000, in Colorado

Springs, CO. **Contact:** Ron Weinert, 1310 Riverside Dr., Buhl, ID 83316 (208-543-8925) (rweinert@magiclink.com).

SAC Communications Assn. Sept. 15-16, 2000, in Bellevue, NE. **Contact:** Mick Bloom, 13404 Tregaron Cir., Bellevue, NE 68123 (402-682-5898) (mickusaf@cs.com).

Suffolk County AFB, NY, 52nd Fighter-Interceptor Gp, all personnel. Sept. 14-17, 2000, at The Sands Regency Hotel Casino in Reno, NV. **Contact:** Ernie Givani, 1190 Glen Molly Ct.,

Sparks, NV 89434 (775-331-8393) (glenmolly@aol.com).

WWII Night Fighters. July 25-30, 2000, at the Hilton Salt Lake City in Salt Lake City. **Contact:** A.E. Anderson, 8885 Plumas Cir., 1116-D, Huntington Beach, CA 92646-5763 (714-960-9058).

To build a roster, seeking all who were stationed at **Zaragoza AB, Spain**, for a possible reunion. **Contact:** Karen Pittman, 498 Carthage Dr., Beavercreek, OH 45434-5865 (fax: 937-426-1289).

Bulletin Board

bulletin@afa.org

Seeking information about B-26 tail gunner **SSgt. Charles Jordan**, Ninth AF, who was killed July 7, 1944, on a bombing mission over France. **Contact:** Don Jordan, 315 Crestwood Dr., Aiken, SC 29803 (803-952-6105) (don.jordan@srs.gov).

Seeking photos and memorabilia of and contact with **teletype mechanic trainees** stationed at F.E. Warren AFB, WY, September 1954-March 1955. **Contact:** David Strick, PO Box 98641, Lakewood, WA 98498.

Seeking information on **Lt. Robert Wesley Barrall**, crew member on B-17 *Old Bill*, Eighth AF, during WWII, who may have participated in the 1943 25th mission of *Memphis Belle*. **Contact:** Robert C. Burlingame, 1401 Spring Garden Ave., Berwick, PA 18603-2617.

Seeking cartoons of a character called Figma, drawn by **Louis Moseley** possibly during the 1950s and published in the Ellington AFB, TX, newspaper. **Contact:** Gail Moseley (gmoseley@gfbank.com).

Seeking contact with **Bernard G. Byrns, Seymour Feltinghof, Francis P. Peruch, Richard C. Wolfe**, or anyone who served in the 1st Experimental Guided Missile Sq, Eglin Field, FL, 1946-47. **Contact:** Ernie Leyh, 2537 Regalia Cir., Henderson, NV 89014-6204 (702-361-4431).

Seeking original 1129th Special Activities Sq patch. **Contact:** Ron Girouard, 207 Briarfield Dr., Carencro, LA 70520-5810 (337-896-3364).

Seeking contact with **Lts. Jim Bounds, Jim Farley, "Del" Fisk, Bob Graham, Bill Green, T.J. Moore, and Jim Moran**, all P-38 pilots with the 37th Photo Recon Sq, in San Severo, Italy, 1944-45. **Contact:** Loren Miller, 4663 Barcelona Way, Oceanside, CA 92056-5107 (760-726-7018).

Seeking information on **Lt. (or Capt.) Bill Dorsett**, a fighter pilot from Denver, who was shot down east of Aachen, Germany, in late 1944. **Contact:** J.B. Townsend, 2938 Dimrill Stair, Manhattan, KS 66503 (785-776-7121).

For photos and anecdotes for possible publication, seeking contact with **pilots who flew Falcon, Laredo, Misty, Owl, Stormy, Tiger, and Wolf fast FACs**. **Contact:** John P. Watterson, 6907 College Lakes Dr., Greensboro, NC 27410.

Seeking unit patches, color sketches of aircraft markings, histories, photos, and any other information on the **9th, 20th, and 40th Recce Sq, 8th Recce Gp, Tenth AF, WWII**. **Contact:** Arthur Augspurger, 2224 S. Prospect Ct., Springfield, MO 65804-3110 (phone or fax: 417-882-0188) (70027.1246@cs.com).

Seeking anyone who knew **Pvt. Joseph Thompson**, who was drafted May 19, 1941, at March

Field, CA, became an arm gunner on a B-24D, and was killed Dec. 4, 1943, when his airplane, piloted by **Capt. Robert Coleman**, went down after leaving Dobodura, New Guinea. **Contact:** Sandra Smith (kcsdsmith@telstra.easymail.com.au).

Seeking **RF-101 pilots** from Pfalzburg AB, France, 32nd TRS, 1958-59. **Contact:** Howard Allmon, 200 Coventry Dr., Lexington, SC 29072 (phone: 803-356-8587 or fax: 803-951-3398).

Seeking photos or slides of **USAF gunships** (AC-47, -119, -123, and -130), specifically development aircraft, nose art, and those used in SEA operations. **Contact:** Terry Panopolis, 30 D'Auvergne, Candiac, Quebec, Canada J5R 5R2 (tpanopolis@sprint.ca).

Seeking pre-1970 base guides of **Hanscom AFB, MA** (then L.G. Hanscom Field), accounts from **C-124** aircrews who flew with the 94th Military Airlift Wing (AFRES) from Hanscom up to July 1972, and also contact with former aircrews of the **436th MAW**, Dover AFB, DE, who airlifted Cobra Dane radar equipment from Hanscom Field to Shemya AFB, AK, in 1975. **Contact:** Andrew Biscoe, PO Box 1723, Post Falls, ID 83877 (andrew24@earthlink.net).

Seeking back issues of **Air Force Magazine** and **Aviation Week** from the 1940s-60s. **Contact:** John Ford, 3630 S. Barrington Ave., Los Angeles, CA 90066 (310-397-6745) (johnandsue@loop.com).

For awards, seeking anyone who served in Taiwan, Quemoy, Matsu, or the Straits to free the Chinese, 1949 to the present. **Contact:** Lloyd Evans, BOHAUSA, 639 Page Ave., Lyndhurst, NJ 07071 (fax: 888-511-7109) (cdqsm@worldnet.att.net).

Seeking information on the **36th BS**, 482nd BG, which flew Carpetbagger missions. Also seeking information on a B-24 shot down March 4, 1944,

near Chateaudun, France. **Contact:** M.F. Underwood, 4431 N. Monticello Ave., Chicago, IL 60625 (773-267-7803).

Seeking information on and photos of the **Rheimag** underground aircraft factory near Kahla, Germany, and the visit by Gen. Carl A. Spaatz and Robert A. Lovett in spring 1945. **Contact:** Ulrich Koch, Greifswalder Str. #157, Berlin, Germany D-10409 (phone or fax: 49-030-42-85-18-07) (ulrich.koch@koch-athene.de).

Seeking information on the glider airplane crash of **SSgt. Edward F. Sendra**, in August 1943, in Wichita Falls, TX. **Contact:** Sandra Oddie (ananatoo@aol.com).

Seeking contact with anyone from the **380th BG** who would be interested in the photos and belongings of fellow bomb group member **Kenneth Miller**. **Contact:** Stamford Robertson, 62 Johnson Ave., Plainville, CT 06062 (203-747-0017).

Seeking **Col. Robert Shimp**, a P-38 pilot during WWII in the Pacific theater who retired from active duty in the 1970s. **Contact:** Robert Clark, 2638 Magellan Ln., Vista, CA 92083 (760-727-7994) (P38litningbob@aol.com).

Seeking a copy of the 1951 film "**The Wild Blue Yonder**," about a B-29 crew and their adventures during WWII. **Contact:** Joseph H. Penrose, 207 Main St., Port Monmouth, NJ 07758.

Seeking information on the **Berlin Airlift ring** issued to US aircrews. **Contact:** Clarence Spence, 328 Sanders Ferry Rd., Hendersonville, TN 37075.

Seeking contact with anyone who knew **Adrian H. Hutto**, stationed in Pueblo, CO, and with the 491st BG, Eighth AF, in England. He served from Dec. 15, 1942, until Sept. 20, 1945. **Contact:** Sandra A. Hutto Clark, 2702 Haystack Ln., Enid, OK 73703.

The B-29 Superfortress Historical Assn., Inc. invites you to the dedication of "**Bronze B-29**" at US Air Force Academy's Honor Court, Sept. 8, 2000, at 10 a.m. **Contact:** J.L. Patillo, 1143 Glenview Rd., Santa Barbara, CA 93108-2001 (805-969-2796).

Seeking **Cpts. James M. Graves and Cleon W. Greiffendorf**; **Lts. L.G. Cox, Earl F. Fladness, Dan Rose, James E. Turnquist, and Billy Whitley**; **TSgt. Wallace M. Cox**; and **Sgt. Winston R. Johnson**, all members of the 19th BG. **Contact:** Charles P. Wiscavage, 1492 Ashwood Dr., Martinez, CA 94553-5343 (925-372-6835).

Seeking information on the **Consolidated B-32 Dominator #2108471** (as seen on p. 76 of the March 2000 issue of *Air Force Magazine*). **Contact:** Nathaniel Ricker, 403 N. Duke St., Hummelstown, PA 17036.

If you need information on an individual, unit, or aircraft, or want to collect, donate, or trade USAF-related items, write to "Bulletin Board," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Items submitted by AFA members have first priority; others will run on a space-available basis. If an item has not run within six months, the sender should resubmit an updated version. Letters must be signed. Items or services for sale, or otherwise intended to bring in money, and photographs will not be used or returned.

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liam S. Clifford, 102 Drury Ln., Garden City, KS 67846 (phone 316-275-4317).

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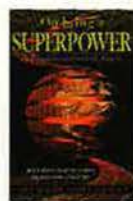
Books

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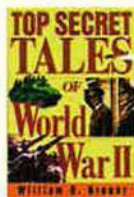
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Deitchman, Seymour J. *On Being a Superpower And Not Knowing What to Do About It: Scenarios and Security in the New Century.* Westview Press, 5500 Central Ave., Boulder, CO 80301-2877 (303-444-3541). 2000. 350 pages. \$32.00.



St. John, Phillip A. *Air Force Fifty—50 Years USAF: A Look At the Air Force, Air Force Association and Commemorative Las Vegas Reunion.* Turner Publishing Co., PO Box 3101, Paducah, KY 42002-3101 (800-788-3350). 1998. 192 pages. \$49.95.



Breuer, William B. *Top Secret Tales of World War II.* John Wiley & Sons, Inc., 605 Third Ave., New York, NY 10158-0012 (800-225-5945). 2000. 244 pages. \$24.95.



Druen, Lt. Gen. Dan, USAF (Ret.). *Sometimes We Flew Too: A Fighter Pilot's Last Chapter.* Order from: Dan Druen, Attn: Sometimes We Flew Too, 3174 Cambridgeshire St., Las Vegas, NV 89146-6222. (702-365-8115). 1999. 201 pages. \$15.95.

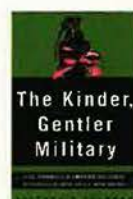


Terry, Addison. *The Battle for Pusan: A Korean War Memoir.* Presidio Press, 505 B San Marin Dr., Ste. 300, Novato, CA 94945-1340 (415-898-1081) 2000. 233 pages. \$27.95.

Breuer, William B. *Undercover Tales of World War II.* John Wiley & Sons, Inc., 605 Third Ave., New York, NY 10158-0012 (800-225-5945). 1999. 242 pages. \$15.95.



Gutmann, Stephanie. *The Kinder, Gentler Military: Can America's Gender-Neutral Fighting Force Still Win Wars?* Simon and Schuster Mail Order, 100 Front St., Riverside, NJ 08075 (800-456-6798). 2000. 300 pages. \$25.00.



Thompson, Warren. *F-51 Mustang Units Over Korea.* Osprey Direct USA, PO Box 130, Sterling Heights, MI 48311-0130 (810-795-2763). 1999. 128 pages. \$10.95.



Carafano, James Jay. *After D-Day: Operation Cobra and the Normandy Breakout.* Lynne Rienner Publishers, 1800 30th St., Ste. 314, Boulder, CO 80301-1026 (303-444-6684). 2000. 295 pages. \$55.00.

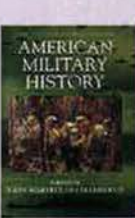


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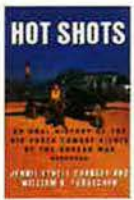
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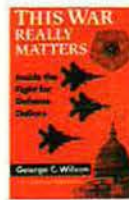
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Wilson, George C. *This War Really Matters: Inside the Fight for Defense Dollars.* CQ Press, 1414 22nd St., NW, Washington, DC 20037 (800-638-1710). 2000. 239 pages. \$19.95.

Pieces of History

Photography by Paul Kennedy

Tuskegee



A section of Public Law 18, approved in April 1939, authorized the establishment of programs in black colleges to train African-Americans for the Army Air Corps. One of the flying programs was at Tuskegee Institute in Tuskegee, Ala. Benjamin O. Davis Jr.—who would become USAF's first black general officer and shown here in the photo of a group listening to a briefing—was

among the first five graduates of the institute's flying program. He went on to command the 99th Pursuit Squadron, the first black flying unit, leading them through combat in the Mediterranean and European theaters. Three black air units—the 100th, 301st, and 302nd Fighter Squadrons, whose patches are shown here—joined the 99th to form the 332nd Fighter Group, the pilots of which

earned a Distinguished Unit Citation for extraordinary heroism. Nearly all of the 2,000 black fighter pilots in World War II came from the Tuskegee Institute and are known as the Tuskegee Airmen.

Memorabilia courtesy Tuskegee Airmen, Inc., Arlington, Va.

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