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About the cover: Ha-f-way around the world in 30 hours. A B-2 from Whiteman AFB, Mo., refuels from a KC-10 after an Allied Force mission over Yugoslavia. See "Airpower in Allied Force," p. 38. USAF photo by SSgt. Ken Bergmann.

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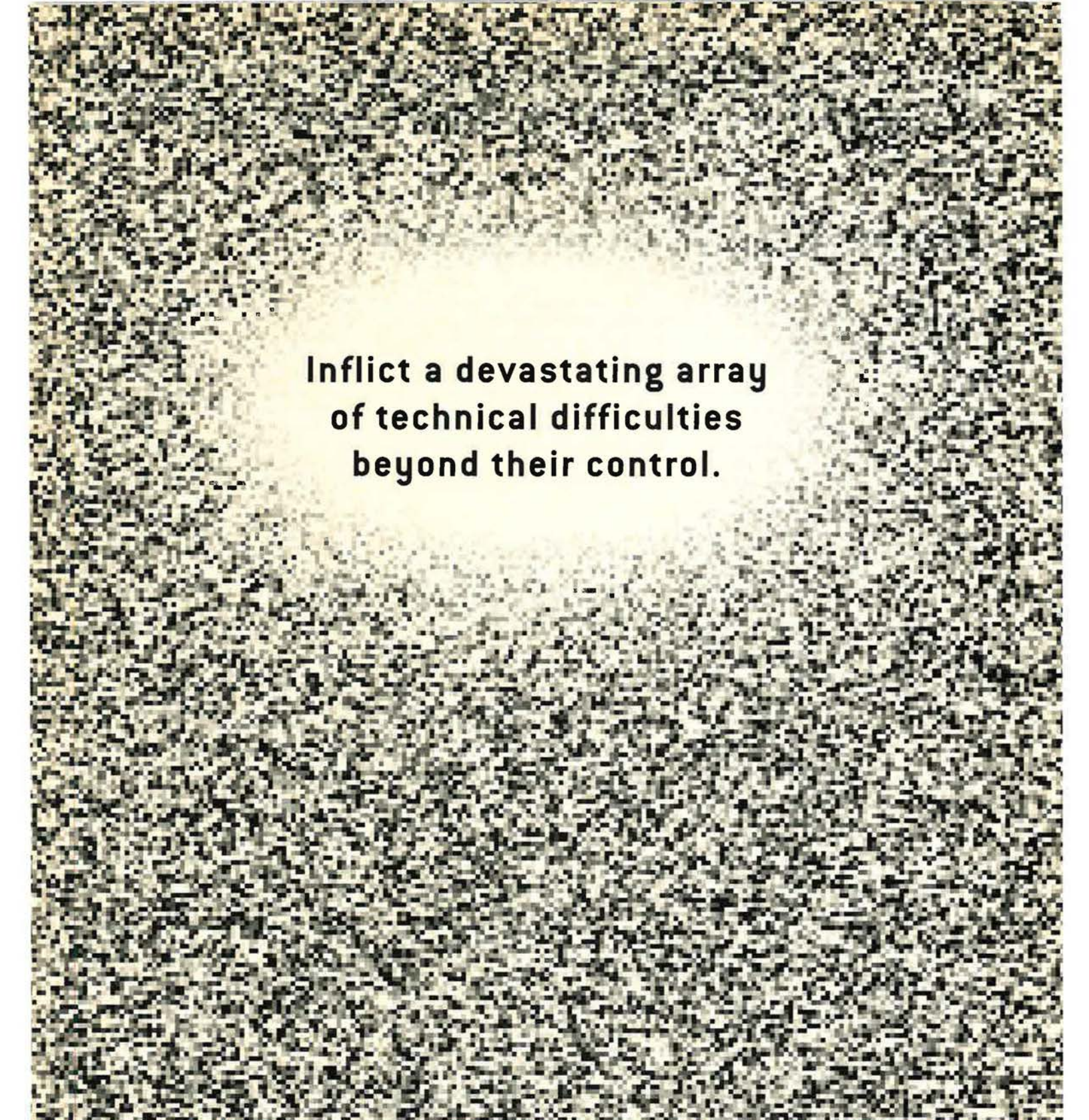
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By John T. Correll, Editor in Chief

Assumptions Fall in Kosovo

MAY 10
OPERATION Allied Force began on March 24 with cruise missile strikes against carefully selected targets in Yugoslavia. It was the first step in a NATO campaign to break the will of Serbian President Slobodan Milosevic and restore order in Kosovo.

In a television interview that evening, US Secretary of State Madeleine Albright said, "I don't see this as a long-term operation."

Unfortunately, Milosevic did not cave in as anticipated. On April 28, the 36th day of the conflict, President Clinton dropped hints to news reporters that the bombing might continue into July.

The theory of a quick finish was only one of the assumptions that had fallen away by early May when Operation Allied Force went into its seventh week.

NATO's ability to effectively prosecute a military campaign had been left in doubt. Questions also arose about the adequacy and sustainability of US forces in an extended conflict. It remained to be seen if the Kosovo experience had shaken the Clinton Administration's dogged belief in using limited military force to send signals while concurrently shying away from actual warfare.

The Alliance chose to disregard advice that it was unrealistic to expect airpower alone to root the Serb troops out of Kosovo, where they were engaged in door-to-door violence. It might have been possible to essentially shut down the Milosevic regime. The best chance of that was for airpower to strike with surprise and great strength at the full set of strategic targets, especially those in the Serbian heartland. And that, NATO was not willing to do.

The Clinton Administration's tendencies toward incrementalism and gradualism were amplified by NATO, where the political representatives of 19 nations vote on everything, including targets. According to the *New York Times*, lawyers in Britain reviewed every target before it was hit to ensure that it was of a justifiably military nature.

The first week, aircrews flew an average of only 48 strike sorties a day against a limited target set. It was regarded as a bold stroke when NATO let the operation go on to Phase II and an expanded target list without a bombing halt. The emphasis was on avoidance of casualties and collateral damage rather than on military results.

The operation escalated gradually

The US must look again at the adequacy of its force structure and sustainability.

to more than 600 sorties a day, but the politicians were not ready to call it war, and the objectives were still constrained. When British Prime Minister Tony Blair said NATO wanted to oust Milosevic from power, he was publicly corrected by Albright. She said that we did not seek the removal of Milosevic, although the Administration earlier had compared him with Hitler.

In the official lexicon, Kosovo was a "smaller-scale contingency." US forces are supposedly able to sustain two "nearly simultaneous" major theater wars and handle lesser contingencies in between. Operation Allied Force exposed the shallowness of that assumption.

After the first month, the US Air Force—which flew most of the missions—was running short of cruise missiles and all-weather precision guided munitions. Stateside units had been stripped of spare parts and experienced aircrews. Except for front-line units, readiness rates were dropping. Commitments were so heavy for crews of Joint STARS surveillance aircraft that no instructor force was left at home to train new crews.

Last fall, the Air Force announced plans to organize its contingency response capability into 10 Aerospace Expeditionary Forces, two of them

to be on call for deployment at any given time. Since the Gulf War, deployment demands had never exceeded the level of two AEFs, consisting of about 175 aircraft each. In April, acting Air Force Secretary F. Whitten Peters told the *Inside the Air Force* newsletter that about four AEFs' worth of assets were already deployed for the Kosovo operation and that the concept would have to be re-examined.

The military objective in Kosovo, Secretary of Defense William S. Cohen told the Senate Armed Services Committee, was to "degrade and damage the military and security structure" that was committing aggression in Yugoslavia. Measured against that mission, airpower achieved a number of successes in the first six weeks. Much of Milosevic's military infrastructure had been destroyed, and more of it was disappearing nightly.

Operation Allied Force will be studied in the world's war colleges for years to come. Among the points of interest will be the decision, disclosed ahead of time, not to put troops on the ground in Kosovo. That, along with the pattern of restricted targeting and slow escalation, gave Milosevic an early initiative. Assured that a severely punishing attack was not imminent, he could afford to watch and wait. Both the strategic and the operational decisions were made by a committee of political leaders, while air commanders were relegated to the tactical job of servicing targets.

Diplomacy and war are related, but they are not the same. Diplomatic objectives are ambiguous by design, leaving room not only for negotiation but also for varying interpretations, which is often beneficial for political purposes. This was seen, for example, in the Allied peace proposal of May 6. Military objectives are—or should be—as unambiguous as possible. They are about employing lethal force and putting ordnance on targets.

The difference goes a long way toward explaining why so many assumptions went awry in Kosovo. ■

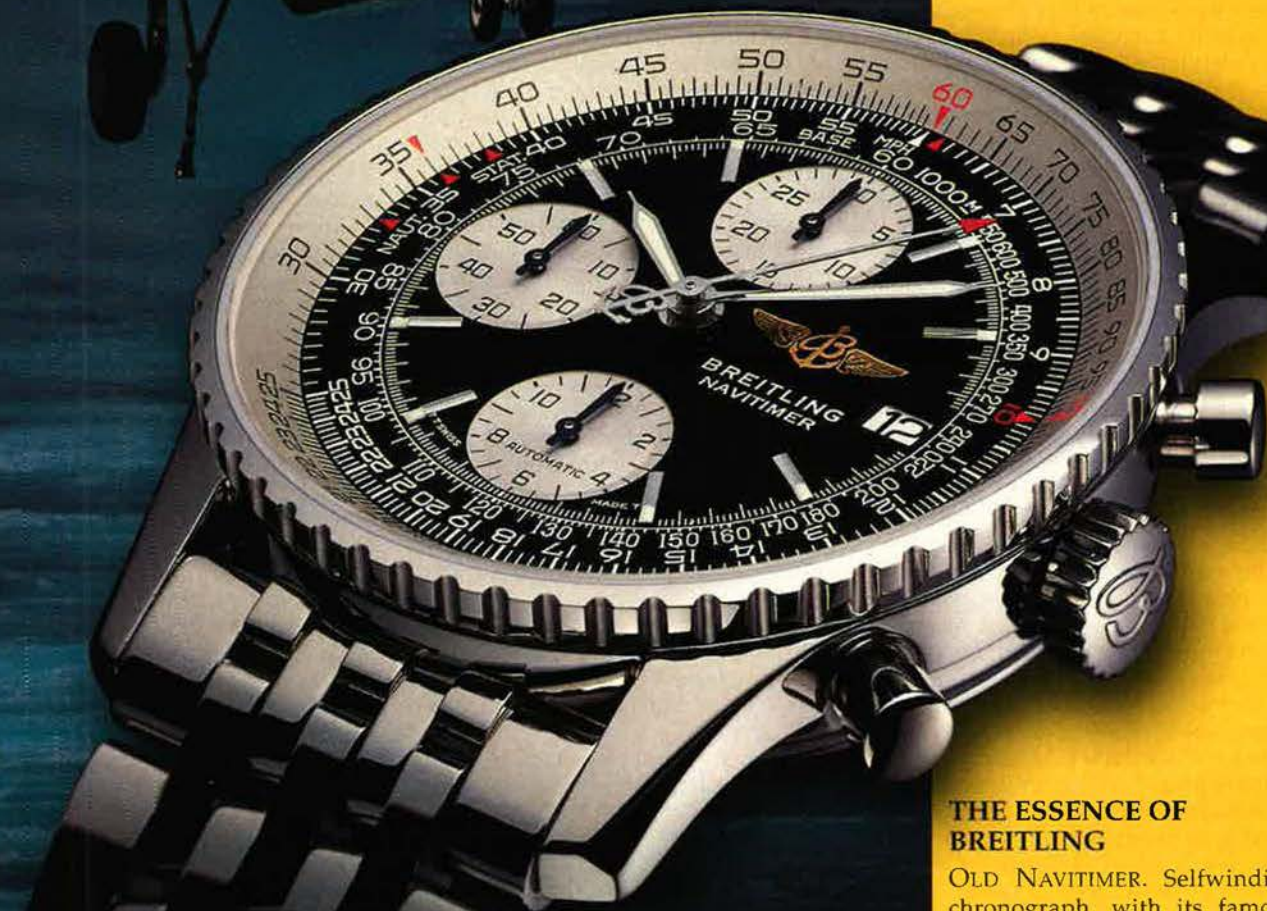
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Force Reinvestment

The statement by acting Secretary of the Air Force F. Whitten Peters in the April article "Reinvesting in the Force" [p. 28] that even with 19 aircraft the optempo imposed on Joint STARS crews and their families "would be merciless and unsustainable" is powerful evidence many more aircraft are needed. It should not be surprising the real requirement is well above 19 aircraft since Joint STARS is the only system in existence that provides US forces with situational awareness and battle management for attacks against forces in the surface environment. In contrast, the US fields many more aircraft, both [the] Air Force E-3 AWACS and Navy E-2 AEW, to provide the same capabilities for operations in the air environment. It should not be forgotten that our allies also complement our E-3 and E-2 force by fielding large numbers of their own AWACS and AEW aircraft but have no capability remotely similar to Joint STARS.

The Secretary's statement also seems to imply that optempo, rather than operational effectiveness, is the main reason the Air Force is investigating moving the Joint STARS Moving Target Indicator mission to space. Since operational effectiveness must be the main concern and space surveillance is many years away from being a proven capability, it seems that the only way to mitigate the technological risks and maintain operational effectiveness is to field a much larger fleet of Joint STARS. Also arguing for more Joint STARS now is a comparison of the likely differences in surveillance performance between a future space-based MTI system and the future Joint STARS enhanced by the Radar Technology Insertion Program and other upgrades.

Still another reason for a larger fleet is the vital contribution Joint STARS makes to operational effectiveness with its battle management capabilities. The Air Force's experience with [the Airborne Battlefield Command and Control Center] and AWACS has demonstrated the immense advantages of using airborne platforms for decentralized execution.

Operational factors such as span of control limitations and the vital military requirement for command and control that can gracefully degrade under war's friction argue strongly against centralizing all surveillance and battle management decision-making functions in a surface command-and-control facility.

Lt. Col. Price T. Bingham,
USAF (Ret.)
Melbourne, Fla.

Wake Up, Mr. de Leon

Rudy de Leon, undersecretary [of defense] for personnel and readiness, needs to do more than hold town hall meetings on the Tricare problems! [See "DoD to Tricare: Heal Thyself," April, "Aerospace World," p. 15.] Tri-(to)-care first needs adequate funding to bring it to par with Medicare reimbursement for same services. Secondly, it needs to pay providers in a timely manner. [On] March 10, I mailed a letter to the CEO of Region 2 and 5 about a claim that languished since Sept. 1, 1998. Finally [it was] paid during February and March 1999.

De Leon states, "And we must do all we can to pay our health care providers on time so that the best civilian doctors and other health care professionals will want to participate in the Tricare system." Wake up. Doctors are pulling out of [Tricare] because of low reimbursement and continuous claim problems. They are not standing in line just waiting for a vacancy so they can sign up to serve us!

One of our local pharmacies wrote off in excess of \$24,000. That is cor-

rect, \$24,000—due to the number of hours spent on the telephone with CHAMPUS/Tricare trying to get paid, answer questions, and [being] on hold forever. This is a [Base Realignment and Closure] area and our prescriptions were to be covered. Numerous contacts with our local Congressional representative, by various personnel, about this problem resulted in no results for our local pharmacy.

CMSgt. Robert G. Saner,
USAF (Ret.)
Greenbush, Mich.

The Total Class

Kudos on your pilot training article, "The Next Class," in the April issue [p. 34]. However, you seem to have missed what may be one of the great Total Air Force success stories of all time. A cutline on p. 40 states that students at Laughlin AFB [Texas] learn from instructors that include "FAIPs, pilots with frontline time, and older civilians," but there is no mention of the large number of Air Force Reserve flight instructors who teach every day at most AETC training bases.

When AETC realized two years ago that the active duty pilot shortage would soon impact instructor pilots as well, it turned to the Air Force Reserve for help. Beginning with 40 highly qualified Reserve instructors flying T-38s in training squadrons at Columbus [AFB, Miss.] and Vance AFB [Okla.], the program quickly became the 340th Flying Training Group. In just two years, the 340th has grown to five squadrons at five training bases, including Laughlin. Reserve instructors fly T-37s, T-38s, T-1s, and AT-38s and average 2,500 flying hours; 75 percent were trained and experienced instructor pilots when hired. When the 340th reaches full manning, it will have 85 full-time Reservists and nearly 420 traditional part-time Reservists on board. As is the case throughout the Air Force Reserve, these pilots are as capable as any on active duty and often are more experienced.

While many Reserve missions are more glamorous, none are more important than teaching aspiring Air Force pilots to fly. That some of our experi-

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enced pilots are entrusted with this demanding task speaks well of the Reserve's ability to support the Total Air Force in yet another mission area.

It's entirely possible that you missed this important part of the story because no one in the Laughlin flying squadrons thought to bring it up.

There, like everywhere else in the Air Force, Air Force Reservists integrate so well with our active duty counterparts that no one gives it a second thought.

Lt. Col. Robert D. Coffman,
USAF/REIP
Washington, D.C.

I will never forget the dollar ride in the "white rocket," feeling the adrenaline as we landed, and I was still a half-hour behind the airplane.

Now, let me try to express the frustration I feel in my Air Force and how disappointed I am in the senior leadership for the way they have copped out on the pilot shortage. Part of my concern is because my son, as an AFROTC cadet, experienced firsthand the effect. With the Air Force needing almost 900 pilots only little over 500 were selected, [with] the rest [named as] alternates.

What happened to thinking outside of the box? Where is the innovation that created some of the greatest technological advances in aviation? It seems rather defeatist to accept the fact that, because of the draw-down and forced reduction in the military, the pilot training bases cannot handle the needed surge in trainees.

Granted, I may not have the big picture, but why not contract or privatize some of the initial screening/training? The Air Force has seen this problem like storm clouds on a Kansas horizon and yet has done precious little to circumvent these roadblocks. I have lost respect for the Air Staff if it takes this long and the only solution is to crimp off the pipeline.

Lt. Col. Michael A. Moran,
USAF (Ret.)
Kokomo, Ind.

The article on AETC at Laughlin AFB was interesting and well-deserved. Air Force training is the best in the world. You should also make mention of other AETC operations such as Vance AFB, which logs over 60,000 flying training hours in T-37, T-38, and T-1 ships.

Tom Tenbrunsel
Huntsville, Ala.

I would like to correct an error in "The Next Class." The article incorrectly states that "after learning the basics in the T-37, students are se-

lected to split off onto two tracks." There are actually four tracks that students can follow to earn their wings.

Students who choose to fly the C-130 are sent to NAS Corpus Christi, Texas, to train in the T-44, and students who choose to fly helicopters proceed to Ft. Rucker, Ala., to fly the UH-1 to finish their training.

I am disappointed that your article failed to mention these important training programs. Every aircraft is critical to the success of our military objectives, and it should be an honor and a privilege to have the opportunity to fly any of them.

Angela May
Little Rock, Ark.

■ *The photo feature was not meant to capture the entire spectrum of USAF pilot training; rather it was a snapshot of training at Laughlin.—*

THE EDITORS

Oversimplifying NATO

Your April article "A Half Century of NATO" [p. 42] did a good job of condensing 50 years of history into several pages. Yet it oversimplified the somewhat tortured evolution of the Alliance's military policies by stating that, after the Korean War, "NATO based its Cold War strategy upon a classified NATO document known as MC 14/3 ... [that] emphasized deterrence of Soviet attack with forward deployed conventional forces backed by the threat of a potential US nuclear response." In fact, the NATO Military Committee (whence the acronym MC) originally issued a document known as MC 14/1 after the North Atlantic Council's New York meeting of September 1950. MC 14/1 and the subsequent Lisbon meeting of the Council in February 1952 called for an ambitious buildup of military forces in Europe capable of stopping the Soviets in a conventional war. For example, in support of this goal US Air Forces in Europe was programmed to grow to 28 wings by the mid-1950s—22 wings in NATO's Central Region and three wings each in its northern and southern regions. This would have been in addition to the presence of numerous Strategic Air Command units in theater.

The costs inherent in such a huge military buildup soon led to second thoughts. In October 1953, the Eisenhower Administration set forth its New Look defense policy in a National Security Council document (NSC 162/2) which de-emphasized conventional forces in favor of obtaining more bang for the buck from strategic and tactical nuclear capabilities. NATO eventually codified this strategy with MC 14/2, adopted in April 1957. In an analogy

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popular at the time, NATO's forward deployed forces were to be considered a trip wire, that, if crossed, would set off an overwhelming nuclear response. This strategy relied not only on SAC and RAF Strike Command but also on the tactical nuclear capabilities of USAFE and other Allied air forces.

Faced with the Berlin Crisis of 1961 and various challenges elsewhere in the world, the Kennedy Administration implemented its Flexible Response military posture which included improving conventional weapon capabilities. French President Charles de Gaulle, however, opposed extension of this philosophy to NATO. It was not until after he pulled France out of NATO's military structure in 1966 that the Alliance was able to adopt MC 14/3. Announced in December 1967, this policy placed more reliance on various options short of nuclear war. Ironically, the loss of bases and developed lines of communication in France no doubt hurt NATO's prospects for waging a defense in depth against the threat of a full-scale Warsaw Pact invasion.

As a former USAFE historian, I think we were indeed fortunate that NATO's defense plans never had to be put to the test.

Lawrence R. Benson
Alexandria, Va.

Pollyanna Rehash

After reading the April article "Find, Hit, Win" [p. 50] I found myself disappointed that we are continuing to offer this Pollyanna-ish view of destroying and halting enemy moving armored forces to our critics. Let's get away from rehashing our successes in Desert Storm and take a critical look at the problems airpower faces in theaters that do feature heavily foliated or urbanized terrain.

I challenge many of the assumptions made in the base-case scenario as simply not realistic. Our next war will not be a replay of our desert victory. Our enemy of the future will not allow us the luxury of a six-month window to pre-position troops and equipment to the levels assumed in the article, and the assumed deployment rates are simply unrealistic to expect. The airlift and air refueling demands needed to deploy and sustain this base-case operation will far overshadow the available supply. In addition, I would argue the real-world successes of our weapons and sorties flown will be much less than our successes on the test ranges and nowhere near what this article suggests.

We in the Air Force need to continue to develop proper doctrine on

the correct ways to accomplish our military goals and properly employ specific weapon systems to accomplish our objectives. The decisive halt phase is there, and it offers a very real opportunity to limit and contain future conflicts. The danger is to expect it to work with the same speed and success as it did during Desert Storm.

While the article made for interesting reading and academic thought, it is too simplistic and optimistic in the assumptions it makes. How about a look at the problems airpower faces in an urban or mountainous and forested environment? Let's start planning for the next war and quit thumping our chests about the last one.

Maj. Richard C. DeMars,
Air Force Doctrine Center
O/L Ft. Sill, Okla.

More Famous and Formerly

First, wasn't it in Germany that Mel Tillis started the group "The Statesiders" before they rotated back to the States? [See "Famous and Formerly Enlisted," April, p. 66.] On Okinawa it was Al Lynch [who] had a group called the "Westerners," but they had a different name every time they worked a new place. Second, Jimmy Dean, the country-western singer, who later became the Sausage King, started at Andrews AFB [Md.] in the early 1950s. He also played all the local off-base clubs. He always drew a good crowd.

Cletus W. Whitaker
Newburg, Pa.

You missed "Big Bird." Carroll Spinney, who animates Big Bird plus a few other Jim Henson-created characters, is a former airman. My brother, Jack Seifert, produced a Sesame Street Christmas Show in New York 20 years ago. I was a young captain assigned to McGuire AFB [N.J.] and got into a nice chat with Spinney on the set. He talked fondly about the time he was assigned to Nellis AFB [Nev.] and doing a puppet show on a local network affiliate station ... and proudly of his service.

Col. Charlie Seifert,
USAF (Ret.)
Fairfax, Va.

I believe the writer missed the boat by not including the achievements of some of those enlisted members who earned a commission and went on to great accomplishments in the military. Two good examples come to mind; Gens. Chuck Yeager and Paul K. Carlton both were former enlisted men who achieved great things in

their careers. As you may know, over 2,700 enlisted men went through flying school in their enlisted grade in 1942. Many of them went on to distinguished careers in the Air Force. The Army Air Corps Enlisted Pilots Association has met every two years since 1982. The war stories told at those reunions make it clear that this was [a] proud group with lots to brag about.

Col. Keith L. Gillespie,
USAF (Ret.)
Fort Worth, Texas

How in the world did you miss including Jimmy Stewart in your article? Some do not know that he was [at] one time enlisted, but I for one know better. It was Dec. 19, 1941. I was the crew chief for Brig. Gen. William Ord Ryan. We made an overnight stop at Moffett Field [Calif.], and I was assigned a bunk by the charge of quarters. His name was acting Cpl. James Stewart.

M. Jack Holland,
USAF (Ret.)
Riverside, Calif.

■ *Our list for "Famous and Formerly Enlisted"—like that for "Mustangs" [March 1998, p. 52]—was drawn exclusively from those listed on the Wall of Achievers at the Enlisted Heritage Research Institute, Maxwell AFB, Ala. Jimmy Stewart and Chuck Yeager were featured in "Mustangs." Achiever Gene Bell, world power lifting champion, did not qualify as formerly enlisted because he is still in the service. Otherwise, all "famous and formerly" persons on the wall at the institute were included in the April article, except for the following, for whom we either did not have sufficient information or photos: author Lee Arbon, actor Charles Bronson, actor Peter Graves, Judge Charles Griffin, test pilot Bob Hoover, Olympic shooter Terry Howard, actor DeForest Kelley, actor Alan Ladd, and actor Walter Matthau.—THE EDITORS*

Old Spin on Space

There you go again, allowing Doctor-of-Spin Rebecca Grant (and others) yet another platform for her (their) one-sided expressions of opinion to promote Air Force attempts to master space and just about everything of national security interest. [See "The Move Into Space," by Otto Kreisher, April, p. 75.]

I feel that after 27 years of involvement in naval aviation I have a reasonable understanding of the value and limits of airpower in assisting a local commander to achieve control

on the battlefield as an element of our national objectives. I also support the idea that projection of power through presence is a valid national requirement. However, I cannot subscribe to the USAF position that airpower—or space power—alone can achieve that objective. That has become increasingly clear in Iraq and Serbia/Kosovo. It certainly cannot be reached by flying B-2s for 15 hours from the US and back to drop a few bombs on isolated surface targets.

If we can't successfully exhibit control of the ground solely by airpower, how can we possibly expect to do so from space? By striving for uni-service (USAF) control of space, Kreisher's article completely dismisses the most important factor involved: the need for troops on the scene at ground level.

[It] also mentions the growing commercial expansion in space. Do Air Force planners really expect that profit-motivated commercial interests will allow any military—ours or theirs—to gain a controlling hand for a projection of power which would threaten their monetary gain? I don't think so.

Again, I urge some more cooperative thinking for who should be our national controlling military agency for space utilization. To me, that agency should be jointly staffed and free from interservice rivalries.

Capt. T.E. Newark,
USN (Ret.)
Virginia Beach, Va.

There continues to be considerable commentary in the pages of *Air Force Magazine* devoted to the Air Force role in space. The Air Force has said that it must develop a gradient of capabilities that seamlessly transition atmospheric and space-based force delivery methods. Some in the House and Senate have said that if the Air Force doesn't more assertively assume the role of delivering force from space they'll (try to) formulate a service that does. Various pundits express concern that the Air Force will lose its "mandate" in space. Words pour forth, but there is little elucidation of the subject.

It's as if the physics of the matter were amenable to such bluster and rhetoric. Appropriate propulsion systems need to be conceived, developed, and tested. There needs to be non-nuclear orbital energy sources that can deliver enough precisely targeted energy through the atmosphere—and be discharged more often than once in a while. The extreme vulnerability of space-based platforms, and environmental considerations, impose a veil of impossibility over the whole

matter. And there is the question of whether mankind wants the outcome of such activity looming over its collective head. There are, after all, treaties prohibiting the military use of space. Finally, there's cost. Are there any targets (or national objectives) that are worth the cost of the weapon?

Defending turf because it's there may not be the best idea. When all is considered, it just might be prudent for the Air Force to let Congress establish a Space Service so that the Air Force doesn't have to bear the consequence for the result.

Ernest C. Guerri
Melbourne, Fla.

As a space professional, I have followed [the] ongoing debate over the term "aerospace." To put it bluntly, air and space are two separate mediums and no amount of linguistic gymnastics will ever change this fact. While I agree wholeheartedly that space operations need to be fully integrated into air operations, I also believe just as strongly that space operations must also be fully integrated into land and maritime operations as well.

The [Scientific Advisory Board] focused too much on new sensors such as space-based radar and hyperspectral sensors. New sensors are great, but what our forces need for informational superiority is TPED that is better and faster than the adversary. TPED stands for Tasking, Processing, Exploitation, and Dissemination. Tasking is simply telling the sensor where to point and take a "picture." Processing is developing the picture. Exploitation is identifying what is in the picture and dissemination is getting the exploited information (aka useful intelligence) to the user in the proper format and in a timely manner. Fast and efficient TPED will enable our forces to operate inside an adversary's decision cycle—a must for the light, lean, and lethal AEF concept.

Systems that will improve TPED are under development. For example, the Space Warfare Center is developing the Multi-Source Tactical System. MSTs provides updated fused information to give our aircrews better situational awareness while en route to the target. The Air National Guard and the National Reconnaissance Office are collaborating to develop a Theater Deployable Imagery System. TDIS will provide the disadvantaged users at the wing level the ability to receive updated imagery, manipulate it, and then produce both hard and soft copy outputs.

Maj. Tom "Dingo" Doyme
Air Command and Staff College
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AFA's Mission

To promote aerospace power and a strong national defense.

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To explain these needs to the American people.

Awesome!

I was elated to see the article on gunships in [Southeast Asia] in the April issue [*"The Awesome Power of Air Force Gunships,"* p. 78]. The AC-119 has been the unknown step child for too many years. I was among the first crew members to check out in the AC-119G Shadow and was one of the fortunate ones to fly one of the first missions on Jan. 5, 1969. I was also on the only crew to fly missions over the Ho Chi Minh Trail in the G-model Shadow, which we quickly figured out was not a good idea. But the K-model Stinger did an excellent job later on.

Our role in the gunship history has been overlooked for too long. It is true we were intended as an interim fix, but our role in the Vietnam War was significant and noteworthy and we have suffered too long in the shadow of other weapon systems. I am in no way trying to take away from all the aircraft and crews that served so nobly but am only asking for equal recognition. All of us who served in the AC-119 gunships are proud to have done so and hold our heads and hats high.

Maj. W.H. Hamilton,
USAF (Ret.)
Mountain Home, Idaho

Fine article, and I am so glad to see [Walter Boyne] finally recognized that there were indeed AC-119Gs and AC-119Ks in Vietnam. I do not recall any of the AC-119G Shadows that I flew being equipped with radar—not the DPN-34 or the SPR-3 radars. I must have flown only the early models? The 17th Special Operations Squadron was not replaced by the 18th SOS. The assets of the 17th were turned over to [the] Republic of Vietnam Air Force (819th Squadron, VNAF) in 1971 and those of the 18th (821st Squadron, VNAF) in 1972-73.

Col. Wendell E. Cosner,
USAF (Ret.)
Albuquerque, N.M.

Awesome power was not the only outstanding characteristic of the Air Force gunship program. When I arrived at Ubon [RTAB, Thailand] to become the OIC, Gunship Branch (and later commander of the 8th Organizational Maintenance Squadron), the AC-130s were suffering an extremely high rate of aborted flights. My first order from Col. Pat Humphreys, the wing commander, was that I had "one week to get *Balls Eleven* in the air." The aircraft, suffering from a plethora of maintenance problems, had not flown during the past 50 days. We did, and it did! And from that time forward, the

16th SOS, supported gallantly by the 8th Tactical Fighter Wing maintenance organizations, flew 1,327 consecutive missions off on time [and] flown as briefed. The string was broken on the 1,328th sortie by an IFF system which failed after the airplane had crossed the fence. There's something to be said for durability, also!

Col. R.L. "Bob" Griffin
USAF (Ret.)
Tucson, Ariz.

As a direct beneficiary of the work of an Air Force gunship crew, I was fascinated by Boyne's article. On April 25, 1969, my UH-1H was the third 101st Airborne Division Huey forced to land in an LZ on the northeast edge of the northern A Shau Valley. Our intelligence before the combat assault was a little murky, but it got [really] clear later that we'd landed next to a [North Vietnamese Army] regimental headquarters.

There were about 25 of us on the ground the first night and the NVA must have had about a 100 rocket-propelled grenades for each one of us. They probed our perimeter a couple of times. Thankfully, we had all those M-60 door guns—but each one had just one box of 7.62 mm.

What could have ended up a little like the Alamo turned around when a Spooky arrived on scene. There's nothing quite as helpless as an Army warrant officer without his aircraft and without a radio, so I do not know where the gunship came from or what type of ship it was.

We couldn't see the plane, just heard all those engines droning overhead. When it opened fire, it was like someone was spraying red ink through a fire hose. For several seconds after each burst ended, I could hear the crashing of trees and limbs that rain of metal had sawed down. It seems like it was on station for hours, and while it was there, the bad guys didn't probe our perimeter, didn't fire anything at us, didn't bother us much at all.

I finally was picked up April 27, and every now and then, I wonder about what I owe that gunship crew.

Chris Genna
Aerospace reporter,
South County Journal
Kent, Wash.

Your interesting article about Air Force gunships left out a fairly recent success story involving these powerful weapons platforms. A short time line from October 1993 can illustrate this achievement:

Oct. 3-4: 18 Americans are killed,

75 wounded in downtown Mogadishu [Somalia] in the Bakhara Market battle.

Oct. 6: A mortar attack on the Ranger compound at Mogadishu IAP leaves another American dead and 12 wounded.

Oct. 8: Something is going on outside the walls of the airport that evening; after bursts of machine-gun fire are heard relatively close to the Air Force compound, yours truly and the other compound dwellers are ordered into bunkers to brace for yet another attack by Somalis. Shortly thereafter, a series of explosions can be heard, each getting closer and closer to the airport. Later we will hear, those explosions were 105 mm shells from an AC-130 gunship.

Oct. 9: The day is very quiet.

Oct. 10: [Somali warlord Mohamed Farrah] Aideed decides to meet with UN officials to discuss a cease-fire.

Capt. William F. Sims,
USAF (Ret.)
San Antonio

As a former 16th SOS member and commander of Spectre One crew, I am very familiar with the operations of the 16th [SOS] during its first year at Ubon.

The first three crews to arrive at Ubon in October 1968 joined the group of six pilots and several other crew members who were at Ubon with the original test AC-130. This was aircraft tail No. 41626 which had been operating in theater for several months prior to our arrival. Subsequent to our arrival at Ubon, ferry crews brought in our aircraft. There were a total of five AC-130s, one being the first production model of the C-130, No. 33129. The other four aircraft were Nos. 41623, 41627, 41629, and 41630. With the arrival of these five AC-130s, No. 41626 returned to Wright-Patterson AFB [Ohio].

This was the first experience in combat for the majority of the members of the three crews. Our year was a period of learning, developing gunship procedures, and amassing an enviable record of truck kills. Boyne referred to the hazardous work of our squadron, and to this I can totally agree. He mentioned an aircraft taking a hit on March 3, 1969. The actual date was March 5, and it was aircraft No. 41629 flown by my crew. That night we were hit between the main landing gear and sustained major damage to the right gear and gear bulkhead. Only minor damage repairs were made to keep the plane in operation. This is the same aircraft which we were flying on May 29, 1969, when we were hit by two

rounds of anti-aircraft fire, one that destroyed our hydraulic systems. This left us with no flight controls since the C-130 is a hydraulic aircraft. With engine power and aileron trim, we were able to return to Thailand, where I had most of the crew bail out. The co-pilot, flight engineer, and I then attempted a landing. We did get the airplane on the runway, but the right landing gear collapsed and we veered off from the runway, where we hit a runway barrier reel. An explosion and fire followed. My co-pilot, a navigator (whom I didn't know stayed onboard), and I were able to get out of the inferno, but my flight engineer, for reasons unknown to me, did not escape. The illuminator operator was wounded by one of the rounds that hit the tail and died prior to our attempted landing. This did not reduce our gunship strength by a quarter, but by one fifth. The next AC-130 to join the 16th SOS was *Surprise Package*, tail No. 60490, which arrived as our three crews were departing.

Col. William J. Schwehm,
USAF (Ret.)
Lakewood, Wash.

Three-Time Winner

I read with great interest your article "Lucky Lady II" in the March issue [p. 72]. It was an excellent article. Near the end of the article you wrote that the crew received the MacKay Trophy for their flight and mentioned other winners, such as "Hap" Arnold, Edward Rickenbacker, and Jimmy Doolittle, but no mention of the *only three-time winner*, John A. Macready!

He was awarded the MacKay Trophy in 1921 (altitude), 1922 (endurance), and 1923 (first nonstop flight across the United States). He was also the first crop duster and the first to make an aerial photographic survey of America, first night parachute jump, etc.


Sally M. Wallace
Hamilton City, Calif.

■ *Wallace's sister, Jo-Anne M. Calhoun, also wrote. They are the daughters of John A. Macready, an aviation pioneer with the Army Air Service.—THE EDITORS*

Sandbox Revisited


I just finished reading "Desert Stronghold" [February, p. 44]—what a great story. It brought back a few memories of my 1995 90-day TDY to Al Jaber, Kuwait. Folks rotating to the Sandbox are truly the unsung heroes in the Air Force.

MSgt. James E. Riner Jr.,
Supt., Force Readiness
Aviano AB, Italy



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■ *This letter originally ran in "Letters" [p. 8] in the April issue. However, the text was garbled.—THE EDITORS*

I find it astonishing that someone flying the pine in Washington can look at a single picture and come up with so many things wrong with a fighting position thousands of miles away. Lt. Col. Stephen P. Howard ["Life in the Sandbox," "Letters," April, p. 8] offers advice after making quite a few of assumptions regarding mission, enemy, terrain, friendly forces, and availability of materiel.

Colonel, I believe your heart is in the right place, and you obviously

know your stuff when it comes to force protection, but I think you would have served your cause better by sending a private letter to the commander on the ground, rather than spotlighting your own expertise in a national magazine.

SMSgt. David V. Jenkins,
USAF

Combat Maneuver Training Center
Hohenfels, Germany

UCAV Is Not Around Corner

It was very interesting, reading "UCAVs Move Toward Feasibility" [March, p. 32]. I was a bit surprised to read how expectantly the Air Force is pursuing the [Uninhabited Combat

Air Vehicle] concept. Pursuing the technology and engineering to make this a viable concept is good, but to think that deployable UCAVs are around the corner—don't hold your breath. The concept has several very large obstacles to overcome. Such obstacles were mentioned in the article; however, they should be underscored.

The complexity of UAV operations is underestimated. To operate a "simple" target drone currently uses one controller and his assistant to ensure that the drone and the air intercept are well-coordinated. Human-machine interface must make great leaps to allow one operator to "manage" many UCAVs at once in a tactical combat environment. Secondly, a UAV or UCAV must make similar leaps in reliability in both aircraft and control. The aircraft must have redundant subsystems, because when a malfunction occurs the pilot's not there to analyze and circumvent the problem. Also the communications bandwidth must be large and solid. This will continue to plague the UAV community until we can better control the electronic battlefield. When such problems are well in hand, its first job should be [Suppression of Enemy Air Defenses]. Or will it get the chance? Missiles appear to me to offer less risk and more economy. As the technology of UCAV advances, so will that of missiles. A series of long-range/loiter missiles would become the strike package, eliminating the need for SEAD. The UCAV concept could yield some technological and engineering benefits. UAVs may well continue to be part of the Air Force's inventory of weapons. I don't agree UCAVs will become "an important part of the force structure."

Maj. Alvin Brunner,
Lynn Haven, Fla.

Symington Letter Rebutted

Since Stu Symington and Jack Northrop were long-term friends of mine, I wish [Richard] Russell had been a bit more specific. [See "Symington," "Letters," April, p. 9.] With what company did Symington pressure Northrop to merge? Powerful as Symington may have been as Secretary of the Air Force, I wonder if he had the authority to cause all flying wing aircraft to be destroyed?

Col. Charles Stearns,
USAFR (Ret.)
Santa Barbara, Calif.

Timely Year Group

Bruce Callander's article "You and

Your Year Group" [March, p. 38] could not have been more accurate or timely. As a member of the 1980 year group, I am a prime example of how "one's place in the chronological pecking order can affect promotions, separations, and earnings." I am about the first in the barrel to test the ability to receive a waiver to retire as a lieutenant colonel with two years in grade instead of three.

Having served a tour working fighter assignments at Air Force Personnel Center from 1992-96, I am extremely familiar with the bathtub and distribution of year groups. The problem for our specific year group stems from the fact that the 1979 year group is so large that the 1980 year group was greatly delayed in promotion to both major and lieutenant colonel. Our primary board to major was two years after the 1979 year group's primary board, and the same was true for our lieutenant colonel board. Thus, over two-thirds of the 1980 year group pinned on lieutenant colonel rank after the 17-year point in their commissioned careers. This makes it impossible to retire in grade at 20 years of service because the available waiver is not being granted.

When I questioned why the waiver is not being granted, I was told that it is because retention and Air Force total end strength numbers are low. The fact is that this will not affect retention a bit because one ... may still retire at the conclusion of the ADSC, albeit in the next lower grade. This means that I am retiring as a major and still not positively affecting retention or end strength numbers.

If I would stay for one more year in the Air Force just to receive another \$355 per month in retirement pay, I will lose almost \$20,000 in airline pay by the end of my second year of retirement. The net loss gets even larger with each subsequent year.

Disapproving the existing waiver to retire with only two years in grade has helped neither retention nor Air Force end strength numbers. I honestly don't believe that the retirement-eligible lieutenant colonels are the ones the Air Force should be trying to retain. Additionally, younger Air Force members see this and question their own place in the puzzle, as they decide which road to take.

Lt. Col. (soon to be Maj.) Bill
Goodwin
Hill AFB, Utah

At a number of times in this century the military [services] have offered leaves of absence or similar programs

to encourage members of one year group to move into more junior year groups. The last time USAF did this was in the mid-1970s when they wanted to smooth out the Vietnam War "hump." Such a program would offer people the opportunity to pursue personal goals related to education, family matters, religion, etc. This can be a very attractive option, especially when people are sure there will be a job waiting for them when their leave [is] over. I hope the corporate memory has not forgotten this option.

Lt. Col. M.J. Bettencourt,
USAF (Ret.)
Black Forest, Colo.

I am puzzled. AFPC claims there is a terrible pilot shortage, but Fig. 2 of this article shows healthy overages in every year group from nine (commissioned service) to 28, except for years 24 and 25, which are about equal. Using paper-napkin analysis, I estimate that these overages fill the shortage bathtub all the way to about 800 of year six, leaving a gap of about 1,050 for years six, seven, and eight—not 13,986 as claimed.

One might aver that the older pilots might not be as good as younger, more energetic ones. I suggest that experienced pilots might prove far more valuable than any gaggle of charging young stallions, simply because they've survived long enough to gain that experience. Do we want smart pilots or just aggressive ones?

I submit that USAF has tried to solve its navigator shortage (visible in Fig. 4) by doing just what I did with my napkin: rounding up every navigator [who] will hold still in every groups 10 through 28 and hustling [him or her] back into those empty cockpit billets in years two through nine.

No talk of navigator bonuses—just lectures about going where one is told for the needs of USAF and similar variations on the theme of "service before self." Extensions to 24 years for twice-deferred majors will snare more navs than it would in any other specialty, since they are deferred for promotion at higher rates; neither do they have a six-figure career field they can flee into as easily as pilots do with the airlines. Readers who still retain shreds of memory might note that AFPC has been busily sending "please come back" letters to navigators [separated under reduction in force moves] in the early 1990s.

As a navigator, I can be attacked on grounds of self-interest. How does

that affect the substance of my arguments?

Dean C. Spraggins
Bellevue, Neb.

Desert One—More to Learn

I was pleased to see your article on the Iranian hostage rescue attempt generate so much response. [See "Views of Desert One," "Letters," *March*, p. 6.] I believe that historians still have a great deal to learn about this operation, and it won't be learned just from the people who decide to write books about it. At times, these publications are as much about self-justification as they are history. The real lessons yet to be learned will come from the thousands of people who were involved in one way or another but have yet to tell their tale. Two of your recent letters interested me greatly.

Maj. Gen. [Cornelius] "Nute" Nugteren, like many others, asked about an assessment of this operation's potential using the HH-53 Pave Low. This idea had advocates even as the preparation and training for this mission was under way. As [members] of the 1st Special Operations Wing, we knew that our H-3 helicopters weren't up to the task. We were, however, involved in

planning conferences and exercises where such options were discussed. We knew then that the right bird for the job was the Pave Low, but this idea did not receive much interest from the senior officers running these sessions. I believe their concerns about security, flavored with a touch of interservice protectionism, convinced them that the benefits of this aircraft didn't outweigh the security risks. Later, as problems with Marine helicopter pilot training arose, momentum and time constraints made changing to the Pave Low too tough to do.

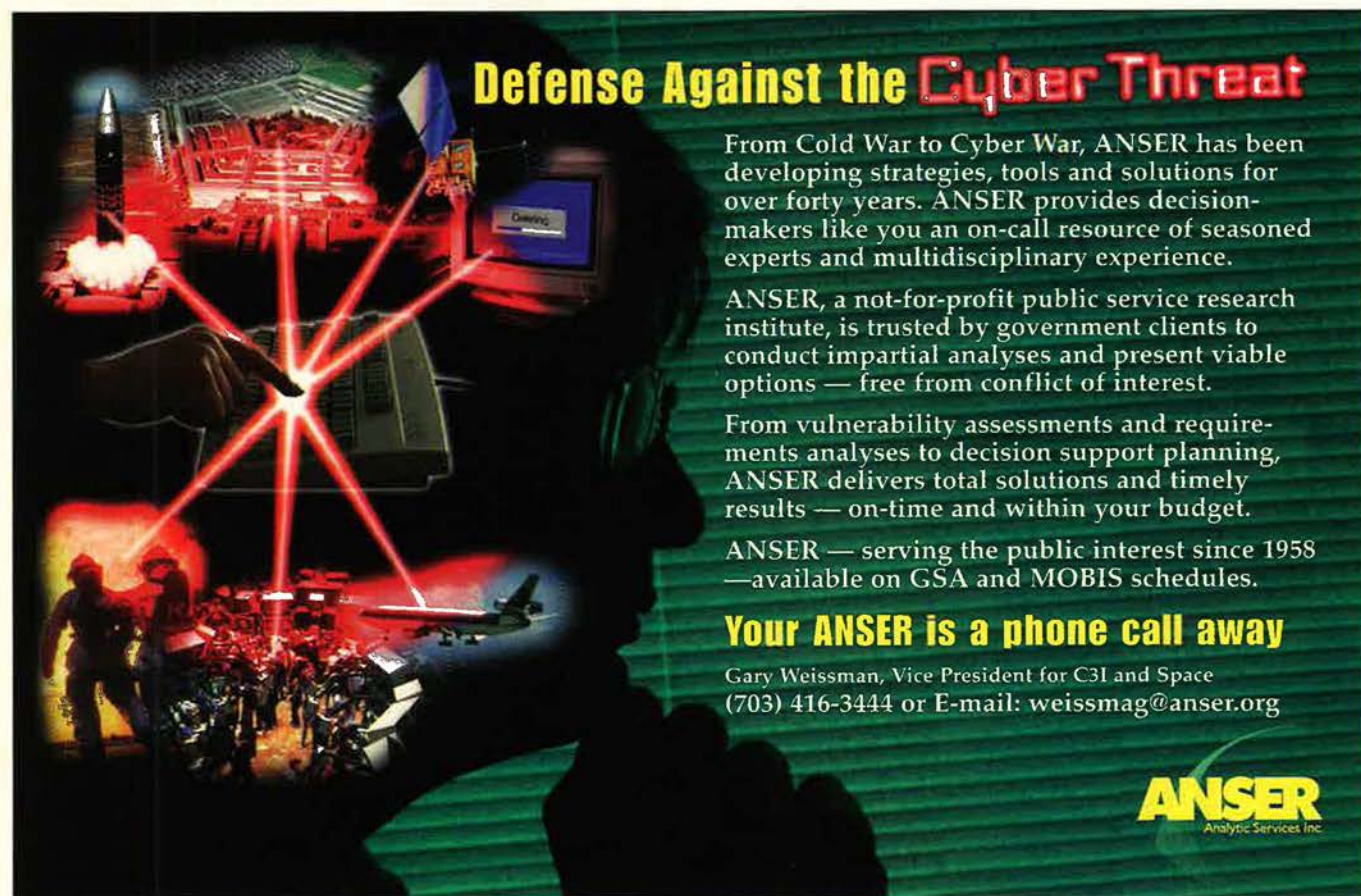
The fact that many senior officers recognized this option as a sound alternative can be seen in how quickly the Pave Low assets were "chopped" to special operations after the rescue attempt failed. Planning immediately commenced for another attempt with the Pave Low as a centerpiece. There are many Air Force helicopter pilots and engineers still serving today who were key players in this operation, and I hope their stories will be told as well.

One other aspect of this operation was highlighted in the letter you published from Lt. Col. John F. Guilmartin Jr. He put his finger on something which I saw from my limited experiences. Operational experience, par-

ticularly special ops experience, was not at a premium in the Air Force in 1979 and 1980. In the year prior to the fall of the embassy in Tehran, the commander of the 1st Special Operations Wing had to prepare plans on how to disperse the wing assets and close the base. Many viewed special ops as a post-Vietnam dinosaur whose time for extinction had come. Flying helicopters was viewed as the fast track to a short career. This was particularly true in Tactical Air Command. The wing survived the budget knife that year and within two months, we had a crisis on our hands for which these same assets were needed. Many units in the Air Force had some "special ops" training in their syllabus. Therefore, many presumed to know more about special operations than wisdom should have permitted. Those most in the know were the least in favor and their voices were seldom heard.

Whenever knowledge is discounted, and operational experience becomes a square to fill instead of a skill to be developed, we place our success, our futures, and our people at risk. It happened. Will it happen again?

Lt. Col. Bruce Adriance,
USAF (Ret.)
Warner Robins, Ga.



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The Chart Page

By Tamar A. Mehuron, Associate Editor

The Investment Drought

Tracking USAF's Budget

Millions of Constant FY 2000 Dollars

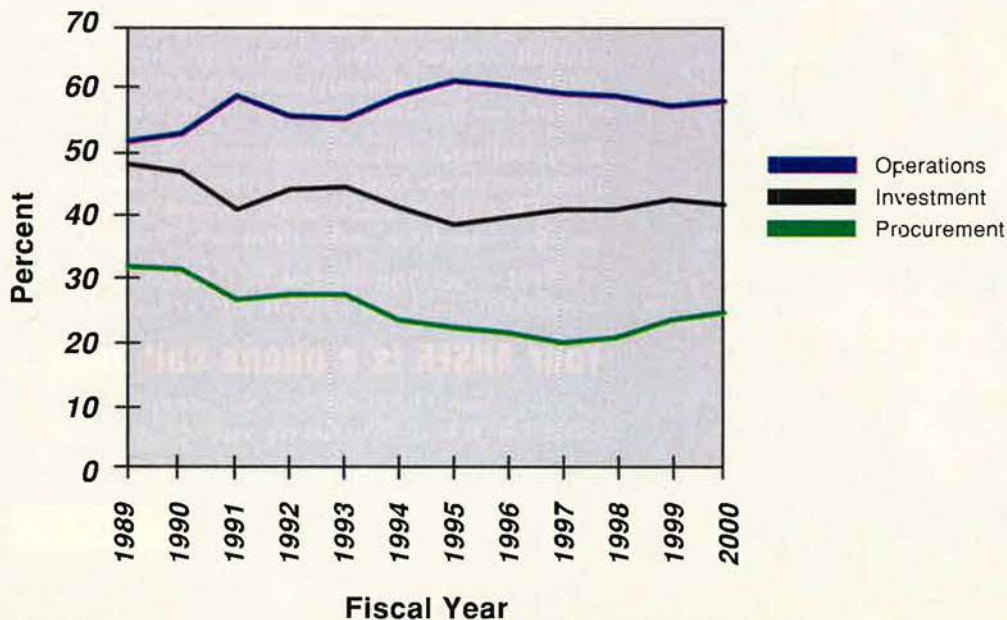
Year	Total	Investment	Current Ops	Ratio	
1989	\$121,165	\$58,526	\$62,639	48.3	51.7
1990	\$115,613	\$54,181	\$61,432	46.9	53.1
1991	\$105,944	\$43,377	\$62,567	40.9	59.1
1992	\$96,224	\$42,293	\$53,931	44.0	56.0
1993	\$89,587	\$39,781	\$49,806	44.4	55.6
1994	\$83,069	\$34,105	\$48,964	41.1	58.9
1995	\$81,097	\$31,197	\$49,900	38.5	61.5
1996	\$78,164	\$30,839	\$47,325	39.5	60.5
1997	\$76,161	\$31,019	\$45,142	40.7	59.3
1998	\$78,236	\$31,974	\$46,262	40.9	59.1
1999	\$77,723	\$33,075	\$44,648	42.6	57.4
2000	\$78,615	\$32,780	\$45,835	41.7	58.3

The slump in Air Force investment has entered its second decade, as the figures for Fiscal 1989–2000 show. Investment comprises all funding for procurement; research, development, test, and evaluation; and military construction. Current operations funding comprises everything else—mainly operations and maintenance and military personnel.

Investment, in absolute terms, peaked at \$58.5 billion in 1989, seen as the last year of the Reagan buildup. Declining investment since then bottomed out at \$30.8 billion in 1996. A slight uptick of about 6.2 percent from 1997 through 1999 is followed by a proposed drop in investment in 2000, to \$32.8 billion.

Investment vs. Operations

As a percentage of USAF budget



Source: USAF

WHEN HE'S OLD ENOUGH
TO SERVE HIS COUNTRY,
HOW OLD WILL HIS
FIGHTER TECHNOLOGY BE?



We hope he grows up in a peaceful world. But if America needs him, will he fly 30-year-old fighters or the state-of-the-art F-22 Raptor and Joint Strike Fighter? Our opinion: You can't stand tall if you stand still. Pratt & Whitney. *THE POWER OF READINESS.*



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Aerospace World

By Peter Grier

Curtis Bows Out

Former Deputy Secretary of Energy Charles B. Curtis, whom the White House had planned to tap as its next nominee to be Secretary of the Air Force, withdrew his name from consideration for the post.

Curtis had become concerned that his confirmation hearing in the Senate would focus on lax security at Energy Department labs, said Pentagon spokesman Kenneth H. Bacon on April 9. The result would be "a lengthy, protracted confirmation hearing" that would "deny the Air Force a permanent Secretary," said Bacon. At least one DoE lab has allegedly been the source of leaks of sensitive nuclear weapons technology to the Chinese.

Curtis, a Washington lawyer, was



USAF photo by SrA. Jeffrey Allen

US Mobilizes Guard, Reserve for Balkan Duty

President Clinton authorized Secretary of Defense William S. Cohen to call up members of the National Guard and the Reserve to active duty to provide support for NATO operations in and around Kosovo, the Defense Department reported.

The Pentagon declared April 27 that roughly 2,000 Guardsmen and Reservists will be called up initially for support of air-refueling operations, and others may be called in the future as required.

Clinton approved a Presidential Selected Reserve Call-up, or PSRC, to support NATO operations. It authorizes Cohen to call up 33,102 members of the Selected Reserve to active duty.

Announcing the move, Cohen said, "Until now, we have been able to meet many of our military requirements for operations in the Balkans using volunteers from the National Guard and Reserve who have been serving side by side with the active forces." He added, "Ongoing operations now require more support from the reserve forces. The PSRC is designed to help us meet those expanding needs."

Guard and Reserve forces are thoroughly integrated into the Total Air Force. For example, more than half of USAF's aerial refueling capability and airlift capacity resides in the Air National Guard and Air Force Reserve Command.

US law permits a President to call to active duty up to 200,000 members of the Selected Reserve and the Individual Ready Reserve for up to 270 days.

The reserve force call-up will beef up USAF refueling operations in the Balkans.

Lockheed Martin test pilot Jon Beesley flew Raptor 02 to an altitude of 50,000 feet and performed both flutter tests and flying quality maneuvers.

"The entire F-22 team is excited about moving into the next phase of test activity," said Tom Burbage, president of Lockheed Martin Aeronautical Systems. "The tests and modifications performed on the F-22 over the past three months will pave the way for expanded flight activity the rest of this year."

The flight hiatus started at the beginning of 1999. Technicians swarmed over the two F-22s assigned to the Combined Test Facility at Edwards AFB, Calif., trying out maintenance tasks and completing support equipment validations. Among the changes the ground tests produced were modifications to landing gear support equipment and reduced tool requirements.

"Testing a fighter aircraft today is really a combination of ground tests and flight tests," said Maj. Gen. (sel.) Michael C. Mushala, director of the F-22 Systems Program Office. "The F-22 has performed extremely well in

a classmate of Secretary of Defense William S. Cohen's at Boston University's law school. He had been involved in security matters as a deputy secretary at the Energy Department and "has been cited for his zeal in dealing with [security] problems," insisted Bacon, when asked about the withdrawal.

Lax security at DoE labs has become a controversial subject in Washington, with Republicans charging that

the Clinton Administration did not react quickly enough to reports of Chinese espionage. Recent reports indicate that, among other things, the Chinese may have obtained data on the exact shape of the Trident II W88 nuclear warhead.

F-22 Back in the Skies

The F-22 is back in the skies after a planned three months of ground tests and system updates. On April 8,

Shining Hope Aids Expelled Kosovars

Responding to the tidal wave of ethnic Albanians fleeing "ethnic cleansing" operations in Kosovo, the Air Force generated the largest humanitarian airlift in Europe in 50 years.

Not since the Berlin Airlift of 1948-49 have Europeans seen such a massive movement of food, medicine, tents, and supplies.

The airlift, part of NATO's Operation Shining Hope, delivered to Kosovar refugees in the first month alone more than 3,150 tons of emergency supplies—2,000 tons of food, 400 tons of shelter gear, 520 tons of support equipment, 140 tons of bedding, 30 tons of medical supplies, and 60 tons of vehicles.

More than 1 million ethnic Albanians—more than half of Kosovo's former total population—have been displaced as a result of the fighting that began to escalate in March 1998 and went into high gear with the start of Operation Allied Force March 24. The NATO offensive campaign sought to compel Yugoslav forces to halt operations in Kosovo and withdraw.

Of the total refugees, more than 500,000 have crossed the border from Kosovo into Macedonia, Albania, and Montenegro, where they are concentrated in spartan refugee camps. The rest are displaced within the war-ravaged Yugoslav province itself.

Joint Task Force Shining Hope provided a lifeline of sorts for Kosovars outside of their homeland. The US effort comprises airmen, soldiers, sailors, and Marines, who are at work in the Albanian capital of Tirana and Skopje, Macedonia, supporting the United Nations' plan for distributing humanitarian supplies to the refugees.

Leading JTF Shining Hope is Maj. Gen. William S. Hinton Jr., commander of USAF's 3d Air Force. He directs the mission from a communications facility in Germany.

The operation began April 5. Forty airmen from the 86th Contingency Response Group, Ramstein AB, Germany, arrived in Tirana, established a base camp at a local airfield, and made preparations for a relief force to follow. The US presence grew to about 400.

C-5s, C-17s, and C-130s have hauled many tons of supplies, including a loader and forklifts. The airlifters have brought in thousands of prepackaged humanitarian daily rations, as well as support equipment. A contract 747 carried tons of rations, or about 68,000 meals, in one early flight. Relief supplies include tents, cots, sleeping bags, blankets, and 700,000 daily rations.

Flights have originated not only in Europe but also from points in the United States. Supplies have been offloaded not only in Albania and Macedonia but also in Italy, where they were transferred to ships for transport.

Other US services and NATO countries, including France and England, are also providing humanitarian assistance.



A1C Jimmy Blevins, 437th Security Forces Squadron, Charleston AFB, S.C., provides security for a C-17 at Tirana, Albania, where US forces have been deployed to provide humanitarian aid to Kosovo Albanian refugees.

USAF photo by SSgt. Efrain Gonzalez

The Pentagon requested both companies to submit their revised plans, detailing how they propose to remain on budget and on schedule through the concept demonstration phase to downselect in 2001, by the end of April.

The move came in response to a \$100 million cost overrun by Lockheed and an aircraft redesign by Boeing, which might add cost in the future. The JSF concept demonstration program began in November 1996 and will end when a contractor is selected in 2001. Boeing announced April 7 that it has begun final assembly of its model, the X-32A, two weeks ahead of schedule.

DoD program officials had not set a date for completing a review of the revised plans.

Luke Finds F-16 Engine Cracks

An investigation looking at the causes of a series of crashes at Luke AFB, Ariz., has found significant engine cracks in 18 F-16 fighters, the Air Force stated in late April after completing inspections of the 190 F-16s located at Luke.

The cracks were found in relatively old Pratt & Whitney 220 engines. They were located in augments ducts, which help boost engine thrust by channeling exhaust from the engine's nozzles. Some of the cracks were up to an inch long, said officials.

Luke has been bedeviled by accidents, with six base F-16s crashing since last October. Air Force officials temporarily halted flights at the base after a March crash near Phoenix. Flights were halted once again after

both areas, demonstrating 25 percent more flight test points and 20 percent more logistics, or ground test, points than originally planned."

The ground team also carried out a number of planned modifications to the aircraft themselves. These included new brakes, new fuel pumps and fuel system probes, and new flight control actuators and horizontal tails to meet stiffness requirements.

Raptor 02 also received a spin recovery chute for use in upcoming high-angle-of-attack testing.

During the coming months, flight tests will attempt to push the F-22

past Mach 1.8 and demonstrate supercruise, or the ability to cruise faster than the speed of sound without use of afterburners. If all goes well the Department of Defense will likely award contracts for the first six production F-22s in November.

JSF Goes Back for Replanning

The Pentagon has asked the two contractors vying to build the Joint Strike Fighter, Boeing and Lockheed Martin, to submit reworked plans to make sure they can finish the demonstration phase of the program without busting their \$1.1 billion budgets.

Allied Force's "Amazing" Achievement

A May 3, 1999, analysis of the USAF-led Balkan War by Anthony Cordesman, senior fellow for strategic assessment at the Center for Strategic and International Studies in Washington, contained this statement:

"As of April 27, NATO had flown over 11,574 sorties with only one loss—an F-117—in combat and with no accidents costing the life of a pilot or destroying an aircraft. It had flown over 4,423 attack sorties under some of the most difficult weather and terrain conditions that can be encountered in modern warfare and under extremely demanding rules of engagement designed to limit collateral damage. Since that time, NATO has flown over 14,000 sorties, although it has lost an F-16C/D to engine failure and one AV-8B in an accident. ...

"NATO has had few incidents involving collateral damage and only two involving Kosovar Muslim civilians. There were four to five strikes on Serbian and Kosovar civilians during some 4,423 attack sorties. This was a maximum 'mistake rate' of about 0.11 percent per attack sortie flown. By [May 3], there have been seven to eight incidents involving serious collateral damage in Serbia. This is still a mistake rate of under 0.2 percent per attack sortie flown. This is an amazing tactical and technical achievement."

the sixth crash, which occurred April 26 near the White Tank Mountain Range, northwest of the base.

Service officials announced three days later that faulty landing gear was the probable cause of the latest crash, involving an F-16D which had passed the engine inspection. It was the first instance of a landing gear-related crash and prompted an inspection of 100 of the fighters with similar equipment.

However, with four of the six crashes engine-related, the Air Force has become increasingly concerned about the older F-16 power plants. The problems now stretch from cracks to bearings to compressors and turbines.

Many F-16s are now powered by a newer, updated Pratt & Whitney engine, the F100-PW-229.

"The Air Force has never lost an F-16 equipped with a 229 engine," said company spokesman Tim Burris.

NMD Test Postponed

The Ballistic Missile Defense Organization has postponed the first scheduled intercept test in the National Missile Defense program from mid-June until mid-to-late August, officials said April 14.

The move is apparently precautionary, not the result of any specific problem. Officials do not want NMD—which would be the heart of any planned missile defense of the United States homeland—to suffer through the same growing pains as its troubled little brother, the Theater High Altitude Area Defense system.

The planned experiment will involve launch of a target missile from Vandenberg AFB, Calif., and a prototype interceptor from Kwajalein atoll in the central Pacific. "Additional time is needed to complete detailed sys-

tems checks and inspections prior to the test," said a Pentagon statement on the decision.

Even with the delay the NMD program may be rushing things somewhat, according to a report from DoD's director of operational test and evaluation, Philip E. Coyle III.

Over the next six years NMD has scheduled an average of three intercept tests per year, Coyle said in a report to Congress. That does not leave enough time between shots to apply lessons learned, he said.

This spring both the House and Senate passed legislation calling for deployment of a National Missile Defense "as soon as technologically possible."

NMD proponents say the bill ensures that deployment of such a system is now a matter of when, not if.

The Clinton Administration disputes that interpretation, saying that the legislation makes clear that NMD is still subject to the annual military appropriations process, and thus liable to cancellation, as are other proposed new weapons.

USAF Defends SBIRS Tactic

Acting Air Force Secretary F. Whitten Peters is defending the service's decision to channel \$1.4 billion into key modernization accounts rather than use the funds to keep the 2002 launch date for the Space Based Infrared System High.

SBIRS High would be a crucial set of eyes for any National Missile Defense effort and space-minded lawmakers have objected to past reductions in the program.

When the Air Force received an extra \$1.4 billion in funds from the Clinton Administration this fall, Sen. Bob Smith (R) of New Hampshire

questioned why part of the money was not used to prevent the first SBIRS High launch from slipping to 2004—a prospective delay first revealed in budget papers this year.

Such items as F-16 aircraft, precision air targeting pods, and an extra Joint STARS radar airplane were simply much higher priorities, said Peters in a letter to senators this April.

"If you will look at the Air Force's unfunded priority list, you will see that there are many high-priority items that could not be funded," Peters said. "Given these circumstances, we could just see no way to divert funds from other high-priority programs in order to restore the 2002 launch."

Phoenix Aviator Rising

Phoenix Aviator 20—the Air Force's new pilot retention program—has been highly successful so far, say Air Force personnel officials.

Nearly 400 of the 1,500 service pilots eligible for the program have signed up since it began Oct. 1, says Lt. Col. Philip Barbee, head of the PA-20 program office at the Air Force Personnel Center at Randolph AFB, Texas.

"This is a great program," said Barbee. "It offers several benefits to pilots in turn for a commitment to stay on active duty past 20 years of service."

The basic aim of PA-20 is to help retiring pilots make the transition to commercial airlines. Among other incentives, it promises enrollees a flying job their last two years in the Air Force and guarantees an interview with one of its participating airlines.

As of mid-April, 31 enrollees had gone through the interview process. Thirteen had received job offers.

"The biggest carrot of the program has turned out to be the interview. Interviews with a commercial airline are hard to come by," said Barbee.

Lt. Col. John C. O'Donnell was one of the PA-20 participants offered airline employment. He recently finished his USAF career with an assignment as an advisor to an Air National Guard KC-135 unit. O'Donnell says that PA-20 will be an effective way for the service to try and entice pilots at the 15-to-16-year mark to stay.

"Many aircrew members just want to fly," he said. "The opportunity to go from a staff job back to the cockpit for your last two years in the service certainly sweetens the pot."

Missile Crew Assignments Extended

The first tour of duty for new missile combat crew officers has been extended from three to four years, Air



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Force Space Command officials said.

The move will provide the officers in the space and missile operations career field with more opportunities to gain experience, according to AFSPC.

"This is a win-win situation for everyone," said Col. Perry N. Karraker, chief of the operations and training evaluation division for AFSPC.

"New officers in a four-year tour will get a chance to grow and take some of those desirable jobs, such as flight commander and assistant flight commander, that many of the officers in a three-year tour miss out on."

The change took effect March 25 with Class 99-11 of Undergraduate Space and Missile Training, held at Vandenberg AFB, Calif. Reaction seems positive so far.

"I'm excited about the change," said 2d Lt. Timothy Koczur, a 99-11 student. "It will provide stability for my family and give me a chance to grow as an officer."

On the downside, the change means an extra year at a northern-tier USAF base where winter can close around you like a clenched fist and large metropolitan areas are a long ways away. It is an experience that can be particularly hard on single officers.

But that is a problem that was pre-existing. The added year does not make it significantly worse, said some single students.

"I already considered this when I came to missiles," said 2d Lt. John

Bales, another 99-11 student. "I have my four-wheel-drive truck and plan to make the best of it."

C-17 Becomes a Little Lighter

C-17s rolling off Boeing's production line in Long Beach, Calif., will now have a new, lighter horizontal stabilizer, thanks to a joint military-industry improvement effort.

The new stabilizer is a hybrid composite/metal structure that is 20 percent lighter than the C-17's existing all-metal tail.

The new stabilizer also uses 90 percent fewer parts and 81 percent fewer fasteners than its predecessor.

All C-17s from No. 51 onward will have the new structure, which was designed under the Military Products Using Best Commercial/Military Practices pilot program.

The pilot effort was a combined program funded by the Aeronautical Systems Center, the Air Force Research Laboratory, and C-17 contractors.

The program's overall goal is to take the best acquisition and design practices it can find and extend their usage throughout the weapons building process. Specific goals for the tail redesign were to demonstrate a 20 percent weight saving and 50 percent cost saving over the metal tail baseline.

"The lessons learned from this program will benefit Boeing, Northrop Grumman, and many other aerospace

companies as our industry continues to search for more efficient ways to design and produce structural components," said Mark Wilson, chief engineer for ASC's C-17 System Program Office.

JASSM Crashes

The Joint Air to Surface Missile crashed on its first test flight April 8 at White Sands Missile Range, N.M. Flight Test Vehicle No. 1 struck the ground 40 seconds after separating cleanly from an F-15.

Air Force program officials said an electrical glitch caused the missile to go into safety mode after it was dropped. That means its wing and tail never deployed.

The JASSM program is supposed to deliver the first of its stealthy cruise missiles to the force beginning in 2002. The program remains on schedule, according to program officials.

Air Force Mum on F-117 Loss

Air Force officials say they have a pretty good idea what caused an F-117 stealth fighter to crash in Yugoslavia on March 27—but that they will not publicly disclose the causes while operations against the Belgrade regime of Slobodan Milosevic remain ongoing.

Officials did say they had ruled out an act of God or loss of consciousness on the part of the pilot. Mechanical failure has not been entirely eliminated as a cause, but indications are the aircraft was brought down by a Serbian surface-to-air missile.

"It's not invisible," said Maj. Gen. Bruce A. Carlson, USAF's director of operational requirements, at a Pentagon briefing. "It never has been invisible. We know [there are] radars that can track our stealthy airplanes. They can sometimes find us. The key is that that zone of detectability or lethality is shrunk by orders of magnitude, but it's still not invisible. For instance, the F-117's radar signature increases when its bomb bay doors are open, said Carlson.

Operational changes have attempted to minimize the amount of time the doors are open during bomb runs.

Reports indicated that among the possible causes of the Serb's unexpected anti-aircraft success were the undetected shifting of a surface-to-air missile battery, a predictable flight path by the F-117, and a US electronic jamming aircraft that was flying too far away.

Of 60 F-117s built, according to Carlson, seven have now been lost. Six were destroyed in accidents.

NATO Embraces Broad New Security View

At their late April gathering in Washington, NATO officials formally adopted a new Allied strategic concept, one that greatly expands the scope of Alliance security plans to encompass nontraditional—even nonmilitary—angers.

The document, released April 24, was viewed as being as significant as any since NATO's founding in April 1949.

In its first 50 years, NATO functioned strictly as a defensive military Alliance based on collective security. Soviet-led Warsaw Pact forces were the adversary. Each ally pledged to treat an attack on one as an attack on all. "Out-of-area" operations—that is, those that would unfold beyond the actual territory of NATO nations—were virtually nonexistent.

Now, NATO's new 18-page concept document takes official note of "the evolving strategic environment" and the new security challenges posed by regional instability—such as the wars in the Balkans—terrorism, and the spread of Weapons of Mass Destruction.

The document reaffirms NATO's determination to counter direct armed attack on NATO soil. However, in the key passage, the Alliance contends, "Alliance security interests can be affected by other risks of a wider nature, including acts of terrorism, sabotage, and organized crime, and by the disruption of the flow of vital resources." Further, said the document, "The uncontrolled movement of large numbers of people, particularly as a consequence of armed conflicts, can also pose problems for security and stability."

The new approach appears to place major emphasis on "political, economic, social, and environmental factors" as well as the "indispensable defense dimension." Moreover, the new NATO concept appears to view out-of-area operations, such as that now under way in Kosovo—as a foregone conclusion. "As NATO forces may be called upon to operate beyond NATO's borders," it said, "Allied capabilities must be "flexible, mobile, rapidly deployable, and sustainable."

The Archaeology of Stealth

The following statement about stealth technology came from Maj. Gen. Bruce A. Carlson, director of operational requirements at USAF, in an April 20, 1999, briefing for reporters:

"We started out a long time ago building airplanes that had low observable technology incorporated into their design. The SR-71 was an example of where we took the aerodynamic design and then added some radar absorbing material to the airplane to make it slightly stealthy. ...

"We went to the second generation of airplanes and ... we designed that airplane, the F-117, essentially from the bottom up to be stealthy. It was crude technology. It was developed at a time when we didn't have the modeling and computer power we needed to make the kind of aerodynamic design that we would have liked, but we built one that we thought was very stealthy. ...

"Then we came to the third generation of stealth airplanes—we built the B-2. And of course, by that time, we had the modeling tools and the design tools and the computing power to make an aerodynamic design that was optimum. And this airplane is [a] much higher altitude, much better performing airplane than the F-117. We were able to eliminate a lot of the radar absorbing material from the structure.

"By the time we got to the fourth generation [the F-22], we were able to add supersonic speed, the agility of an F-15-, F-16-class airplane, and do that with no degradation to the stealth. In addition to that, we were able to add a number of apertures—in other words, openings—in the airplane's surface for antennas, radars, and other sensors. And in the F-22, as an example, there are over a hundred of those apertures on the airplane, where if we jump back a couple of generations to the F-117, there are essentially a couple of aperture openings and the rest of them we hide when we go into combat."

DoD Updates Funeral Commitment

Every US military veteran who has honorably served will be entitled to the presence of two armed services representatives, plus the playing of "Taps," at his or her funeral, according to a Pentagon proposal announced April 21.

The Defense Department has been besieged by complaints about funerals from veterans' families in recent years. Many say they have been unable to have Taps played at funeral ceremonies or have a military representative present the family with a flag.

Under the new proposed rules, the military representatives would conduct a flag folding and presentation ceremony. Taps would be played by either a bugler or a "high-quality audio recording," according to DoD.

"Our heartfelt, shared goal was to honor appropriately and consistently those veterans who have faithfully defended all Americans and our national interests," said Undersecretary of Defense for Personnel and Readiness Rudy de Leon. "These proposals accomplish this important goal."

Critics of DoD funeral practices may find the new rules—which must be approved by Congress—inadequate.

Sen. Paul Sarbanes (D) of Maryland introduced legislation which would mandate a five-person military detail at veterans' funerals, for instance.

But on this as on so many matters, the Pentagon is caught in a squeeze

between increased demand and a shrinking active force.

Since 1989 the number of veteran deaths per year has increased 18 percent. Yet during that time the size of the military has shrunk about 35 percent. And demand for funeral honors is sure to increase further.

Currently, the Pentagon provides honors at about 37,000 funerals per year. Officials estimate that about 250,000 families per year could eventually request funeral honors in the coming years.

The rising demand will present geographical challenges, as well.

With the closing of more and more bases, "funeral honor guard details must often travel greater distances than in years past to provide support," according to DoD.

The Defense Department also said that it will streamline the process for requesting honors, via a toll-free request number and a Web site for use by funeral directors.

CNN, Arnett Part Ways

The Tailwind affair has claimed its highest-profile journalist—Peter Arnett.

Cable News Network has parted ways with perhaps its most recognizable correspondent, the Pulitzer Prize-winning Arnett, at least in part because of his role in a CNN special report that falsely charged the US military with using nerve gas during the Vietnam War.

Arnett was chief correspondent for the so-called Tailwind report, broad-

cast last June 7. Following an internal CNN report last summer that found that the story was unsupported by the evidence, Arnett argued that his role in preparing the broadcast was in fact minimal. He was allowed to keep his job but was placed in limbo. He had appeared on air only once since last July.

Now CNN plans to exercise an exit clause in his contract, Arnett said April 18. The move effectively removes him with two years remaining on a five-year employment pact.

Arnett has long been one of the most recognizable faces on TV. He won a Pulitzer for Vietnam coverage in 1966, when he was a writer for the Associated Press. He broadcast live from Baghdad in 1991, when US airstrikes began the Gulf War. His future journalistic plans are uncertain.

Downsizing at ACC

In a reorganization that began May 1, Air Combat Command is aiming to reduce its current 4,849 headquarters job slots by 1,000.

Too-large headquarters staffs at Langley AFB, Va., are taking up money and personnel that could be put to better use in stressed frontline units, said ACC officials. A streamlining of headquarters organizations could also speed decisions on everything from training to parts resupply.

Col. Perry Lamy, director of a 35-person re-engineering team, said the effort will force specialists, such as logisticians, intelligence experts, and communicators, to work in multidisciplinary teams instead of their own specific specialties. Military jobs can be reassigned to squadrons and other field units. The first reductions will not begin to take hold until next year.

Readiness Challenge Canceled

Readiness Challenge VII was supposed to start April 19 at Tyndall AFB, Fla. But the biennial, multinational combat support competition was canceled. Teams that had planned to take part were needed to augment NATO's Operation Allied Force in the Balkans, said Air Force officials.

"It's only prudent to free up our combat support resources in case they're needed," said Col. Bruce McConnell, contingency support director, Air Force Civil Engineer Support Agency. "The competitors ... and all involved with Readiness Challenge will now focus their attention on real-world contingency operations."

Civil engineering, public affairs, and chaplain services are among the support groups that take part in Readiness Challenge competitions. Canada, the United Kingdom, Germany, Nor-

Called On—and Under—the Carpet

Gen. Klaus Naumann, then chairman of the NATO Military Committee, met April 26 with the Defense Writers Group in Washington, where he was asked why Germany was reluctant to consider providing ground forces for a NATO land campaign in Kosovo. His reply:

"You should never forget the psychological situation of Germany. It was, after all, among others, you who told us, 'You Germans behave properly. March underneath the carpet, but in an upright position, and never dare again to come on the carpet. You stay down there.' ... Then suddenly, when unification [of West and East Germany in 1990] came about, you told us, 'Now you Germans are on the carpet, and you are not only 6 feet tall, you are 10 feet tall.' You cannot get consensus for things like this overnight. That we achieved this in more or less the incredible short period of eight years is something which I believe is quite remarkable. I am not so familiar with all the details of American history, but I know that it took some 30 years for you to think about the use of military power outside the United States of America after the Civil War. ... The Germans are not doing too badly at this time. If I look at the NATO council, they [the Germans] are definitely not the ones who are delaying decision. There are a few others that are wobbling."

way, and Japan were all scheduled to send competitive teams.

Events test a range of skills from setting up tent cities with sanitary water supplies and electricity to pumping out press releases.

Canada was the first to cancel, when the Canadian team was placed on standby for deployment to the Kosovo area. The team from US Air Forces in Europe also withdrew—at which point officials decided that perhaps other challenges took precedence over their scheduled contest.

ABL's Mirror Milestone

The Air Force's Airborne Laser program passed another major milestone April 13 when its primary optical mirror was delivered to the contractor who will polish it to the needed optical quality.

The mirror—62 inches in diameter and 8 inches thick—was built by Corning Glass, N.Y. Design and fabrication took two years and included use of a unique water-jet machining technique to reduce the weight of the mirror core by over 90 percent.

Now Contraves Brashear Systems of Pittsburgh, Pa., will take another year to polish the mirror to the optical quality necessary to direct a high-energy laser beam to a target hundreds of miles away.

"This event represents another successful milestone in the effort to develop and demonstrate this revolutionary weapon system," said Col. Michael W. Booen, director of the ABL System Program Office at Kirtland AFB, N.M.

Hawley Set to Retire in July

On April 9, the Department of Defense announced that Gen. Richard

E. Hawley, commander of Air Combat Command, will retire July 1. His replacement will be the current Air Force vice chief of staff, Gen. Ralph E. Eberhart.

A change of command ceremony was tentatively scheduled for June 11. Hawley has headed ACC since April 1996. He first entered the service in 1964 after graduating from the Air Force Academy and has more than 3,000 flying hours, including

more than 430 combat missions in the O-2A, A-10, F-4, and F-15.

Prior to his assuming the ACC post, Hawley was the commander of US Air Forces in Europe and Allied Air Forces Central Europe at Ramstein AB, Germany.

Eberhart is a fellow graduate of the academy and received his commission in 1968. He has accumulated more than 4,000 hours in a variety of Air Force aircraft and flew 300 combat missions as a forward air controller in Vietnam.

Benken to Step Down

On April 7, Chief Master Sergeant of the Air Force Eric W. Benken announced that he will retire from the service after wearing his nation's uniform for more than 29 years. His formal retirement ceremony will be July 30 at Bolling AFB, D.C. Benken admitted that part of him still wanted to stay on the job. He likely could have remained on until the end of Chief of Staff Gen. Michael E. Ryan's term.

But at three years-plus Benken's time in the top NCO job has already been longer than most. And he has strong feelings about extending past the 30-year mark.

"There are many Vietnam-era chiefs like myself who would like to

USAF Raises Space Budget

Senior Air Force officials disclosed April 26 that the service plans a five-year buildup of space funding that will come at the expense of air funding.

"Each program is important," said F. Whitten Peters, the acting Air Force Secretary, "but you must remember that we are trying to create a seamless [aerospace] system of systems."

He said that the service's space Science and Technology account will rise from somewhat under \$500 million today to \$712 million by 2005. At the same time, air S&T funding will drop from \$749 million to \$541 million.

Peters and the Air Force Chief of Staff, Gen. Michael E. Ryan, talked of other space topics as well.

- USAF space assets supported the Balkan War effort with GPS, surveillance, communications, combat search and rescue, and weather.
- The Air Force is interested in shifting the moving target indicator role from Joint STARS aircraft to space. This is "a mission naturally suited to migrate to space," said Ryan.
- New GPS satellites will have two jam-resistant channels for military-only use, as well as two new civilian-only channels.
- The National Oceanographic and Atmospheric Agency and DoD will merge their weather satellite operations.
- "Space negation" studies are under way now. They are being undertaken pursuant to the "right of self-protection under international law."
- The Air Force hopes to launch a space-based laser in 2010 rather than 2012.



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stay beyond 30 years," he said. "I have asked them not to do that, so we can make room for the younger troops to move up. It would be inap-

propriate for me to do something I have asked my fellow chiefs not to do."

The chief began his career in 1970

after noticing a recruiting poster emblazoned with what he now jokes he thought was a direct order: Join the Air Force. He began as an adminis-

Senior Staff Changes

NOMINATIONS: To be General: Lester L. Lyles.

To be Lieutenant General: Paul V. Hester, Leslie F. Kenne.

To be Major General: Roger A. Brady.

To be Brigadier General: Gary H. Murray.

CHANGES: Brig. Gen. Thomas L. Baptiste, from Cmdr., Cheyenne Mountain Ops. Ctr., NORAD/USSPACECOM, Cheyenne Mountain AS, Colo., to Dir., Plans, NORAD, Peterson AFB, Colo. ... Brig. Gen. Barry W. Barksdale, from Cmdr., 37th Tng. Wg., AETC, Lackland AFB, Texas, to Vice Cmdr., 12th AF, ACC, Davis-Monthan AFB, Ariz. ... Maj. Gen. (sel.) John D. Becker, from Cmdr., 305th AMW, AMC, McGuire AFB, N.J., to Cmdr., Tanker Airlift Control Center, AMC, Scott AFB, Ill. ... Brig. Gen. Richard B. Bundy, from Dir., Manpower, Orgn., & Quality, DCS, P&P, USAF, Pentagon, to Vice Dir., Operational Plans & Interoperability, Jt. Staff, Pentagon ... Brig. Gen. (sel.) Richard J. Casey, from Exec. to the CINC, USTRANSCOM, AMC, Scott AFB, Ill., to Cmdr., 43d AW, AMC, Pope AFB, N.C. ... Lt. Gen. (sel.) Donald G. Cook, from Dir., EAF Implementation, DCS, Air & Space Ops., USAF, Pentagon, to Vice Cmdr., AFSPC, Peterson AFB, Colo. ... Brig. Gen. Sharla J. Cook, from Dir., Log., AETC, Randolph AFB, Texas, to Cmdr., 82d Tng. Wg., AETC, Sheppard AFB, Texas ... Brig. Gen. (sel.) Kelvin R. Coppock, from Chief, Global Engagement Div., USSPACECOM, Peterson AFB, Colo., to Dep. Dir., Ops., AFSPC, Peterson AFB, Colo.

Brig. Gen. Tommy F. Crawford, from Cmdr., 354th FW, PACAF, Eielson AFB, Alaska, to Dep. Dir., Ops. (Natl. Systems Spt.), Jt. Staff, Pentagon ... Maj. Gen. Daniel M. Dick, from Vice Cmdr., 12th AF, ACC, Davis-Monthan AFB, Ariz., to Cmdr., 13th AF, PACAF, Andersen AFB, Guam ... Brig. Gen. (sel.) Lloyd E. Dodd Jr., from Command Surgeon, AFSPC, Peterson AFB, Colo., to Cmdr., 311th Human Sys. Wg., ASC, AFMC, Brooks AFB, Texas ... Gen. Ralph E. Eberhart, from Vice C/S, USAF, Pentagon, to Cmdr., ACC, Langley AFB, Va. ... Brig. Gen. Edward R. Ellis, from Cmdt., AFOATS, AU, AETC, Maxwell AFB, Ala., to Dep. Cmdr., 5th ATAF, Allied Air Forces, Southern Europe, Vicenza, Italy ... Brig. Gen. Michael N. Farage, from Dep. Commanding Gen., USSOCOM, Ft. Bragg, N.C., to Cmdr., 37th Tng. Wg., AETC, Lackland AFB, Texas ... Brig. Gen. (sel.) Stanley Gorenc, from Cmdr., 80th FTW, AETC, Sheppard AFB, Texas, to Vice Cmdr., 5th AF, PACAF, Yokota AB, Japan

Maj. Gen. (sel.) Thomas B. Goslin Jr., from Dep. Dir., Prgms., DCS, P&P, USAF, Pentagon, to Dir., Ops., USSPACECOM, Peterson AFB, Colo. ... Brig. Gen. (sel.) Elizabeth A. Harrell, from Exec., Vice C/S, USAF, Pentagon, to Cmdr., 81st Tng. Wg., AETC, Keesler AFB, Miss. ... Maj. Gen. William S. Hinton Jr., from Cmdr., 3d AF, USAF, RAF Mildenhall, UK, to Dir., EAF Implementation, DCS, Air & Space Ops., USAF, Pentagon ... Brig. Gen. John L. Hudson, from Senior Mil. Asst., USD, Acq. & Tech., USAF, Pentagon, to Dep. Dir., JSF Prgm., Asst. SECAF, Acq., Arlington, Va. ... Brig. Gen. David L. Johnson, from Cmdr., 43d AW, AMC, Pope AFB, N.C., to Vice Cmdr., AFSOC, Hurlburt Field, Fla. ... Lt. Gen. Ronald T. Kadish, from Cmdr., ESC, AFMC, Hanscom AFB, Mass., to Dir., BMDO, USD, Acq. & Tech., Pentagon ... Maj. Gen. Leslie F. Kenne, from Dir., JSF Prgm., Asst. Secy. Navy, R&D & Acq., Arlington, Va., to Cmdr., ESC, AFMC, Hanscom AFB, Mass. ... Maj. Gen. Rodney P. Kelly, from Dir., Ops., USSPACECOM, Peterson AFB, Colo., to Asst. DCS, P&P, USAF, Pentagon ... Brig. Gen. Edward L. LaFontaine, from Vice Cmdr., AFSOC, Hurlburt Field, Fla., to Cmdr., 6th ARW, AMC, MacDill AFB, Fla. ... Brig. Gen. Dennis R. Larsen, from Cmdr., 363d Air Expeditionary Wg., ACC, Prince Sultan AB, Saudi Arabia, to Dir., Air Expeditionary Forces Mgmt. Team, ACC, Langley AFB, Va. ... Brig. Gen. (sel.) Robert H. Latiff, from

Sys. Prgm. Dir., Jt. STARS JPO, AFPEO, Asst. SECAF for Acq., Hanscom AFB, Mass., to Cmdr., Cheyenne Mountain Ops. Ctr., NORAD/USSPACECOM, Cheyenne Mountain AS, Colo. ... Brig. Gen. Theodore W. Lay II, from Cmdr., 57th Wg., ACC, Nellis AFB, Nev., to Dep. Dir., Politico-Mil. Affairs, Jt. Staff, Pentagon ... Brig. Gen. Richard B.H. Lewis, from Dep. Dir., Ops., Natl. Mil. Cmd. Center, Jt. Staff, Pentagon, to Vice Cmdr., 6th ATAF, Izmir, Turkey ... Lt. Gen. Lance W. Lord, from Vice Cmdr., AFSPC, Peterson AFB, Colo., to Cmdr., AU, AETC, Maxwell AFB, Ala. ... Maj. Gen. David R. Love, from Dep. Cmdr., 6th ATAF, Izmir, Turkey, to Cmdr., AF Security Assistance Center, AFMC, Wright-Patterson AFB, Ohio ... Gen. (sel.) Lester L. Lyles, from Dir., BMDO, USD, Acq. & Tech., Pentagon, to Vice C/S, USAF, Pentagon ... Brig. Gen. (sel.) Robert E. Mansfield Jr., from Cmdr., Defense Reutilization & Marketing Service, DLA, Battle Creek, Mich., to Dir., Supply, DCS, Instl. & Log., USAF, Pentagon ... Brig. Gen. Michael C. McMahan, from Cmdr., 7th BW, ACC, Dyess AFB, Texas, to Dir., Manpower, Orgn., & Quality, DCS, P&P, USAF, Pentagon ... Brig. Gen. Duncan J. McNabb, from Cmdr., TACC, AMC, Scott AFB, Ill., to Dep. Dir., Prgms., DCS, P&P, USAF, Pentagon

Brig. Gen. Richard A. Mentemeyer, from Cmdr., 12th FTW, AETC, Randolph AFB, Texas, to Cmdr., 305th AMW, AMC, McGuire AFB, N.J. ... Maj. Gen. (sel.) Teed M. Moseley, from Dep. Dir., Politico-Mil. Affairs, Jt. Staff, Pentagon, to Dir., LL, OSAF, Pentagon ... Brig. Gen. Paul D. Nielsen, Dir., Plans, NORAD, Peterson AFB, Colo., to Vice Cmdr., ASC, AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Charles N. Simpson, from Cmdr., 9th Recon. Wg., ACC, Beale AFB, Calif., to Cmdr., 363d Air Expeditionary Wg., ACC, Prince Sultan AB, Saudi Arabia ... Brig. Gen. James N. Soligan, from Cmdr., 6th ARW, AMC, MacDill AFB, Fla., to Dir., Strategy, Policy, & Plans, USSOUTHCOM, Miami, Fla. ... Brig. Gen. John M. Spiegel, from Cmdr., 81st Tng. Wg., AETC, Keesler AFB, Miss., to Cmdt., AFOATS, AU, AETC, Maxwell AFB, Ala. ... Brig. Gen. Randall F. Starbuck, from Cmdr., 45th Space Wg., AFSPC, Patrick AFB, Fla., to Dir., Air Expeditionary Forces Mgmt. Team, ACC, Langley AFB, Va. ... Brig. Gen. (sel.) Joseph P. Stein, from Cmdr., 93d ACW, ACC, Robins AFB, Ga., to Cmdr., 7th BW, ACC, Dyess AFB, Texas ... Brig. Gen. Lawrence H. Stevenson, from Vice Cmdr., 5th AF, PACAF, Yokota AB, Japan, to Cmdr., 12th FTW, AETC, Randolph AFB, Texas ... Brig. Gen. Billy K. Stewart, from Dir., Supply, DCS, Instl. & Log., USAF, Pentagon, to Dir., Log., AETC, Randolph AFB, Texas ... Maj. Gen. Garry R. Trexler, from Dep. Cmdr., 5th ATAF, Allied Air Forces, Southern Europe, Vicenza, Italy, to Vice Dir., Jt. Staff, Pentagon ... Maj. Gen. Thomas C. Waskow, from Cmdr., 13th AF, PACAF, Andersen AFB, Guam, to Dir., Air & Space Ops., PACAF, Hickam AFB, Hawaii ... Maj. Gen. Joseph H. Wehrle Jr., from Dir., Prgms., DCS, P&P, USAF, Pentagon, to Cmdr., 3d AF, USAF, RAF Mildenhall, UK.

SENIOR EXECUTIVE SERVICE RETIREMENTS: Russell R. Burton, Johnny M. Rampy, David S. Sibley, George W. Simon, Jerome P. Sutton, James A. Vinarskai.

SES CHANGES: James D. Bankers, to Asst. Vice Cmdr., AFRC, Robins AFB, Ga. ... James A. Cunningham, to Exec. Dir., ESC, Hanscom AFB, Mass. ... Donald C. Daniel, to Dep. Asst. Secy., Science, Tech., & Engineering, OSAF, Pentagon ... Lorna B. Estep, to Dir., Materiel Systems Gp., Wright-Patterson AFB, Ohio ... Edward C. Koenig, to Chief, Combat Spt. Div., USAF, Pentagon ... Jon G. Ogg, to Dir., Engineering, ASC, Wright-Patterson AFB, Ohio ... David E. Tanzi, Dir., Plans, AFRC, Robins AFB, Ga. ... Patricia J. Zarodkiewicz, to Dir., Budget Investment, OSAF, Pentagon.

Gary Hart, in the Spotlight Again

Secretary of Defense William S. Cohen announced April 2 the selection of Gary W. Hart to serve as the co-chair of the Senior Advisory Board on National Security.

The former Democratic senator and failed Presidential candidate will replace former Sen. David Boren, who stepped down as a result of responsibilities as the president of the University of Oklahoma.

The Pentagon announcement said that Cohen, an old Senate colleague of Hart's, "highlighted Hart's vast experience, keen intellect, and many important contributions to the nation's security." Cohen added, "Gary Hart stands out as one of our nation's best thinkers and most skilled practitioners on matters dealing with America's security."

Hart represented Colorado in the United States Senate from 1976 to 1984. Before that, he had worked as campaign manager for Sen. George McGovern in the latter's unsuccessful 1972 bid for the Presidency.

Hart was himself twice a Presidential candidate. He was forced to abandon his 1988 quest for the White House when he was caught in an adulterous affair. He is the author of several books, the latest of which, *The Minuteman*, was published in 1998.

Hart and co-chair Warren Rudman will lead the national security study group, a two-and-one-half-year effort that will focus on three areas:

- The global security environment of the first quarter of the 21st century.
- The character of the nation during that period and what might be an appropriate national security strategy.
- Possible alternatives to the current national security apparatus.

The group will complete its work in February 2001.

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trative specialist, now known as an information manager.

Besides Vietnam, his overseas postings included Taiwan, Korea, Belgium, and Germany. He assumed the post of Chief Master Sergeant of the Air Force in November 1996, after

serving as USAFE senior enlisted advisor.

"Knowing he was my advisor on enlisted issues has meant peace of mind for me," said Ryan. "He tackled many tough issues in particularly tough times for our Air Force."

News Notes

■ The US military will soon have two new chiefs: On April 21, Secretary of Defense William S. Cohen nominated Gen. Eric K. Shinseki for appointment as chief of staff of the Army and Lt. Gen. James L. Jones Jr. for appointment as commandant of the Marine Corps.

■ On April 9 the Department of Defense announced that Lt. Gen. Lester L. Lyles has been picked for appointment to the grade of general and the position of USAF vice chief of staff.

■ On April 12, President Clinton announced that he will issue an executive order designating the Kosovo area of operations as a "combat zone" for tax relief benefits. Those serving within the zone will be largely exempt from income tax on their military pay, among other benefits.

■ The nation's 20th B-2 stealth bomber was named *Spirit of Indiana* at a ceremony at Grissom ARB, Ind., May 22.

■ On April 21, Secretary Cohen asked Congress for the authority to transfer former military base property to local communities at no cost if they use it for job-generating economic development. The new policy of no-cost economic development conveyances would minimize the need for



At a dedication ceremony, ANG Brig. Gen. David Beasley answers questions about the newest asset of the 175th Wing, in Baltimore. The wing received the ANG's first C-130J Hercules and named it The Pride of Baltimore. Maryland will take delivery of eight of the cargo aircraft during the next two years.

time-consuming property appraisals and negotiations, officials said.

■ The best food service programs in the Air Force are at Hurlburt Field, Fla., and Kirtland AFB, N.M. That is what the Air Force Services Agency Food Branch decided in designating them the 1999 Hennessy award winners for multiple and single dining facilities, respectively.

■ Lockheed Martin Aeronautical Systems formally turned over the first C-130J Hercules to the US Air Force Reserve in a March 31 ceremony at Keesler AFB, Miss. The airplane is the first of two training aircraft and will be used by the 403d Wing at Keesler.

■ The first brand-new F-15E to roll off the production line since 1994 took to the skies over St. Louis for its initial flight April 1. Boeing is slated to deliver 17 new Strike Eagles by early 2000, bringing the total delivered to the Air Force up to 226.

■ Boeing has been picked to proceed into the second phase of the Uninhabited Combat Air Vehicle program, Pentagon officials announced March 25. TheUCAV is a demonstrator effort aimed at producing an unmanned craft capable of carrying out suppression of enemy air defenses against anticipated threats of 2010.

■ The AIM-9X Sidewinder air-to-air missile completed its first air launch at the Naval Air Warfare Center, China Lake, Calif., March 18. The AIM-9X is a joint Navy and USAF program currently in engineering and manufacturing development that aims to update the famous Sidewinder short-range weapon now used by more than 40 nations around the world.

■ ANG Maj. Suellen Overton, a legal officer assigned to the Iowa Air National Guard's 132d Fighter Wing in Des Moines, has been selected as the 1999 American businesswoman of the year by the American Business Women's Association. In private life,

CIA's Chinese Damage Assessment

On April 21, CIA director George Tenet made public a brief, declassified summary of its internal inquiry into Chinese intelligence operations in the US nuclear arms establishment. The damage assessment report was titled "The Intelligence Community's Damage Assessment on the Implications of China's Acquisition of US Nuclear Weapons Information on the Development of Future Chinese Weapons."

The report made the following points:

"By at least the late 1970s the Chinese launched an ambitious collection program focused on the US, including its national laboratories, to acquire nuclear weapons technologies. By the 1980s China recognized that its second strike capability might be in jeopardy unless its force became more survivable. This probably prompted the Chinese to heighten their interest in smaller and lighter nuclear weapon systems to permit a mobile force.

"China obtained by espionage classified US nuclear weapons information that probably accelerated its program to develop future nuclear weapons. This collection program allowed China to focus successfully down critical paths and avoid less promising approaches to nuclear weapon designs.

"China obtained at least basic design information on several modern US nuclear re-entry vehicles, including the Trident II (W88). China also obtained information on a variety of US weapon design concepts and weaponization features, including those of the neutron bomb.

"We cannot determine the full extent of weapon information obtained. For example, we do not know whether any weapon design documentation or blueprints were acquired. We believe it is more likely that the Chinese used US design information to inform their own program than to replicate US weapon designs.

"China's technical advances have been made on the basis of classified and unclassified information derived from espionage, contact with US and other countries' scientists, conferences, and publications, unauthorized media disclosures, declassified US weapons information, and Chinese indigenous development. The relative contribution of each cannot be determined.

"Regardless of the source of the weapons information, it has made an important contribution to the Chinese objective to maintain a second strike capability and provided useful information for future designs. ...

"China has had the technical capability to develop a Multiple Independently targetable Re-entry Vehicle system for its large, currently deployed ICBM for many years but has not done so. US information acquired by the Chinese could help them develop a MIRV for a future mobile missile."

Overton has her own law practice in Council Bluffs, Iowa.

■ An aircrew from the 40th Helicopter Flight, Malmstrom AFB, Mont., rescued two injured snowboarders from a mountainside near Augusta, Mont., April 19. The crew hoisted the men nearly 60 feet to the safety of a UH-1N Huey, bringing the unit's total number of saves to 318.

■ Four pararescuemen from the

New York ANG's 106th Rescue Wing, Francis S. Gabreski IAP, N.Y., parachuted to the aid of the unconscious captain of a freighter near Bermuda on April 4. The seaman, who had suffered a brain aneurysm, represented the unit's 276th rescue.

■ On April 5 the Department of Defense announced the formation of an advisory panel, headed by Virginia Gov. James Gilmore (R), to assess domestic response capabilities for terrorism involving Weapons of Mass Destruction. The WMD Advisory Panel will be a three-year effort and will report its findings, conclusions, and recommendations to the President and Congress.

■ Secretary of Defense Cohen announced the winners of the 1999 Commander in Chief's Award for Installation Excellence on April 2. The winners—Ft. Benning, Ga.; MCAS Cherry Point, N.C.; Fleet Activities Yokosuka, Japan; Hickam AFB, Hawaii; and Defense National Stockpile Center, Alexandria, Va., are being recognized for providing excellent working, housing, and recreational conditions. ■

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Washington Watch

By John A. Tirpak, Senior Editor

The First Six Weeks

After a slow start, USAF-led NATO air forces were freed from some political shackles and showed some of what they could do.

WASHINGTON, D.C., MAY 5, 1999



On March 24, NATO attacked Serbia by air, with both bombs and cruise missiles, to coerce Yugoslav President Slobodan Milosevic to stop the repression of ethnic Albanians in the province of Kosovo. NATO insisted that Serbia stop its efforts to ethnically cleanse the province, remove its military and paramilitary forces from Kosovo, permit a NATO-led armed force to enter Kosovo, guarantee the safe return of refugees, and sit down to substantive talks on a permanent political solution to the crisis.

It was hoped that the initial round of airstrikes would coerce Milosevic to agree to the five conditions, and consequently NATO did not dedicate a war-size force to the action. It also announced at the outset that it had ruled out a ground invasion of Yugoslavia. The aim of the airstrikes, NATO said, was to degrade the military forces of Serbia and force Milosevic to choose between a peaceful settlement and unacceptable military losses.

Six weeks into Operation Allied Force, NATO had substantially escalated its pace of bombing targets in Serbia and Kosovo. The total number of airplanes in the action had risen from 400 to over 700 and the number of strike airplanes from 120 to nearly 400. By early May, the rate of both overall sorties and strike missions had risen about 60 percent over what had been achieved in the first three weeks of the air action, and the focus of attacks had shifted. While the initial thrust of bombing had been aimed at taking down Serbia's integrated air

defense system and command-and-control network, attack priority had moved to its strategic facilities at home and its fielded forces in Kosovo.

"The US Air Force is in a Major Theater War," service Chief of Staff Gen. Michael E. Ryan told reporters April 30, when asked about the size of commitment USAF had made in strike and support airplanes to the conflict. He later amended the remark by saying the one-MTW effort included the ongoing Operations Northern and Southern Watch in Iraq. US aircraft—including those from the Marine Corps and Navy carriers—represented just over 60 percent of the aircraft in the Allied effort in the Balkans.

Participating in the action for the US were B-1B, B-2, and B-52 bombers, marking the first time since World War II that the US has employed three types of bombers in a conflict. Both F-16C and F-16CJ (equipped with the HARM targeting system to suppress enemy air defenses) aircraft were conducting strikes. The F-15E and F-117 were filling the deep-interdiction mission, and a host of support airplanes, like AWACS, Joint STARS, C-130s equipped for jamming and communications relay, tankers, and the Predator unmanned reconnaissance vehicle, were in the action. Navy and Marine F/A-18s, Navy F-14s, and Marine AV-8Bs were also in the fight.

Also engaged were attack airplanes from 12 other countries—the largest contributors being France and Britain.

Some Important Lessons

While the duration and outcome of the conflict remained uncertain, the 42-day-old air campaign had already brought into sharp focus some important lessons about NATO: the awkwardness of managing a war by committee and the widening gaps in capability between the US and its NATO partners. For the US specifically, the action highlighted the effects of years of reduced military funding and the drawbacks of the strategy underpinning its size and posture.

Nevertheless, against a well-equipped, well-trained, and highly motivated enemy, in rugged terrain

and in some of the worst weather seen in 50 years in the area, NATO forces had in the first six weeks lost only one airplane to enemy action, and only seven-tenths of a percent of its bombs had gone astray to cause collateral damage. Military analyst Anthony Cordesman of the Center for Strategic and International Studies called this "an amazing tactical and technical achievement."

By early May, NATO had dedicated a force of over 700 aircraft to Allied Force; of those, about 400 were strike-capable airplanes, and hundreds more were expected as soon as basing arrangements could be made for them in nearby countries. The US had contributed the large majority of intelligence, surveillance, and reconnaissance capabilities, such as satellites and Joint STARS and AWACS airplanes, as well as support types including tankers and jammers.

Over 15,000 overall sorties and more than 5,000 bombing sorties had been flown by May 5. The result, according to outgoing NATO Military Committee Chairman Gen. Klaus Naumann, could become a 50-year setback to Serbia's economy and a substantial degradation of its military capability.

Maj. Gen. Charles F. Wald, the Pentagon's top military explainer of NATO action in the Balkans, said May 4 that Serb-fielded forces in Kosovo—tanks, trucks, and armored vehicles—had been reduced by about 25 percent since the start of the air campaign. Serbia's air force—inherited almost intact from the Warsaw Pact days of the former Yugoslavia—had been dramatically reduced, with all but a few frontline MiG-29s destroyed on the ground or in air combat by early May, and a sizable portion of the rest of its fighter force also out of action.

Seeking to indirectly immobilize Serbia's military forces, NATO had disrupted the nation's rail lines, all but obliterated its oil refineries, and continued to strike at petroleum storage tanks. Factories capable of producing weapons or spare parts for weapons had been bombed to rubble, and all bridges that cross the Danube

River in Serbia had either been dropped into the water or rendered impassable by vehicles. The personal and party headquarters of Milosevic had been bombed, as had television stations and other enterprises controlled by Milosevic's family and cronies, in an effort designed to loosen the loyalty of key supporters.

Power plants had been disabled; on May 2, 70 percent of the nation had been blacked out by simultaneous attacks on five transformer stations with special US weapons. The munitions scatter carbon filaments over transformers, causing them to short-circuit. While the strike caused no permanent damage, NATO spokesman Jamie Shea said the mission would put Serbia on notice that "NATO has its finger on the light switch. ... We can turn the power off ... whenever we want to." In terms of military effectiveness, NATO said the outage turned off Serbian military computers and air defense systems temporarily. The mission was also intended to inconvenience the Serb people and further erode their support for Milosevic's policies and leadership.

In the first month of Operation Allied Force, about 92 strike sorties a day were flown by NATO airplanes; in the two weeks after, the daily average had leaped to over 300 sorties, striking at up to 80 targets. Of those, about 50 were flown against fixed sites and another 20 to 30 were targets of opportunity, Wald said.

The responsiveness of NATO airplanes against targets spotted by air, space, or ground sources had also increased. A number of combat airplanes either orbited near Yugoslav airspace or sat ground alert waiting for a call to action when surveillance platforms detected moving targets such as armored vehicles.

"There was the hope in the political camp that this could be over very quickly," Naumann told defense reporters in Washington. Still, NATO's Military Committee, he said, had no illusions that if the airstrikes didn't swiftly produce the desired results, a phased air campaign would have to ensue that would take some time.

President Clinton said in late April that Allied Force could well stretch through the summer months, and he requested \$6.3 billion in emergency supplemental funding to cover the cost of fuel and spare parts, combat pay, replacement of expended munitions, and for humanitarian relief for refugees, who in early May were still fleeing Kosovo at a rate of a thousand per hour.

Congress in turn moved to more than double the requested amount, to over \$13 billion, both because it believed the costs had been underestimated and to fix some military programs that it believed had gone underfunded too long.

NATO may have miscalculated in its choice of bombing as the lever to force Milosevic's acquiescence, Naumann said. The "flaw in our thinking," he admitted, may have been the assumption that Milosevic would "act like a responsible statesman" in the face of an orchestrated attack on his nation.

However, "this man is apparently so obsessed with his grip [on] power and his will to stay in power that he is gambling with the future [of Serbia]," he said. NATO can be forgiven for its miscalculation, he added, because "that is something which is most probably alien to the thinking of our leaders."

Bombing Takes a Toll

At the NATO summit in April, it was decided to reassess last fall's decision by NATO to rule out a ground campaign of any kind. The reassessment was judged appropriate, not because of criticisms that the air campaign wasn't working, but because the bombing had taken a toll and likely changed the number and type of ground forces that might be needed, NATO said.

The rules of engagement from the start were very strict: It was ordered that bombs would not be released on any target unless the pilot could confirm the target and be assured of no civilian casualties. Gun-camera footage released by the Pentagon showed several cases where pilots pulled off a target because they noticed a civilian structure or vehicle that would have been hit. Especially because so many targets were mixed into civilian settings, this forced NATO to rely on—more than 90 percent—precision guided munitions such as the US Joint Direct Attack Munition and Laser-Guided Bombs.

In areas where military targets were more isolated, airplanes like the American B-1B and B-52 were free to use gravity bombs, especially against targets like barracks, where precise aim-points were not necessary. Still, Wald took pains May 4 to stress that the B-52s are not laying waste to huge swaths of real estate as was done in Vietnam. According to Wald, the cluster of explosions from today's better-equipped bombers can be confined in a footprint only 1,000 feet long.

After six weeks, the ratio of dumb to precision weapons began to shift. A senior defense official on April 30 said that PGMs then represented just two-thirds of the munitions being dropped.

Air Combat Command chief Gen. Richard E. Hawley startled Washington when he declared, in an April 29 session with defense reporters, that the demand for PGMs and cruise missiles was so heavy that USAF risked facing shortages of both types. The Conventional Air Launched Cruise Missile—never intended to be anything more than a stopgap capability until the delivery of the Joint Air to Surface Standoff Missile—had been fired in the opening rounds of Operation Desert Fox and Allied Force, and stocks had been depleted to where USAF would have "to be very judicious in [their] use," Hawley said. Orders were rushed off to Boeing to convert more of the 322 AGM-86B nuclear cruise missiles to CALCM configuration, and Ryan reported that "we'll start getting some of those before the end of the year."

The JDAM, being new to the inventory, is reserved for use only by the B-2 stealth bomber, making its debut in Allied Force. USAF had pretty well run through the JDAM inventory by the beginning of May, but another batch, said Hawley, that was due in July was to be delivered in May. Boeing has stepped up production of the weapon from 200 to 300 a month. The JDAM, which uses the Global Positioning System to find its target, can achieve nearly the precision of a Laser-Guided Bomb in bad weather. The LGBs, however, must have cloud-free conditions to work properly, a fact that contributed to the lower pace of target destruction early in the conflict, when bad weather prevailed over the Balkans.

The B-2, due to its stealth and all-weather accuracy, was called on to attack when it was known in advance the weather would be bad over some time-critical targets. The B-2s have been "in the mix almost every night," Wald said, and they fly from their home bases on 30-hour round-trip missions to and home from their targets in Serbia. Although their pace of action could be faster if they were based closer to the theater, the B-2s require specialized shelters and facilities to best maintain their stealth surfaces, and USAF has not yet taken delivery of deployable shelters and stealth-maintenance systems.

Ryan elaborated on Hawley's remarks, noting that "we're not run-

ning out of bombs" and that stocks of LGB kits and other munitions were still "very robust" and more than adequate for the operation as it was expected to play out.

Hawley, however, also noted that the Balkans action had consumed all of ACC's best pilots and ground crews, as well as its war-readiness stocks of spare parts and munitions. The decade-long drawdown of forces had not left a bumper crop of either airplanes, crews, or spare parts on which to draw for contingencies. What was left in the US were air- and ground crews that were less experienced and that had less equipment with which to train. Consequently, they would be less ready for war if called on.

"We are noticing the strain today," Hawley said. "If we deploy the additional forces that are under consideration those strains will become more evident." Remaining forces will experience a "significant decline in the mission capability rates," he added. Mission capable rates among state-side units could plunge to 50 percent or less for some types of aircraft.

Hawley also noted that the US strategy of being able to fight two Major Theater Wars in close succession had been built on a scenario of having to fight in Iraq and North Korea. "There was nothing to preclude a different [Major Theater War], which is what has arisen here," he said.

From "an air perspective, [this] is a Major Theater War," Hawley asserted, and "clearly, we didn't size or shape the force to deal with three simultaneous contingencies." If another—or a third—were to break out, "we're going to have to prioritize where we want to engage and where we want to take risks."

Hawley did note, though, that US and coalition forces are already deployed to the Middle East and Korea, "and [those forces] are not insignificant."

Ryan observed that the Air Force had never claimed to be able to fight two MTWs on its own, and he noted that the majority of the Navy, Marine Corps, and Army have not been called on for the Balkans action, so that the US still retains substantial capability to deal with other contingencies.

Naumann said that most NATO European members must take steps to address new technologies or face the prospect that "we will see a gap in five years time which will give us difficulties of interoperability." He specifically noted that only the US and the UK possess the standoff capabilities of cruise missiles and that the lack of a Joint STARS-like capability—and other large surveillance or "technical

intelligence" platforms—throughout NATO is being felt in this operation.

The process of choosing and destroying targets in Allied Force has not closely mirrored that of the 1991 Gulf War, which, at a comparable point of execution, had decimated the Iraqi army and its highest-value targets. In the Gulf War, there was a definite air boss, then—Lt. Gen. Charles A. Horner, who commanded all coalition aircraft and had a free hand to assign and attack targets to the participants.

Meet the New Boss

In Allied Force, targets must pass muster with the NATO Military Committee. A Pentagon official involved in air campaign planning said that the Supreme Allied Commander Europe, Army Gen. Wesley K. Clark, personally signs off on each target, having been given a list of guidelines by the 19 members to govern what is destroyed.

Naumann explained that Clark had been given "written guidance ... in which the target categories were spelled out. ... Within that range, he has a free hand."

As a result, crafting of the daily air tasking order "to some degree circumvents" the normal chain of command, the Pentagon official reported. If the NATO Military Committee were to take a hands-off approach to targeting, targets would be chosen—or ruled out—exclusively in the shop of Lt. Gen. Michael C. Short at the Combined Air Operations Center in Vicenza, Italy.

"We're in an alliance, though," the official said. "So this is how we have to do it."

Targets are gleaned from an encyclopedia of fixed sites of military significance maintained by NATO and the US. Their location, and the need to strike them with sufficient destructive power while avoiding civilian casualties, "drives the type of munition we use," the official said.

"So, strategy drives the target, which drives the type weapon, which in turn drives the strategy," he said. "It feeds back on itself."

He said the strategy and amount of top-level involvement of air action in the Balkans is reminiscent of a low-intensity conflict, like El Dorado Canyon, the one-night attack on Libya in 1986. "In a situation like that, the top guys look over almost every aimpoint. And that's what's going on here, except that we are doing this at a level of effort that is at the other end of the spectrum, ... very close to all-out war," the official explained.

Naumann noted, however, that as Serbian forces dug in and Milosevic

became more defiant, certain additional categories were added, with no objection from the NATO committee. This resulted in the widening of targets seen in late April and early May, he said.

For targets of opportunity, the drill works this way. Ground targets are spotted by a Joint STARS aircraft, which passes along the data to an Airborne Battlefield Command and Control Center EC-130. The ABCCC vectors an attacking aircraft into a kill box with specific boundaries within Yugoslavia. The ABCCC controls the entry and departure of the attack airplanes. Moreover, it has a big role in the job of deconflicting the flight paths of hundreds of airplanes crammed into airspace about the size of New England.

Another limit imposed by NATO—and one which has fed most of the criticism of the air war—is the need to bomb from 15,000 feet or higher. Most of Serbia's high-altitude Surface-to-Air-Missiles, like the SA-3, have been crippled or destroyed, allowing NATO airplanes to fly at 15,000 feet. However, Serb forces have conserved many missile systems, so NATO is not sure where they all are. Moreover, Serbia still has a wide array of anti-aircraft artillery and shoulder-fired, man-portable SAMs, creating a situation which is "still very dangerous ... to our aircrews," Ryan said April 30.

By early May, NATO was seeing an uptick in the number of SAMs launched unguided, almost completely without effect, and some minimal efforts to get Yugoslav fighters in the air. Wald said it wasn't clear whether this was an act of "desperation or stupidity."

The Serb air defense system had not yet been destroyed 42 days into the air campaign because it is highly redundant, Wald said. Pentagon planners noted that the system had also been decentralized and disconnected so as to minimize the effects of single-point failures. This tactic, however, makes it far less effective, according to the planners.

They acknowledged that by early May, the air defenses in Serbia and Kosovo had not been sufficiently damaged to permit free air action by Army AH-64 Apache attack helicopters or lower-flying A-10 attack airplanes. However, it was expected that these aircraft would be employed along the perimeter of Yugoslavia, Pentagon spokesman Kenneth Bacon said.

"It certainly looks as if he's expecting to be invaded," Bacon said. Wald noted that "that makes it easier for us [to attack them]. We know where they are." ■



The Air Force plans to make do with its present bomber fleet for almost 40 more years.

The Bomber Roc



A Joint Direct Attack Munition is readied for a 15-hour, one-way ride to Serbia aboard a B-2 bomber. "Shacks" on as many as 16 targets by each stealth bomber are not uncommon in Operation Allied Force. Stellar as the B-2/JDAM combination has proven, though, USAF doesn't plan to seek more bombers for at least the next decade-and-a-half.

dmap

By John A. Tirpak, Senior Editor

THE Air Force's new Bomber Roadmap, released in March, features a detailed set of plans to upgrade the existing bomber fleet with new precision weapons, more reliable components, and new communications gear that will considerably improve its combat power and reliability. The document includes a rationale for the role of the bomber in overall national strategy, as well as in the Air Force's new expeditionary structure.

What the roadmap doesn't feature, however, is a definitive new-build bomber program, a fact that's frustrating to members of Congress and others who had hoped to see a new and greater budgetary emphasis on this mission area. In fact, it was the lack of even a *budget placeholder* for a new bomber that led Congress last year to require USAF to update the Bomber Roadmap, last overhauled in 1992.

The Air Force said it will continue to fly its current bomber fleet of B-1, B-2, and B-52 bombers well into the 2030s—beyond the B-52's 80th birthday. This is possible, USAF said, because the life expectancy of all three airplanes is believed to be well-understood. The service maintains that, barring a surge in losses due to accidents or war and with regular upgrades, it will be able to keep the fleet operationally relevant and affordable until 2037. Only at that time will the fleet fall below required levels and a new system need to enter service. Working backward from 2037, USAF judges it will need to start work on this new system in 2013.

Congress mandated the roadmap update last year, only weeks after completion of a highly classified study by the independent Panel to Review Long Range Airpower. The panel stated—among numerous recommendations—that funds intended to hold open some parts of the B-2 production line would be far more usefully spent on upgrades to the existing bomber fleet. This was especially true, said the panel, with respect to improvements that would increase bomber sortie rates.

In an unclassified summary of its findings, the panel reported that increasing the sortie rate for bombers by a factor of two “doubles the capability to deliver bombs on target.” It added, “From an investment perspective, increasing the efficiency of the bomber force is more cost effective than procurement of additional aircraft.”

The panel also noted the lack of any replacement bomber program on the Air Force’s books and suggested that the service “move out smartly” on such an effort, given the increasing value of high-payload, long-range bombers at a time when forward-basing options for shorter-range, low-payload aircraft are narrowing.

“Current plans do not adequately address the long-term future of the bomber force,” the panel asserted, and it advocated that USAF buy either “a variant of the B-2, incorporating upgrades suggested in this report and those that will emerge in the future, or [pursue] development

of more advanced technologies that might lead to a better solution for the next generation aircraft.” The panel noted, “Today, there is not yet adequate basis for such a choice. A continuing program to demonstrate advanced technologies in support of long range airpower should be given high priority.”

Clearly, USAF took many panel suggestions to heart in crafting the new roadmap. It emphasizes new weapons, which, as a result of their accuracy, produce “a tenfold increase in bomber lethality.” Taking another cue from the panel, the Air Force asserted that bomber funding will focus on connectivity with air- and spaceborne sensors and command-and-control systems, for greater situational awareness. This will not only improve the ability of the bombers to return from battle intact but enable them to rapidly shift targets on the fly, to keep pace of a fast-changing battlefield. Finally, USAF will implement the panel’s suggestion to invest in improvements that will increase bomber sortie rates.

On the subject of a new bomber, though, the Air Force was unmoved.

The service remains “committed to bomber modernization,” stated the roadmap, and has in the past decade spent \$3.6 billion for “new combat capabilities and reliability and maintainability upgrades.” Even so, it noted the bomber program is “budget constrained” and that a new airplane is not affordable in the foreseeable future.

In fact, beginning in Fiscal 2001, the service actually will reduce the amount it spends on bombers.

In the roadmap, USAF acknowledges that its bomber spending plan will be about \$100 million a year short of what it considers necessary to keep its current fleet sound. Over \$900 million of “needed” improvements have not been budgeted, and a further \$1.36 billion worth of “desired” and “candidate” upgrades have also been put off. The latter category includes, for example, digital engine controls for the B-2; USAF projects that, without them, it will have to ground the B-2 fleet starting in 2009.

As much as the Air Force would like to buy a new bomber, other items have a higher priority right now, senior service officials said.

“We need to upgrade all our systems every 20 to 30 years,” said F. Whitten Peters, acting Secretary of the Air Force, at the unveiling of the roadmap. Under USAF’s time-phased modernization, bombers last received a major influx of new-build money in the 1980s, when it procured the B-1B and developed the B-2. In the 1990s, priority shifted to airlift, primarily the new C-17 transport. In the 2000s, most of the effort will go to upgrading the fighters, which are in dire need of replacement, he noted.

Much of the bomber fleet is relatively new, Peters said, meaning USAF can safely defer a new big airplane for now. He emphasized that the service’s priority for bombers is not to buy new ones but to better equip them with new munitions and connectivity enhancements that will give the fleet the ability to carry out its mission until a compelling new aircraft requirement emerges.

Neither the threat posed by enemy air defenses nor any new laboratory discovery demands an acquisition program just now, Peters added. “We feel ... there is no compelling technology out there that we need to capture.”

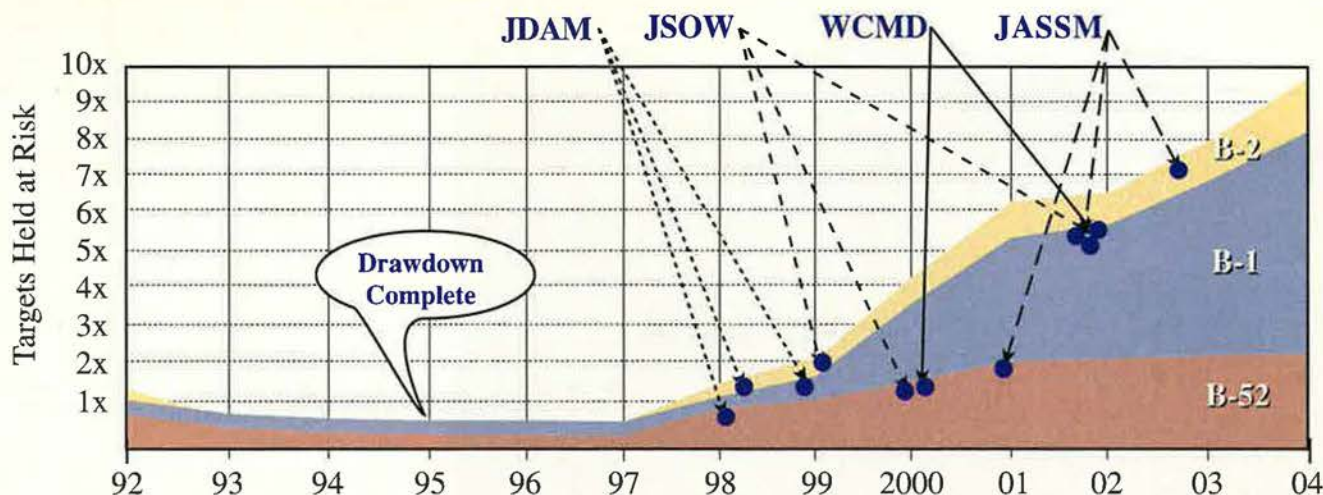
The acting Secretary went on to say that, despite the success of the B-2 program, much is still being learned about stealth, especially from the F-22 and Joint Strike Fighter programs. The service hopes to better understand and sharply reduce the cost of maintaining the low observable features of the B-2 “before we rush off to build the next low observable airplane,” he stated.

USAF photo by SSgt. Jim Howard



With standoff weapons like this Conventional Air Launched Cruise Missile and the Joint Air to Surface Standoff Missile, the B-52's utility can stretch far into the next century, USAF believes.

Bomber Effectiveness (Relative to 1992)



USAF says precision weapons will make the 2004 bomber fleet 10 times as effective as the 1992 fleet.

Moreover, Peters pointed out, Air Combat Command has a program under way to keep abreast of newly emerging technologies that could be applied to an advanced strike system. Dubbed the Future Strike Aircraft program, it calls for working with industry to identify emerging or expected technologies that could form the basis of a replacement system 10 to 15 years hence.

The FSA program will look at alternatives such as Uninhabited Combat Aerial Vehicles, hypersonic missiles, and other technologies. There is no assumption at this point that the next system to do the long-range, quick-response, precision power-projection mission must be another big airplane. In fact, contractors working on it have been warned away from making any hard assumptions at the outset of the project.

However, the FSA program has been allocated less than \$1 million in funding and is not geared toward becoming a full-blown acquisition program. It will simply inform Air Force leadership about the state of the art in aerospace technology and catalogue those technologies that could be tapped to fill a requirement, should one be stated.

The roadmap calls for a force of 190 bombers, which it maintains is enough to meet Air Force responsibilities as spelled out in the National Defense Strategy. The strategy sees bombers as the first weapon called on to make strikes against an enemy beyond the reach of forward deployed forces and as doing much of the work

of halting an invasion of the territory of a US ally.

The level of 190 aircraft would be achieved by Fiscal 2004. The fleet would comprise 21 B-2s, 93 B-1s, and 76 B-52s. Of the 190 airplanes, 130 would be available for combat at any time and the others would variously be in depot maintenance, test, or training. To reach 130, the Air Force will restore some non-combat coded B-52s to the fighting force. These so-called attrition reserve airplanes currently are off the books, with their regular funding diverted to pay for weapons upgrades.

By taking some airplanes off the books, USAF was able to save funds which it then applied to the Conventional Mission Upgrade Program for the B-1 and B-52. As that program winds down, the sidelined bombers can be brought back into the active force, officials said.

Since the end of the Cold War, the bomber fleet has transitioned from emphasis on nuclear warfare to concentration on conventional conflict. The B-1 has been turned into a purely conventional system. The B-2s and B-52s retain their power to engage in nuclear missions, but bombers no longer sit alert for nuclear war.

The roadmap describes bombers as being "a cornerstone of America's airpower and force projection," posing "a strong and highly visible deterrent force just over the horizon from the enemy." If deterrence fails, bombers can launch from the continental US and "strike time-critical

targets and stall the enemy attack anywhere in the world."

Due to their range and stealth, bombers are especially effective against command-and-control centers, weapons of mass destruction, and advancing enemy armored columns. Forward deployed, they offer sustained heavy firepower without the need for vast armadas of fighters in a strike package. At the same time, they can integrate with these packages and boost their effectiveness. Increasing their sortie rates will be the equivalent of buying more bombers, USAF said.

Bombers are likely the first weapon to be called on in a shooting war, since they could arrive first, "particularly in regions where the United States does not routinely maintain forces or have basing rights." Acting to halt an enemy invasion, and then conduct "continuous, parallel attacks" on the enemy, they create "the conditions for follow-on forces to access the [battle area]."

The weapon of choice for attacks on enemy strategic targets, bombers can also destroy enemy airpower close to its source, as well as suppress enemy air defenses and destroy ground forces and naval forces.

In the Aerospace Expeditionary Force concept, bombers are especially important, given the potential limitations on overseas basing. They also offer regional commanders in chief the element of surprise when launched from CONUS, the Air Force said.

In nuclear operations, bombers serve as a means of permitting gradual



Often described as a bomber-sized fighter, the B-1B's speed allows it to work well with expeditionary forces. Its fast-and-low attack profile, however, will cause it to wear out well before its B-52 and B-2 stablemates.

escalation and de-escalation of a crisis and as an essential part of the nuclear war plan.

In the future, as standoff weapons increase the range from which bombers can launch their munitions, bombers will acquire a kind of self-Suppression of Enemy Air Defenses capability, said the roadmap. Also, new, inexpensive munitions like the "[Joint Direct Attack Munition] and [Sensor Fuzed Weapon] greatly enhance the cost-benefit ratio" of bombers compared to smaller airplanes, USAF said. Bombers will be able to hit more targets in a single pass, reducing the required number of sorties and allowing a force commander to "accelerate the pace of the campaign and to maximize the offensive potential of available aerospace force assets."

The Panel to Review Long Range Airpower, in an unclassified report, said the advent of precision munitions has fundamentally altered the role of bombers, vastly increasing the speed at which an air campaign can be conducted. It called for more work on the concept of operations for bombers, asserting that current war plans do not fully exploit their capabilities.

The Air Force Chief of Staff, Gen. Michael E. Ryan, argued that bombers are indeed getting the operational attention they deserve. "The CINCs recognize their capability and ask for as many as we can give them" Ryan said. However, he prefers not to think of bombers as a stand-alone

but an element of the larger force. "It's integrated into everything we do," Ryan said.

Bombers have gone from virtually a segregated force during the Cold War into one that fits well into the mix of combat and surveillance aircraft, said the Chief of Staff. Depending on the target, "we'll use the platform that makes the most sense," Ryan added.

Donald B. Rice, a former Air Force Secretary, was a member of the panel. He said that, in several key areas, he was disappointed with the Air Force's new Bomber Roadmap. Though he found it to be thorough and reasonably comprehensive, he felt the roadmap fell short, especially on the B-2 and a follow-on.

Rice asserted that the panel was very clear that the B-2 needs improvements in both the maintainability of its low observable materials and the overall degree of stealth in the airplane. The time lines for improvements to both aspects of the B-2 as quoted in the roadmap were "pushed way out ... from where they should be," Rice said.

By rapidly improving the B-2's stealth and its maintainability, Rice argued, the Air Force can get a quick handle on how to proceed with a successor airplane, which Rice feels is necessary in the near term, not the long term.

"If you believe bombers last 50 years, and you want to maintain a force of, say 200, ... that means you

need to be building about four a year, doesn't it?" Rice noted. To his thinking, a new bomber—most likely a variant on the B-2—should be under way by 2006 at the latest. When it comes to replacement capability, the roadmap puts off the choice too long, he said. The panel "had more concern about this than [the roadmap] shows."

"By the time we get to 2005-06, we will only have built 21 B-2s over a 20-year period," Rice said. "That's not fast enough [to maintain the force]." Even if it cost \$6 billion to \$7 billion to reconstitute the B-2 line, it would still be a substantial savings over an all-new bomber program, he added.

The long range of bombers is an exceedingly useful capability and will be more so in the future, Rice said. "The panel looked at the availability of bases and felt more convinced that bombers are becoming more important, not less," he added. The panel "believes long range airpower is enormously important, and it's hard to see that reflected in the Air Force's resource allocations."

Rice has an interesting view of the proper balance of bombers and fighters. He strongly supports the F-22 as a critical program and argues that USAF should build not only the air superiority version but also a ground-attack version. However, given a choice between the Joint Strike Fighter and more bombers, he said, he would have to argue against the shorter-range aircraft and go for bombers.

Those are the funds he would reconsider in finding resources to pay for a more aggressive bomber program, Rice said, given the disproportionate value of bombers vs. fighters in the strike role.

Rice also said he's very worried about USAF's plan to maintain the B-52 beyond 80 years. There simply isn't enough good evidence, he added, to bank on the airplane lasting that long, especially when threats are always improving. The B-1s, Rice feels, will wear out long before USAF estimates, due to their fighter-like, high-speed, low-level missions, which put enormous stresses on the airplane.

"Five to 10 years from now, we're going to have to make a choice among these alternatives [about how to replenish the bomber force]," Rice asserted. If the Air Force doesn't prepare now to have answers to the

questions, "there will be few options. ... I would prefer that we have many."

Rep. Duncan Hunter (R-Calif.) was instrumental in bringing about the panel study. He also is impatient and dissatisfied with the roadmap, as it did not, in his opinion, adequately address the importance of bombers in the event that forward deployed forces are hit by weapons of mass destruction.

Hunter vigorously advanced that view in an exchange with Lt. Gen. Gregory S. Martin, the principal deputy assistant secretary of the Air Force for acquisition, at a House Armed Services Committee hearing held March 22. He asked that the roadmap be reviewed with an eye toward the role bombers would play in Korea if forward airfields were to be hit by chemical attack.

Martin responded that such a scenario would indeed cause the value of the bombers to go up but that such calculations had been taken into account in setting a level of 130 combat-coded bombers. Hunter countered that if US crews were killed by chemical attack in Korea, "it may be very difficult, politically, to continue [tactical air] operations on the peninsula."

Martin also defended the Pentagon's strategy of *swinging* bombers from one Major Theater War to another as a prudent way to prepare against a scenario considered unlikely.

He made the analogy that to buy

How Long Will the Bombers Last?

The B-1 flies low-level, high-speed missions which take a physical toll on the airplane. Based on continued rough usage, and gauging the rate at which B-1s have been lost in peacetime training, USAF expects the B-1 fleet to dip below a minimum-required level of 89 aircraft in 2018. The overall fleet will wear out in 2038.

No B-2s have been lost in accidents, so the Air Force guesses that its attrition rate will mirror that of the B-52, with one crash every 10 years. Based on that, as well as a design life of about 40,000 hours and a fairly benign flight profile, the B-2 fleet will likely drop below the minimum of 19 needed by 2027.

Most robust of the three bombers is the B-52, built at a time when little was known about aircraft life expectancy. To be safe, the B-52s were built to take twice the expected punishment. Now serving as a high-flying bomb truck, the B-52's main limiting structure is the upper wing surface, which will give out sometime after 32,500 hours. Expected mishaps and fatigue will bring the B-52 fleet below the 62 required in about 2044. First built of the three, the B-52 will outlast its newer stablemates by up to 26 years, by Air Force reckoning.

The Air Force noted that the predictions for all three bombers will be affected by actual wartime usage, changes in tactics, unexpected technical problems, or changes in the threat.

more bombers to cover a second MTW would be like "Washington, D.C., buying snow removal equipment at the rate they buy it in Buffalo, N.Y." The swing strategy works with bombers—but not other kinds of systems—because of their speed and range, Martin told Hunter.

The general noted that the panel had suggested some improvements that would further reduce the observability of the B-2. However, he said such improvements would cost \$120 million–\$180 million rather than \$50 million, as the panel suggested.

Gen. John Michael Loh, the retired former head of Air Combat Command, reported that he would have liked to have seen in the roadmap "a stronger strategy underpinning ... for

the unique contributions of bombers," emphasizing their "long range, precision payload, and independence of foreign bases or parties."

Loh said that, as ACC commander, he spent "a lot of time convincing our overseas commanders [of the value of bombers in their war plans]." This message needs to be reinforced with more joint doctrine and promotion of the bomber, he said.

A series of detailed five-year plans—looking 25 years into the future—to improve the survivability, lethality, and cost of operating the bomber fleet would benefit the Air Force's planning process, Loh said. The roadmap took a much shorter-term view than what he feels is necessary to stay ahead of requirements.

Loh sees a need for a "B-X" technologies line item in the Air Force budget—a placeholder for a future bomber—and he would fund it at roughly equal levels with the individual B-1, B-2, and B-52 upgrade lines—about \$100 million a year. The money would further underscore "our need to claim core competence in bomber technology forever," he added. To set a date of 2037 for the next in-service bomber-like capability "is all but asking the [Defense Department] and industry to forget bomber technologies and innovative ways to project power [from the US]," Loh maintained.

Such a B-X line would be comparable to Navy line items that develop technologies for certain types of ships even if the ships are not being procured at the time, Loh pointed out. "I don't think we should wait until 2020 to start thinking about bombers again."



Today, B-1Bs carry dumb bombs like these Mk 82s. Soon, all bombers will have capability for precision weapons and USAF will be able to merge mass and precision in the same platforms.

Asked why he thinks the Air Force has not pursued a new bomber, he said, "I think the Air Force believes ... if they put together a robust bomber roadmap that would showcase bombers now, that it would ... be perceived by Congress as a sign that we'd prefer bombers today [and draw away funding for the F-22 or C-17], which have a higher priority today."

Loh also felt the Air Force paid insufficient attention to the nuclear role of bombers in the roadmap, having become perhaps too enamored of the fleet's huge conventional capabilities.

"It seems to me ... the bomber has the most promise for keeping all our options open, wherever we go in nuclear policy," he asserted. He also noted that the B-2 is now the only penetrating nuclear bomber, the B-1

having been withdrawn from the nuclear mission. A small handful of penetrating nuclear bombers is not enough, and the Air Force needs to "think nuclear" in future editions of the roadmap, Loh said.

Loh collaborated with Boeing on putting together a list of new and potential technologies that would be applicable to the bomber mission, but he said the long deferral of a new system will leave industry "not too interested" in doing such research. Without interim funding, USAF may not have a competent contractor at hand when it finally gets around to ordering replacement bombers, Loh said.

Maj. Gen. Bruce A. Carlson, director of operational requirements on the Air Staff, said he is aware of the panel's suggestion to aggressively improve the B-2's stealthiness but

that USAF feels it can safely wait to do so.

"The B-2 has a pretty good signature," Carlson said. "For the way we employ the bomber, it's adequate." Given the stealth work being done on the F-22 and JSF, he said, there is confidence in the Air Force that stealth materials will soon get easier to apply and maintain.

"A little bit down the road, we'll be able to get [stealth improvements] for less [than if an effort were launched now and focused solely on the B-2]," he asserted.

As for a new bomber's absence from the budget, he said USAF is "pursuing technologies that fulfill the mission area that are not necessarily a bomber [such as UCAVs, cruise missiles, and hypersonics]."

In the meantime, noted Carlson, "We already have three manned bombers. We don't see a threat that demands more. If, 15 years from now, something better, ... a more effective way comes along to do [the mission], we'll do it. We are preparing the necessary [technological] foundation to do that."

The reality, he added, is that "the budget won't tolerate doing everything at once." Fighters have priority.

Carlson said the recent Nuclear Posture Review stated the Air Force's strong, unwavering support of bombers in the nuclear role. However, since the end of the Cold War, he stated, "the target set has come down dramatically." A big increase in bombers isn't necessary to cover the threat. The bomber inventory meets the requirements of our strategic planners, he said. Moreover, since the conventional mission is more demanding, in practical terms, than the nuclear mission, "if you have enough to do the conventional, then you have more than enough to do the nuclear," Carlson asserted.

USAF is well aware that, into the 2030s, "all the bombers fall off the chart in a five-to-eight-year period," Carlson said. "We are posturing ourselves as well as we can [to have a replacement in hand] well before we come to that point. We feel the [roadmap] is a prudent approach to the mission. It's more risky than it would be if we had an extra \$2.5 billion a year to spend. We would have a different strategy if that were the case. But we feel this is the most prudent course we can take." ■

ANG photo by MSgt. Kevin L. Bleshop



B-2s Make Combat Debut in Allied Force

The B-2 stealth bomber saw combat for the first time on the night of March 24. Two of the long-range aircraft struck a series of targets in Yugoslavia in the opening hours of Operation Allied Force. Making a round-trip, 30-hour flight from—and back to—Whiteman AFB, Mo., the B-2s used a combined 32 Joint Direct Attack Munitions to strike a "variety of soft and hard targets," such as command-and-control sites, airfields, and barracks, an Air Force spokesman said.

The B-2s have since been "part of the mix" in almost every night of the air action in the Balkans, Maj. Gen. Charles F. Wald, vice director for strategic plans and policy on the Joint Staff, told reporters at the Pentagon. Service officials report that the B-2's ability to strike targets with near precision in all weather has made it a valuable part of the NATO striking force. The JDAM uses a Global Positioning System satellite location device which doesn't require clear weather or the pilot's intervention to score a precise hit.

In an April 20 Pentagon briefing, Maj. Gen. Bruce A. Carlson, director of operational requirements for the Air Staff, said the B-2s are "doing superbly" in combat operations. "The B-2 continues to improve in its maintainability," he reported. "In fact, two of them landed the other day at Whiteman in a driving rain, and they had flown 30 hours. And the [low observables] maintenance was essentially routine. In other words, there were no major LO write-ups ... that would have kept it from flying immediately thereafter. So we think we're turning the corner on low observable maintenance on the B-2, and I think it has great potential in the future."

By John L. Frisbee, Contributing Editor

One Turning and One Burning

The odds said Bill Lawley couldn't keep the crippled B-17—with its eight wounded crewmen—in the air for another five hours.

FEB. 20, 1944, was the first day of Big Week, those six days when US Army Air Forces bombers and fighters broke the back of the Luftwaffe and gained control of the air over Europe. All the pieces had at last fallen in place. Weather on the Continent was clear and forecast to remain good; for the first time, Eighth Air Force could muster more than 1,000 heavy bombers; auxiliary tanks had extended the range of escort fighters. Only the English weather refused to cooperate that Sunday morning. At US Strategic Air Forces headquarters, Lt. Gen. Carl A. "Tooney" Spaatz considered the risks of launching nearly 2,000 bombers and fighters into the soup that lay thousands of feet thick over East Anglia, UK, and made his decision: "Let 'em go."

Now, several hours later, the 364th Bomb Squadron, 305th Bomb Group, was on its bomb run at 28,000 feet, the target a Messerschmitt assembly plant at Leipzig, deep in the heart of Germany. Already it had been a long day—the nerve-racking climb up through overcast skies teeming with aircraft, heavy flak en route, attacks by enemy fighters, and now the ultimate frustration for 1st Lt. William R. Lawley Jr. and his crew. The bombs in the bay of their B-17 would not release.

As they came off target, Bill Lawley worked hard to keep his bomb-laden B-17 in formation. Glancing ahead, he saw enemy fighters boring in head-on, their guns blazing. Then, suddenly, the cockpit exploded into a screaming, icy maelstrom. Lawley's head was slammed back against the seat, and, through a crimson haze, he saw the copilot slumped over the controls. Sensing that the bomber was in an almost vertical dive, he automatically chopped the throttles, forced the copilot's body off the con-



trol column, and with his left hand fought for control of the stricken plane.

For what seemed an eternity, the Fortress plunged earthward, subjected to stresses it was never designed to withstand. At 12,000 feet, Lawley, using every trick he knew, regained enough control to assess the situation. A 20 mm shell had knocked out the right windshield and killed the copilot. One engine was burning furiously, the aircraft controls were badly damaged, and Lawley was bleeding profusely from deep cuts on his face, neck, and hands. Flight instruments, covered with blood, were useless; there was virtually no forward visibility through what remained of the bloodstained windshield.

Lawley reached for the bail-out bell, hoping to get his crew out before fire reached a fuel tank and the bomber exploded. As the bell rang, a crewman brought word that eight of the crew were wounded, two so seriously that they couldn't use their chutes. Lawley decided there was only one thing to do: try to put out the fire, then nurse the shattered bomber, with its wounded, over several hundred miles of enemy-held territory back to England. If the machine held out, maybe he could, too.

He gave the crew the option to bail out, which the flight engineer did—winding up in a POW camp. Lawley, with no copilot or engineer to help, finally extinguished the engine fire and headed on three en-

gines for France, where the crew might find help from the underground if they had to crash-land. Flying in the clouds as much as possible, he managed, with the help of bombardier Lt. Harry Mason, to evade enemy fighters and to put out a second engine fire. They couldn't get the copilot's body out of the seat, so Mason tied it to the seat back with a parka. He then stood between the seats and helped Lawley with the controls when Lawley's strength ran out.

Over France, Lawley, who had refused to leave the controls to receive first aid, collapsed from loss of blood and exposure. Revived by Mason, he was able at last to salvo his bombs as they approached the Channel. With the bombs gone, the chance of making those last 50 miles over the gray, icy waters of the Channel improved. But near the English coast, a second engine quit. Then one of the two remaining good engines caught fire and continued to burn until Lawley found Redhill, a small fighter strip south of London, and brought the Fortress in for a crash landing nearly five hours after it was hit over Leipzig. All of the wounded, whom Lawley had refused to abandon, survived the long ordeal.

On Aug. 4, 1944, Lawley was awarded the Medal of Honor for his heroic performance on that first day of Big Week. He remained on active duty until his retirement in 1972. ■

First appeared in June 1983 issue.

In the Balkan War, USAF units cast a long shadow.

Airpower in.

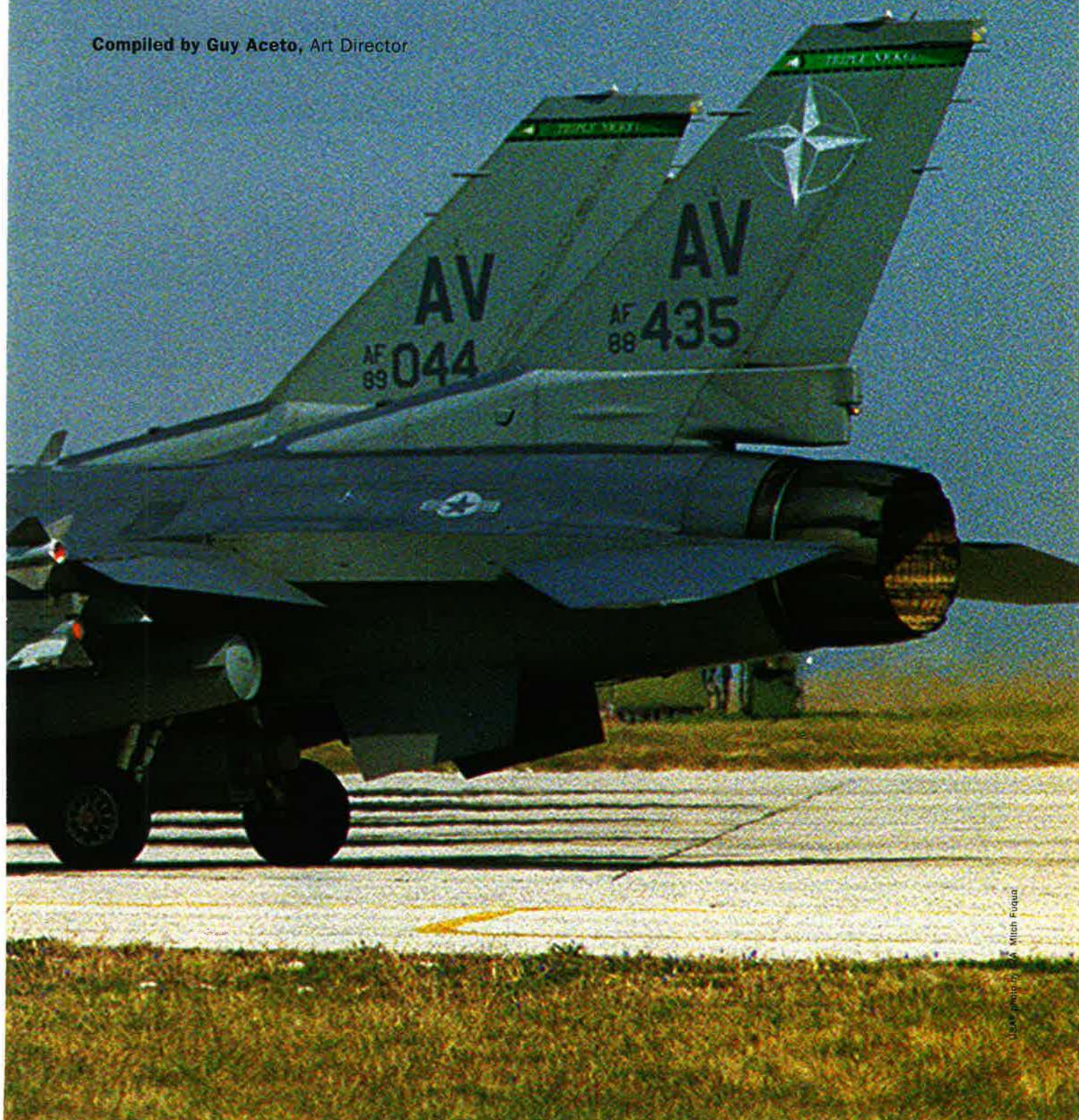
With the Balkan War in its second month, USAF-led NATO air forces crossed a major threshold, sharply increasing attacks on Yugoslavia in ways that brought the war home to the Serb heartland. NATO for weeks stuck to purely military targets. In May, planners broadened the target list, hitting Yugoslavia's electrical grid and cutting off power not only to military forces but also to the general population.

Viper Venue. Armed with laser-guided bombs and air-to-air missiles, two F-16 multirole fighters of the 555th Fighter Squadron, Aviano AB, Italy, prepare to launch an April 2 mission against Yugoslavia. The Italian air base was the hub of Alliance air operations.



Allied Force

Compiled by Guy Aceto, Art Director



Night and In Weather. At right, a member of the 510th FS, Aviano AB, directs the pilot of an F-16 fighter out to work on April 4, during one of the first nights of the campaign. Most of the early air operations took place at night.

From the start of the war, USAF provided a wide range of aircraft. Air Force units at Aviano launched both F-15E Strike Eagle fighters and F-16CG fighters, equipped with the LANTIRN night targeting and navigation system and laser-guided bombs. Below, rain-drenched SrA. Aaron Fontagneres and SSgt. John Rodriguez of the 494th FS, RAF Lakenheath, UK, load an Mk 82 bomb on an F-15E in preparation for an April 7 sortie. Foul weather was a factor throughout the war.



USAF photo by SrA. Jeffrey Allen

USAF photo by SrA. Jeffrey Allen



Inspiration. Returning from an April 16 sortie, an F-16 pilot from the 23d FS, based at Spangdahlem AB, Germany, but deployed to Aviano, evinces high spirits. He carried the small American flag on the mission.

USAF photo by TSgt. Brad Fallin



To the Fight. Above, a French Mirage 2000 flies combat air patrol in Balkan airspace. At right, SSgts. Heath Yarbrough and Paul Hofer, 509th Bomb Wing, load JDAMs into a B-2's bomb bay at Whiteman AFB, Mo. The B-2 was about to mount an April 19 sortie in which it departed Missouri, struck Serbian targets, and returned to base, with no intermediate stops.



USAF photo by SrA. Jessica Kochman

The Theater of Operations



Pros With the Hose. The professionalism of USAF aerial refueling crews proved critical to the execution of long Air Force bomber missions out of RAF Fairford, UK, and even longer ones by B-2s flying from the United States. At right, a KC-10 refuels another tanker, a KC-135, over the Adriatic Sea at dusk on April 16. The KC-10 was from McGuire AFB, N.J., and the KC-135R was based at RAF Mildenhall, UK. Most Guard and Reserve forces in the first call-up were assigned to tanker units.



USAF photo by SrA. Greg L. Davis

USAF photo by MSgt. Keith Reed



Checkpoint. The war brought an abrupt tightening of security at every NATO base but especially at Aviano, where the bulk of NATO air operations originated. Security forces were everywhere to be seen, working to keep the flight line secure. At left, A1C Kenneth Brisbane at Aviano checks a crew chief's ID as he enters the site on April 2. Brisbane is a member of the 790th Security Forces Squadron at F.E. Warren AFB, Wyo.



Expeditionary Force. Everyone, it seemed, had bags packed and ready to go to Europe on a moment's notice. This airman with the 20th Fighter Wing, Shaw AFB, S.C., carries bags to his room after arriving at Aviano on April 15. At right, an F-117 from the 49th FS, Holloman AFB, N.M., awaits takeoff on March 24—opening night.



USAF photos by SrA. Jeffrey Allen

Racked and Stacked. At RAF Fairford, UK, rows of bombs stand ready to be loaded into a B-1B for an April 2 mission. Below, a weapons load crew member of the 28th Operations Group, Ellsworth AFB, S.D., transports a Mk 82 gravity bomb at Fairford. Not since World War II have US bombers taken off from British bases to attack targets in Europe.



USAF photo by SrA. Jeff Fitch



USAF photos by SSgt. Efrain Gonzalez



The Wait. Maintenance crew members from the 77th BS, Ellsworth AFB, stand by for their aircraft to launch at RAF Fairford, after which they will spend nervous hours waiting for the return of their bomber. SrA. Bradley McAfoos (left), weapons load crew member, 28th Operations Group, works on a Mk 82 bomb.

Warthog Rounds. A1C Jerry Heron (driver), SrA. Jason Chaffin (left), and SSgt. Mark Nogel, all of the 81st FS, Spangdahlem AB, Germany, pull an AGM-65 Maverick from its case to load it onto an A-10 for an April 10 sortie. Warthogs initially were used for observation and spotter duty, but they soon went to work at their speciality—blasting armor.

The Yugoslav forces long managed to frustrate NATO airmen by putting tanks and armored vehicles in forests, barns, and similar hiding spots, refusing to bring them into the open. Yugoslavia was able to do this because President Clinton publicly ruled out the use of NATO ground forces, relieving the enemy of the need to concentrate his own forces for battle.



USAF photo by SrA. Jeffrey Allen

USAF photo by TSgt. Brad Fallon



USAF photo by SrA. Sian Parker

Load and Lift. At left, a crew chief with the 627th Air Mobility Support Squadron, RAF Mildenhall, directs a C-5B to a parking spot after an April 22 delivery of fuel trucks. Above, C-130s land at Gioia del Colle, Italy, to resupply forces there. USAF's airlifters provided a vital edge to NATO forces. So did various special-use aircraft such as the E-3 AWACS, E-8 Joint STARS, and RC-135 Rivet Joint.

USAF photo by SrA. Molly Gilliam



Shining Hope. Above, airmen with the 623d AMSS, Ramstein AB, load equipment and supplies into a C-17 for an April 14 flight to Albania. USAF mounted a major airlift of food, water, shelter, medicine, and other items. The C-17 at right is at Rinas Airport, in Tirana, Albania, the hub of the Allied humanitarian relief effort, Shining Hope.



USAF photo by TSgt. Cesar Rodriguez

USAF photo by TSgt. Cesar Rodriguez



Big Muddy. SrA. Walter B. Goss and SrA. Daniel L. Deuville, both of the 52d Civil Engineering Squadron, Spangdahlem AB, clear mud from their tent at Rinas. Heavy rains in the Balkans engulfed their makeshift living quarters in a sea of mud. In time, all of the temporary quarters received wooden floors to improve the troops' living conditions. Inhabitants of the camp were civil engineers, explosive ordnance disposal teams, combat communications operators, and weather teams.



Bomb Factory. TSgt. Scott Heistercamp of the 9th Munitions Squadron, Beale AFB, Calif., loads GBU-12 500-pound laser-guided bombs on a rack for assembly at Aviano on April 13. Allied Force constituted the most intensive use of advanced munitions in history. Roughly 90 percent of all Allied strikes were made with precision-guided weapons, compared to less than 10 percent in Operation Desert Storm eight years ago.

Fighting Trim. At Aviano, maintenance crews from the 43d Expeditionary Electronic Combat Squadron, located at Davis-Monthan AFB, Ariz., work on April 2 to replace an engine on their EC-130H Compass Call airplane. Below, SSgt. Paul Guyer, from the 510th FS, at Aviano, checks out his F-16 before he'll let the pilot fly it on a planned April 2 mission.



Workhorse. An F-16 from Shaw AFB, S.C., takes off from Aviano on April 28 for another sortie into the Balkan battlespace. The single-engine aircraft proved to be a workhorse of the war, used extensively not only by the US Air Force but also by the air arms of many European Allies.



Long Haul? Bomber crews—at left, B-52H crews from the 2d Bomb Wing, Barksdale AFB, La., and the 5th BW, Minot AFB, N.D.—conduct a formation brief at RAF Fairford, before an early April cruise missile attack. Above, a BUFF takes off for an April 11 mission from Fairford. Airmen were warned that the war could go on for months.

Stress and Strain. A B-52H from Barksdale comes to a stop after an April 14 combat sortie in the Balkans. USAF aircraft have been ridden hard in the Balkans. Gen. Richard E. Hawley, commander of Air Combat Command, told reporters on April 29 that weeks of war had left USAF munition stocks critically low, facing shortages of conventional air-launched cruise missiles and the precision JDAMs used by B-2 bombers. Hawley worried aloud that USAF could exhaust its supply of JDAMs before a resupply effort begins to kick in.



No Travel Plans. Members of the 31st Air Expeditionary Wing, Aviano AB, Italy, watch an F-16 prepare to take off on an April 23 mission. For American servicemen and -women, all signs were that it would be quite a while before they could reattach these travel pods to their fighter aircraft for the long trip home. ■

Verbatim Special: The Balkan War

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"We need a Europe that is safe, secure, free, united, a good partner with us for trading. ... That's what this Kosovo thing is all about."—**President Clinton, speech to American Federation of State, County, and Municipal Employees, March 23.**

"What if someone had listened to Winston Churchill and stood up to Adolf Hitler earlier? How many people's lives might have been saved?"—**Clinton, AFSCME speech, March 23.**

"We're coming close to starting World War III."—**Sen. Ted Stevens, floor statement, March 23.**

"We have plans for a swift and severe air campaign. This will be painful for the Serbs. We hope that, relatively quickly, ... the Serbs will realize that they have made a mistake."—**Pentagon spokesman Kenneth Bacon, briefing, March 23.**

"North Atlantic Treaty Organization forces have initiated military action against the Federal Republic of Yugoslavia. ... The military objective of our action is to deter further action against the Kosovars and to diminish the ability of the Yugoslav army to continue those attacks, if necessary."—**Secretary of Defense William S. Cohen, DoD briefing, March 24.**

"I don't see this as a long-term operation. I think that this is something ... that is achievable within a relatively short period of time."—**Secretary of State Madeleine Albright, PBS "Newshour," March 24.**

"If NATO's invited to [send a peace-keeping force], our troops should take part, ... but I do not intend to put our troops in Kosovo to fight a war."—**Clinton, address to nation, March 24.**

"This is in fact NATO's attempt to enter the 21st century as global policeman. Russia will never agree to it."—**Russian President Boris Yeltsin, Kremlin statement, March 24.**

"We're going to systematically and

progressively attack, disrupt, degrade, devastate, and, ultimately—unless President Milosevic complies with the demands of the international community—we're going to destroy these forces and their facilities and support."—**Supreme Allied Commander Europe Gen. Wesley Clark, NATO briefing, March 25.**

"These bombs are not going to do the job. It's almost pathetic. You're just going to solidify the determination of the Serbs to resist a peace agreement. You'd have to drop the bridges and turn off the lights in Belgrade to have even a remote chance of changing Milosevic's mind. What you'll get is all the old Vietnam stuff—bombing pauses, escalation, negotiations, trouble."—**Sen. John McCain, New York Times (NYT), March 25.**

"It was always understood from the outset that there was no way we were going to stop these paramilitary forces who were going in there and murdering civilians in these villages."—**Clark, CNN interview, March 26.**

"We are on the brink of a major humanitarian disaster in Kosovo, the likes of which have not been seen in Europe since the closing stages of World War II."—**Allied spokesman Jamie Shea, NATO briefing, March 28.**

"We're in it, and we have to win it, and we have to do whatever is necessary in order to ensure that this is not a failure. ... That means that we have to exercise every option. ... We must win this conflict with whatever it takes."—**McCain, ABC's "This Week," March 28.**

"I don't know if we can do it without ground troops."—**Gen. Michael Ryan, USAF Chief of Staff, NYT, March 28.**

"We never thought we could stop this. You can't conduct police actions from the air in any country."—**Clark, press interview, March 29.**

"We miscalculated. We thought

when the bombing started Milosevic would play the victim, not turn into Adolf Hitler Jr."—**Unnamed US official, NYT, March 30.**

"I think right now it is difficult to say that we have prevented one act of brutality at this stage."—**Bacon, DoD briefing, March 30.**

"That [possibly running out of certain munitions] is something that we do worry about. We have a supply now, but it won't last forever."—**Bacon, DoD briefing, March 30.**

"He's hurting. We know that he is running short of fuel. We're now starting to hit him very hard on the ground. ... You will start to see the resolve starting to crack very quickly."—**Air Commodore David Wilby, NATO briefing, March 31.**

"The thing that bothers me about introducing ground troops into a hostile situation, into Kosovo and into the Balkans, is the prospect of never being able to get them out."—**Clinton, CBS "60 Minutes II," March 31.**

"We may not have the means to stop it, but we have shown we have the will to try."—**NATO Secretary General Javier Solana, NYT, March 31.**

"We clearly intend to loosen his grip on power and break his will to continue and, as weather permits, to chip off his assets in Kosovo. If we start to chip away at the institutions that keep him in power, he may think it over."—**Gen. Klaus Naumann, then chairman of NATO Military Committee, NYT, April 1.**

"[In a 1998 NATO study of troops needed for a ground invasion], the numbers came in high. No one said yes, no one said no; it was taken off the table. ... It was a complete eye-roller."—**Senior Administration official, Washington Post (WP), April 1.**

"When you fly less than 50 bombing sorties per day for seven days, you're

Continued on p. 50



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not serious about what you're doing. At best, it's sporadic bombing."—**Retired USAF Gen. Buster Glosson, key figure in Gulf War air campaign, Associated Press, April 1.**

"The ring is closing around the Yugoslav armed forces."—**Solana, NATO briefing, April 1.**

"I'm surprised we didn't bomb it [the downed F-117 fighter], because the standing procedure has always been that, when you lose something of real or perceived value—in this case, real technology, stealth—you destroy it. ... Once you get the pilot out of there, you blow the thing to smithereens."—**Retired USAF Gen. John Michael Loh, former head of Air Combat Command, Defense Daily, April 2.**

"We are prepared to sustain this effort for the long haul. Our plan is to persist until we prevail. ... Let me be clear. The ethnic cleansing of Kosovo cannot stand as a permanent event."—**Clinton, remarks to press, April 5.**

"I think we wish we had a larger inventory of certain types of weapons. There has been significant utilization of some of our more advanced cruise missile systems."—**Deputy Secretary of Defense John Hamre, speech in Philadelphia, April 6.**

"So far, we haven't heard complaints from the CINCs, that I know of, that they can't do the mission. ... So as we speak today, the readiness of the US military has not been really affected by this. We have the capability to cover all the regions as we speak today. The number of US aircraft in theater is nothing near the total aircraft or military capability we have today in the US military. Even though it is a fairly sophisticated, a fairly large commitment, we still have a significant amount of forces [in] reserve that can handle the two MRCs."—**USAF Maj. Gen. Charles Wald, DoD briefing, April 6.**

"This is no time to pause. ... We will reject any settlement that freezes the result of Milosevic's genocide and rewards him for his brutality."—**Cohen, April 7.**

"This is war as waged by humanitarians, idealists, and the flotsam of the counterculture. This NATO war machine is being directed by whom? By a German foreign minister from the pacifist Green Party. By the head of NATO, Javier Solana, who vigorously opposed his nation's entry into

NATO lest Spain develop close military ties to the United States. By an American secretary of state who supported the nuclear freeze and opposed the Gulf War. And by an American President who—well, forget his military history."—**Columnist Charles Krauthammer, WP, April 8.**

"We've been officially reassured at a high level that Russia will not be drawn into the conflict in the Balkans."—**White House spokesman Joe Lockhart, Reuters, April 9.**

"They want to bring in ground troops. They are preparing for that. They want simply to seize Yugoslavia to make it their protectorate. We cannot let that happen to Yugoslavia. ... I told NATO, the Americans, the Germans: Don't push us toward military action. Otherwise, there will be a European war for sure and possibly world war."—**Yeltsin, televised statement, April 9.**

"NATO early on made an assessment ... as to what [number of ground troops] it would actually take to do the job, and those numbers varied from lows down in the twenties—20,000 or so—up to a couple of hundred thousand."—**Gen. Hugh Shelton, JCS Chairman, ABC's "This Week," April 11.**

"Russia is an absolutely essential player in the search for peace with Belgrade. We must respect its desire to play a constructive role in the security and stability of our continent."—**French Foreign Minister Hubert Vedrine, WP, April 13.**

"This campaign has the highest proportion of precision weaponry that's ever been used in any air operation anywhere. ... [NATO is] using almost all precision strike weapons when the targets are point targets, and in some cases we're actually attacking individual tanks on the ground with laser-guided weaponry. The reason for this is it's a very efficient means of attack, it reduces collateral damage, and it reduces the continuing exposure of aircraft going after the same target."—**Clark, NATO briefing, April 13.**

"We can't have troops passing out blankets one day and then tell those same forces to conduct combat operations the next. You've got to train the force. You've got to prepare them."—**Retired Army Gen. George Joulwan, former SACEUR, WP, April 14.**

"I would characterize the [rules of

engagement] as as strict as I've seen in my 27 years [in the] military. ... The rules have been, and are, that, unless you're 100 percent sure in your mind what you're hitting ... you won't drop."—**Wald, DoD briefing, April 14.**

"All the suggestions—'Did you consider this? Did you consider that?' We did."—**Albright, statement to a House committee, April 15.**

"The military mission ... is to reduce, diminish, degrade the military capability that Milosevic's forces have to conduct their campaign of brutal repression."—**Cohen, Senate Armed Services Committee (SASC), April 15.**

"We could sit on the sidelines. We could fold our arms and say, 'It's not our problem.' But I think that that would have been a real challenge to our own humanity."—**Cohen, SASC, April 15.**

"We're certainly engaged in hostilities. We're engaged in combat. Whether that measures up to, quote, a classic definition of war, I'm not qualified to say."—**Cohen, SASC, April 15.**

"Limited actions beget limited results."—**McCain, SASC, April 15.**

"If the public knew our state of readiness, or our lack of readiness, there would be an outrage out there. The fact that we are roughly at one-half the force strength that we were in 1991—How many people know that?"—**Sen. James Inhofe, SASC, April 15.**

"I'd say Milosevic has lost. He's losing his military infrastructure and his ability to sustain his forces. He's losing his air defense system slowly but surely. We see signs of lower morale, evidence of desertions, leadership gaps, command-and-control problems. It's not over. ... We're in the first 25 minutes of a two-hour movie. You can't predict how it's going to end."—**Bacon, WP, April 18.**

"We won't serve as a postman. We won't deliver NATO's ultimatums to Belgrade. That is not our mission."—**Russian Foreign Minister Igor Ivanov, statement, April 26.**

"Of course, [we] may have one flaw in our thinking. ... Our flaw may be that we think [Milosevic] may have at least a little bit of responsibility for his country and may act accordingly, because otherwise he may end up being the ruler of the rubble."—**Nau-**

mann, statement to Defense Writers Group (DWG), April 26.

"We are winning. Milosevic is losing, and he knows it. He should face up to this, and he should face up to it now."—**Clark, NATO briefing, April 27.**

"Step by step, bit by bit, we are cutting off his ability to reinforce or to sustain his forces easily down in Kosovo. Of course he can still walk them in through the gullies and the rivers and so forth, and it is never going to be complete, but it is certainly complicating their life down there."—**Clark, NATO briefing, April 27.**

"He's bringing reinforcements in continually. If you actually added up what's there on any given day, you might actually find out that he's strengthened his forces in there."—**Clark, NATO briefing, April 27.**

"We have never said that we can fight two wars simultaneously. What we have said is that we would want to structure our resources in a manner so that we can unequivocally fight one major regional contingency—a war—and to be able to have enough resources to deter our opponent from accomplishing [its] objectives in a second theater until we can clean up the operation in the first and move resources to take care of the second. ... And I think we do have the resources for it. But right now, we're committing the equivalent of the MRC worth of air assets for this operation."—**Hamre, to Senate appropriations committee, April 27.**

"What good has been accomplished so far? Absolutely nothing. What long-term goal will be accomplished by having our troops there? None, unless you're willing to occupy all of Yugoslavia."—**Rep. Tom DeLay, House Majority Whip, floor statement, April 28.**

"There are deep reservations in the Congress about the prosecution of this war. It's been screwed up from the first day."—**Rep. Heather A. Wilson, floor statement, April 28.**

"The Secretary of State, the Secretary of Defense, and the Chairman of the Joint Chiefs of Staff told us that this was no big deal, that we were going to bomb for a couple of days, 48 hours, and then stop bombing, and Milosevic would come to the table. When asked the question, 'What if he does not come to the table?' they said, 'Well, we will go to Phase II, and Phase II is that we will bomb for a few more days. Then he will be going to the table, by crackie.'"

And then we asked, 'Then what?' Then they said, 'Well, we will bomb for another week and that will force him to come to the table and this will be all over with.' And then we asked, 'Then what?' There was silence."—**DeLay, floor statement, April 28.**

"I say to my colleagues, we have a war in Yugoslavia. We can call it whatever we want, but it is a euphemism unless we recognize it is a war. It is an unmitigated disaster. Our and NATO's involvement in this war is an unmitigated disaster. That is the ugly truth, and everybody knows it. They certainly know and talk about it in the Pentagon."—**Rep. Doug Bereuter, floor statement, April 28.**

"Clinton is a better communicator than anyone else. Once Clinton decides that's what he's going to do [to negotiate an end to war with Milosevic], he'll sell it. If Nixon could sell the fall of Saigon as peace with honor, Clinton can sell this."—**"Senior Administration official," NYT, April 29.**

"Airpower works best when it is used decisively. Shock, mass are the way to achieve early results. Clearly because of the constraints in this operation, we have not been able to, haven't seen that at this point."—**Gen. Richard Hawley, ACC commander, statement to DWG, April 29.**

"We are going to be in desperate need, in my command, for a significant retrenchment in commitments for a significant period of time. ... I think we have a real problem facing us three, four, five months down the road in the readiness of the stateside units."—**Hawley, DWG, April 29.**

"We have no interest in destroying more targets in Serbia than is absolutely necessary. We dislike using power, really."—**Gen. Christian Hvidt, Danish chief of defense, NYT, May 2.**

"We clearly can do two major theater wars. Now, if you had something happen in the Gulf, and if you had something happen in Korea, then we would have to make a decision."—**Gen. Joseph Ralston, vice chairman of the Joint Chiefs of Staff, NBC's "Meet the Press," May 2.**

"The fact that the lights went out across 70 percent of the country, I think, shows that NATO has its finger on the light switch in Yugoslavia now, and we can turn the power off whenever we need to and whenever we want to."—**Shea, NATO briefing, May 3.**

"We can have a bombing pause if it's clear that it will be in aid of [a] larger purpose."—**Clinton, news conference, May 3.**

"I don't think you can characterize [the Administration goal] as 'total victory.' That's not what I'm asking for."—**Clinton, news conference, May 3.**

"The President of the United States is prepared to lose a war rather than do the hard work, the politically risky work, of fighting it as the leader of the greatest nation on Earth should fight when our interests and values are imperiled. ... Shame on the President if he persists in abdicating his responsibilities, but shame on us if we let him."—**McCain, floor statement, May 4.**

"We need to find a way to reconcile the conditions of a coalition war with the principle of military operations such as surprise and overwhelming force. We did not apply either in Operation Allied Force, and this cost time, effort, and potentially additional casualties."—**Naumann, NATO briefing, May 4.**

"The mission is to pin them down, cut them off, take them out. ... We have pinned them down, we have pretty much largely cut them off, and are about to begin to take them out."—**NATO spokesman Maj. Gen. Walter Jertz, NATO briefing, May 6.**

"Let there be no doubt: This war must be won. ... The overriding justification for military action is quite simply the nature of the enemy we face. We are not dealing with some minor thug whose local brutalities may offend our sensibilities from time to time. Milosevic's regime and the genocidal ideology that sustains it represent something altogether different—a truly monstrous evil, one that cannot be merely checked or contained, one that must be totally defeated. ... There are, in the end, no humanitarian wars. War is serious and it is deadly. Casualties, including civilian casualties, are to be expected. Trying to fight a war with one hand tied behind your back is the way to lose it. We always regret the loss of lives, but we should have no doubt that it is the men of evil, not our troops or pilots, who bear the guilt."—**Margaret Thatcher, Wall Street Journal op-ed article, May 6.**

"It's not a conventional thing, where one side's going to win and one side's going to lose."—**Clinton, remarks to press, in Germany, May 6.** ■



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Next Steps in Information Warfare

Napoleon said war is 90 percent information—and that was 200 years ago.

By Otto Kreisher

In the opening decades of the next century, the ability to collect, process, and apply massive amounts of information in near real time will be a crucial warfighting advantage for the US military and particularly the Air Force. American cyberpower will be the *enabler* for the Aerospace Expeditionary Forces and is key to the Joint Chiefs of Staff's Joint Vision 2010.

However, increasing dependence on the unfettered flow of information also will be one of the greatest threats to America's national security and economy as the power to use—and abuse—information technology becomes readily available to the smallest national or non-state entity.

Those are some of the key themes presented by four active duty and three recently retired senior Air Force officers at a forum on Information Operations and Information Warfare, staged by the Aerospace Education Foundation's Eaker Institute March 24–25 at Lackland AFB, Texas. A large number of Air Force personnel were among the attendees at the sessions.

The conference unexpectedly featured a senior Air Force commander involved in an armed conflict—Operation Allied Force—which began on the first day. Appearing via live satellite transmission was Gen. John P. Jumper, commander of US Air Forces in Europe, from his headquarters at Ramstein AB, Germany. His report on the performance of his aircrews lent weight to his presentation

on the importance, and the dangers, of Information Warfare. Jumper's appearance, in itself a testament to the power of modern information technology, was handled by the Brooke Army Medical Center's cutting-edge telemedicine facilities.

The importance of the topic was reinforced by a new report from the National Research Council warning that the vulnerability of the US military computer networks creates "a pressing national security issue." That report echoed similar findings by the Defense Science Board and RAND, which sparked warnings that America could face an information calamity, one in which attacks on the interconnected computer networks caused havoc in the nation's utilities and its governmental, financial, and national security institutions.

The conference was opened by Gen. Michael J. Dugan, USAF (Ret.), a former Air Force Chief of Staff and now chairman of the Aerospace Education Foundation. Dugan warned that, in the future, "information will be more critical to the conduct of military operations, and, at the same time," he said, "a wide range of new vulnerabilities will be thrust on military commanders."

"Just as classic Napoleonic maneuver tried to isolate an army from its logistics base, current strategies are looking for more and more ways to isolate warriors from crucial flows of information that provide or confound battlefield awareness," Dugan said.

Although the services are putting "much needed resources into this

arena, it is not clear, however, that the organizational issues have been identified or resolved to ensure that information operations are prudently conceived, effectively led, and coherently carried out across the wide spectrum of government and private agencies involved," stated Dugan.

He reminded his audience that Napoleon himself took the view that "war is 90 percent information." Though the concept has not changed in the intervening 200 years, Dugan continued, the ability to exploit the concept is radically different.

"As former Sen. Sam Nunn put it, the nation might be headed for an electronic Pearl Harbor," said Dugan.

General Jumper

Jumper provided a unique perspective on the subject because of his position as an operational commander.

"We get overwhelmed, in most cases, by a discussion of Information Warfare at the strategic level," which means the protection of America's information infrastructure or attacks on an enemy's information systems, Jumper said.

As a commander, he is concerned about the operational and tactical use of information, which means how to deal with targets, the general said.

"I need to be able to think in terms of ... target effects," Jumper said, picturing the "info warriors" around the same targeting table with the fighter and bomber pilots and the special operations people.

The information warriors may have the capability to take out a target but

are prevented from doing so because of legal concerns, he said.

"This is an example of policy getting in the way of warfighting principles, what I define as a lack of our attention to Information Warfare at the tactical and operational level."

Jumper also worried about the differences in definitions that can include "offensive and defensive warfare, psychological warfare, deception, and electronic warfare all captured under this definition of IW."

Including electronic warfare mixes up electronic bashing and electronic manipulation, he said.

Jumper also disagreed with the tendency to separate offensive and defensive Information Operations, a concept that troubled other speakers as well.

"There is a very fine line between the offense and the defense, and any step that we take to separate or segregate the two will be a great disservice to us," he said. "I think they are side by side and in many cases indistinguishable," although they require different tools.

As a commander, Jumper said he wanted not just to take on targets but also to deceive an enemy so that an intercept operator "sees something completely different than what is really there" or a commander's communications are so distorted he cannot act.

"That, at the operational and tactical level, is the sort of IW capability that a commander needs," he said.

General Minihan

Lt. Gen. Kenneth A. Minihan, USAF (Ret.), former director of the National Security Agency, shared Jumper's concerns about separating the components of Information Warfare.

"We act as if there is an offense and a defense, and there isn't; it is all common technology," he said. "It is more like playing soccer; you've got to know where you are on the field."

Minihan insisted, "There is no place for computer network defense if there isn't a place for computer network attack. There is no place for you to conduct the offense if you choose not to do the defense at the same time. ... Exploiting that medium is what it is going to be all about."

America's "strategic coin is shift-

ing from [an] industrial base to [an] information infrastructure technology," he said. "But the value in that is not the infrastructure or the network; it is the content. Our job is to develop the ability to stay relevant to the nation's strategic coin, which is going to be its knowledge or content."

Information technology is moving much faster than the military's adjustments to it and "if you want to know where [the] technology is going, don't go visit the services because they are not spending any of this money," Minihan said.

The commercial information sector is spending enormous amounts of money each year on new technology, he said, and "they plan to reinvent their companies every three or four years."

If the services are not working closely with major commercial leaders, "we are not tuned in to where the nation's investment is," Minihan said.

In terms of information technology, Minihan said, "it is all global, stupid. It isn't air; it isn't space; it isn't service oriented. It is all global. We are going to work in a completely different analytical paradigm than the one we are accustomed to applying to our missions," he said.

That also means "you really are in an era when there is the death of distance," added Minihan. "You've reached the point now where, in terms of affecting the battlefield, it doesn't matter where we are on the globe."

Minihan also warned that the military's dependence on the public computer infrastructure increases the risk of disruption and information compromise.

The commercial investment in information technology "is building the battlespace in which we will operate," he warned. "It is driven by commercial technology and it is all global and we are going to operate in it. That brings great opportunities and huge vulnerabilities."

Countering the dangers requires a strategy, Minihan said, which he called "information assurance."

General Cunningham

Lt. Gen. Charles J. Cunningham Jr., USAF (Ret.), currently serves as deputy assistant secretary of defense for intelligence. He noted that America has "no monopoly on all of the

things that would impinge [on] or cause problems for [its technology-based economy and defense]."

"We have no monopoly on IO and IW," he said. "We have no monopoly on information technology. We have no monopoly on information assurance or any of that kind of stuff."

Cunningham noted that the book *War and Anti-War* by Alvin and Heidi Toffler said that "developed nations will fight their wars the way they make their money." America is "essentially making [its] new money in information technology," said the general. "We can expect to conduct a lot of our military operations very much in that way." But, he added, the threat to that technology "is everywhere. ... We must therefore redouble our efforts and do better with it."

Cunningham recalled helping run a staff exercise in Europe last year for Jumper. In this exercise, the joint forces air commander operations involved little Information Warfare aspects. That happens because "our emphasis ... is so exclusive at the strategic level," he said.

Cunningham urged the warfighters to spell out their needs for Information Warfare "as requirements" and to develop the doctrine, the tactics, and procedures necessary for successful information operations.

Asked what the Defense Department's developing information operations strategic plan would contain, Cunningham said: "It is largely aimed at engagement and ... how you work with other entities in information operations."

The strategy, which should be released this fall, "will key on the concept of engagement and sharing and loosen up a lot of things that are now very rigid because we feel that we are the only ones to possess certain capabilities and information," he said.

In response to another question, Cunningham said the military's involvement with the commercial side of information technology would increase, which would mean an increased defensive role.

But, he argued, "Perhaps we need to understand what the life cycle of information is. What is the life cycle of usefulness? It strikes me that we go overboard to protect a lot of information that is extremely perishable."

General Baker

Maj. Gen. John R. Baker, commander of the Air Intelligence Agency, said the Air Force, coming out of Desert Storm, "understood that [the service] needed to break down some of the barriers between some of the various intelligence organizations ... so [it] can turn around information quicker and get it to the operator faster."

Today, both the Air Force and the Joint Chiefs "are looking at information operations in a large way," Baker said. "What is driving all this is technology," he said, which "is racing faster than we are."

Baker noted the difference between the joint and the Air Force doctrinal descriptions of Information Warfare and expressed his preference for the more comprehensive service definition.

He also explained the Air Force leadership's decision to dismantle the 609th Information Operations Squadron at Shaw AFB, S.C., and to shift the squadron's IO specialists into operational units throughout the Air Force.

"We are going to embed people ... [who] have both offensive and defensive training so they understand both sides of the equation," said Baker. "We will have gain and exploit, attack and defend expertise in there."

Because the military depends on communications, understanding how to control bandwidth usage is becoming more important, he said. "The demand for information is increasing. The demand for imagery is not going to get less. The ability to move that information around the world is going to be a big challenge for us as more and more organizations compete for bandwidth."

General Wright

Air Force Brig. Gen. Bruce A. Wright, the deputy director for Information Operations on the Joint Staff, said information warfare has evolved from some "traditional military operations that we have done for years."

With its growing importance, "today, everyone has an idea of what Information Warfare is. ... All the services and the joint warfighters are right with us," Wright said.

As a result, his office "has been very busy these days."

His office supports the JCS Chairman, Wright said, "but more importantly," it supports the warfighting commanders in chief, all of whom have Information Warfare programs.

Warfighting always seeks to hit an enemy's center of gravity and "the center of gravity for Information Ops is six inches of gray matter," he said, referring to the human brain.

The key to effective Information Operations is "to stay ahead of the bad guys' thought process," he said.

Wright said the Joint Chiefs are seeking to "seamlessly integrate IO in support of national objectives," at both the operational and strategic levels.

There are more than enough challenges in Information Operations, he said, with everyone from the Russians to juvenile hackers trying to access the US information networks.

Information Operations, Wright said, can cover the entire range of military missions—from peacetime through crisis to conflict—and can affect basic public services such as power and water supplies or information systems.

Because of the potentially grave impact of an information attack, he said, "one of the major challenges is defending our information infrastructure."

General Newton

Gen. Lloyd W. "Fig" Newton, commander of Air Education and Training Command, said the control of information will be a key strength, and major vulnerability, for the Air Force in the next century.

"By the turn of the century," Newton said, "our Air Expeditionary Force will allow us to better posture for the threat of the next millennium by allowing us to reach far beyond our borders to respond effectively to the full spectrum of crises. ... Information will be the key enabler to this expeditionary force."

But, he noted, attempts to penetrate the military's information technology infrastructure are increasing because "the information revolution has made technology available to just about anybody and everybody who wants to have it" and "many of

those are at odds with our national security objective."

"At the same time, [US] military operations have become more dependent on fast, reliable exchange of information, so we find ourselves almost in this catch-22 of more people are becoming more dangerous to more of our operations," Newton said.

Among the basic features of strategic infowar, Newton said, is this fact: "You can have a low-cost entry into the conflict." Instead of the sizable financial resources or state sponsorship needed for traditional weapons technology, "information system expertise and access to important networks may be the only prerequisite for getting in," he explained.

Another feature is the erosion of traditional boundaries, such as the lines between public and private interests, warlike and criminal behavior, and geographic boundaries between nations, he said.

Information warfare also will make it more difficult to build and sustain coalitions because of the conflicting needs to protect information systems and to share techniques and ideas with the coalition. "This will make warfare much more difficult," Newton said.

The vulnerability of the US homeland also increases as "information-based techniques render geographic distance irrelevant," he said. "Targets within the continental United States are just as vulnerable as those in-theater targets are."

With the US economy's increased reliance on high-performance networks, "a new set of lucrative strategic targets presents itself to any one of our potential enemies," Newton said.

Because the Air Force recognizes the importance of information operations, AETC is working to "ensure that we have credible information warriors, both defensive and offensive."

"Our goal ... is to assure that all Air Force personnel are able to operate effectively in this fast-moving, information-rich environment. Information dominance isn't something that can be left to a few one or two specialties or a few agencies or to just one command," Newton said. ■

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Forty years ago this month, the Air Force Academy graduated its first 207 cadets.



By Bruce D. Callander

FIRST CLASS

ON June 3, 1959, 207 Air Force Academy cadets completed their academic work and became, as a group, the academy's first graduating class. Events on that day, 40 years ago this month, generated more than a few lasting images.

Bradley C. Hosmer, the top graduate of that first class, received not only a diploma and Air Force commission, but also a Rhodes Scholarship. John G. Hayes Jr., still recovering from a skiing accident, limped to the stage on crutches. Flaye M. Hammond III came forward to the sound of classmates whistling the "Marines' Hymn"; he was the lone graduate commissioned in another service. John M. Melancon received a special round of applause. He received his diploma but was medically disqualified from commissioning.

Their undergraduate years had been historic, but they weren't lacking in difficulty. The Class of '59 spent its first three years in refurbished World War II barracks at Lowry AFB, Colo. Their *upperclassmen* were stand-ins—USAF officers who had graduated from other academies. Their permanent uniforms and the campus at Colorado Springs still were works in progress.

By graduation day, however, the academy was up and running. The cadet wing had grown to more than 1,000 members, and the school had received accreditation. Its varsity football team had played in the Cotton Bowl and one of its members, Brock T. Strom, had been named all-American. What had been *firsts* for the Class of '59 were becoming traditions for their successors.

Prosperous

In later years, the Class of '59 prospered. Fifteen members became general officers, four of them retiring with four stars and one as the vice chief of staff of the Air Force.

Robert D. Beckel served with the Thunderbirds, flew fighters in Vietnam, and returned to the academy as commandant of cadets. Later, he retired as a lieutenant general.

Hosmer completed his studies at Oxford, entered pilot training, and flew combat missions in Vietnam. He came back to Colorado Springs in 1991 as the academy's first home-grown superintendent.



The Air Force Academy's first class began training in July 1955 at Lowry AFB, Colo. (above). Three years later, the Class of '59 moved their gear into the academy's permanent campus at Colorado Springs (previous page).

Karol J. Bobko joined the space program and commanded the first *Challenger* shuttle. Robert E. Blake became the first in his class to shoot down a MiG. Both retired as colonels.

Harlow K. Halbower's career was cut short in Vietnam. After winning 12 Air Medals and the Silver Star, he was shot down near Saigon, becoming one of four 59ers to be lost in Southeast Asia. A fifth was a returned prisoner of war.

Fifty-five graduates later resigned their commissions, several of them to become airline pilots. A total of 135

served until retirement; many of those have had second careers in fields such as real estate, investment counseling, management, and education. One entered the ministry, another became an orthopedic surgeon, and a third became an attorney.

The dream of an academy for air officers preceded the reality by decades. Brig. Gen. William Mitchell proposed just such a separate school in the early 1920s. In 1931, the Army Air Corps consolidated all primary flight training at Randolph Field, Texas, and optimistically dubbed the base *West Point of the Air*. Before and during World War II, the Army Air Forces ran aviation cadets through a compressed version of academy-style training combined with flight instruction.

It was not until 1949, however, that the US took a major step toward creation of USAFA. Secretary of Defense James Forrestal named a board to take a broad look at the training requirements of all services. The group, headed by college presidents Dwight D. Eisenhower (Columbia) and Robert L. Stearns (Colorado), concluded in 1950 the Air Force required a separate institution.

It took another four years for Congress to authorize creation of the Air Force Academy. USAF Secretary W. Stuart Symington in the mean time named a site-selection commission, which considered 580 locations and narrowed the choice to three. Air Force Secretary Harold E. Talbott



Outside Lowry's World War II-era buildings, jumpsuited cadets made a quick transition to military life. Uniforms had been in the works even before Congress authorized USAFA's creation, but they weren't ready for the 1955 opening.

picked Colorado Springs in 1954. Randolph had been the sentimental favorite of some Air Force leaders, but Colorado offered a more isolated location and, to sweeten the deal, state leaders offered \$1 million toward purchase of the property.

The first 306 cadets entered training at Lowry in July 1955. Their quarters were barracks and the dining hall was a standard GI mess, a far cry from today's dorms and dining hall at Colorado Springs.

"I don't think any of us had much basis for comparison," said Hosmer, now a retired lieutenant general. "There were a few who came out of military high schools, but most of us had little prior connection with the military."

Ready When You Are, C.B.

The cadet wardrobe also was large-government issue. A distinctive uniform had been in the works since 1952, but Air Force officials could not agree on a design. Talbott finally appealed to Hollywood director Cecil B. DeMille for help. When it became apparent the permanent uniforms would not be ready in time, however, the Air Force cobbled together a temporary outfit from standard-issue items, added shoulder boards to regulation shirts, and used the old Air Corps propeller-and-wings emblem for lapel and cap insignia.

Hosmer recalls that the hybrid ensemble caused some confusion even in active duty circles. "We made a field trip to Langley [AFB, Va.] while my dad was a colonel teaching at Ft. McNair [D.C.]," he said. "He took me with him to some gathering in Washington where the people were mostly military. Later, my folks said that there was a lot of buzz about who that young fellow was in the odd uniform. The consensus was that I was a Russian ensign."

The only new item in the clothing bag was a one-piece, sky-blue fatigue outfit with a cap modified from the one worn by the Brooklyn Dodgers. Dubbed "the bunny suit" by cadets, the coveralls proved impractical for field training and soon were abandoned for more traditional fatigues.

Permanent cadet uniforms eventually were provided, as were hastily developed flags and interim heraldic designs. Buildings were another matter. Congress had authorized construction in 1954 and the firm of

Skidmore, Owings, & Merrill won the contract over 339 rivals. However, SOM's first design was considered too modernistic. For example, an accordion-like design of the chapel drew from innovative architects such as Frank Lloyd Wright.

Changes increased the cost and delayed construction so the actual work did not get under way until July 1955, when the first class already was in training at Lowry. Hosmer said that, during their rare leisure moments, cadets would visit the site to see how the construction was going.

"I remember wondering about this huge girder-like construction, which was sitting on the ground," said Hosmer. "It was just a great big box. It turned out that it was the roof for the dining hall. They built it and then pulled it up on the columns."

The campus still was under construction when the class of '59 moved in for its fourth year. The dining hall and recreation center were usable, the academic building was far enough along to be functional, and one wing of the dormitory building that was to be Vandenberg Hall was ready for tenants.

"The dorm was elegant compared with what we had had at Lowry," said Hosmer. "The rooms had paneling and one whole wall was all window with these gorgeous aluminum fittings."

Elegant they may have been, but not without their problems. "You get a very powerful wind coming through there on occasion," said Hosmer, "and there were a number of design features that just weren't compatible with it. Doors banged open, standing metal lights got ripped away. All that got corrected in time, but there was a lot of broken glass for a while."

"Venturi Valley"

Wayne C. Pittman Jr., now a retired colonel, has similar memories. "The buildings had center-hinged doors, which the wind promptly tore off," he said. "So most of the year, we had plywood in the doors."

Col. Robert E. Blake recalls that the cadets nicknamed the campus "Venturi Valley," a reference to the venturi effect in which the intensity of winds increases as they pass through a narrow opening.

The cadets had little time to worry

The Second First Class

Twenty-one years after the first all-male class entered the Air Force Academy, another, smaller group marked another historic first—the first women at the academy.

Like the other services, the Air Force initially resisted the school's going coeducational, largely on the grounds that the academies trained officers for combat, from which women were excluded. Lt. Gen. Albert P. Clark, superintendent from 1970–74, also argued that female cadets would be a "distraction."

As the admission of women became inevitable, however, Clark set about planning to house them and transform school activities. In 1975, President Ford signed legislation to allow women in all the academies and the following June, the Air Force led the other services by admitting 157 of them. Active duty officers, in this case female officers, were installed as "upper class" for the women cadets.

The academy's Command Historian Elizabeth Muenger noted, "Because the Air Force had a plan, things went fairly smoothly in terms of the physical aspects. I would not say it went as smoothly in terms of the functional integration. With respect to the attitudes toward women by academy staff and by fellow male cadets, it was rockier. Women were isolated in separate quarters. They were integrated into the squadrons but there were such small numbers that it was heavily slanted in terms of minority and majority."

"I know several women from that Class of 1980, and when you get them going about what those four years were like, it's not a pretty picture. They were not kindly treated by their fellow cadets or by faculty members and [Air Officers Commanding]. They were dropping out at higher rates than the men for a while."

Like their male counterparts in the Class of '59, however, most of the women in the Class of '80 stuck it out to graduation and did well in their Air Force careers.

Lt. Col. Kathleen M. Conley, the first to graduate, returned to the school as a teacher and T-41 instructor and then went on to command a flying training squadron. Maj. Debra J. Dubbe came back as an AOC before becoming a foreign liaison officer at Hq. USAF. Lt. Col. Karen O'Hair Fox became a flight surgeon and commander of an aerospace medicine squadron.

Next year, the women will celebrate the 20th anniversary of the academy's gender integration. That same year, the school will record another landmark, the graduation of its first class into a new millennium.



Although the campus was still under construction, the dining hall was ready to serve meals to the first class, when it arrived in summer 1955. The new facility was a great improvement over the GI mess the cadets had used at Lowry.

about such distractions, however. In addition to a standard bachelor of science curriculum that was heavily tilted toward engineering, USAFA cadets took navigation training. In those days, all cadets had to be physically qualified to fly and those who remained so graduated with navigator wings. Later, 186 of the graduates went on to pilot training and 168 became dual-rated.

Pittman went directly from the academy to a B-52 navigator assignment with Strategic Air Command. Later, he took graduate work in engineering, flew in RF-4s in Southeast Asia, and returned to the academy for three years as an instructor. His later assignments were as a navigator and commander.

"I thought the academy was perfect preparation," said Pittman. "It was less technical than it is now. There may be some justification for the change, but I think a lot of us feel they have gotten overspecialized. We had the experience of a common education and it worked very well for us."

Hosmer said, "Most of the class went to pilot training, so not many of us were dropped into the active force immediately. I would say we were really well-prepared for further training experiences. The hallmark of the academy was that you left the place equipped to handle pressure and well-prepared to learn."

Blake said that the navigation course was particularly helpful to him in pilot training. "We already

knew a lot about aids to navigation and that sort of thing," he said, "and, of course, we had had a lot of math."

It was not all smooth sailing, however. Blake said, "When I got out into the 'real Air Force,' I know there was some resentment. We had been told to expect it, so we were careful not to act as though we were special. In flight training, some of my best friends were from other commissioning sources. Maybe academy grads did have an edge, but we knew that we still had to prove ourselves. Out there, a second lieutenant was a second lieutenant—regardless of where he came from."

In addition to absorbing both military and academic subject matter, the first class developed many of the traditions that future classes would follow.

One was the selection of a mascot. The choice narrowed to a tiger and a falcon. There was a show of hands; the bird won.

A more serious decision was the adoption of the honor code. Hosmer remembers the process as beginning with suggestions from Air Officers Commanding, active duty officers in charge of cadet squadrons. "There was a small group of AOCs from other military academies who had detailed knowledge of some of the honor codes in use at that time," said Hosmer. "The head of that group, Capt. Bill Yancy, introduced the subject very early during our fourth-class summer. He said, 'You will want to have one of these so you guys have to decide what it's like.'

"So, we had elections for honor representatives and they developed it, drawing on the advice of the AOCs and their own good sense of what one ought to be."

The Hardest Part

"Of course, what we came up with looked a lot like the West Point code except that we formalized the non-tolerance part of it, which at that time was not formalized at West Point. It is by far the hardest part of the code."

Blake recalled that, initially, there was some resistance to the code.



At the dedication ceremonies of the Interlm Air Force Academy, cadets had marched like a crack drill team, despite only two hours of practice. In July 1959 (above), another group of young men strive for a successful first day.

"Early on," he said, "we didn't think so much of it. It seemed we'd inherited this thing from West Point and there was a lot of nit-picking about it. We'd have squadron briefings and raise all kinds of questions.

"We weren't allowed to drink in uniform, for example, and I remember somebody asking, 'Well, suppose I'm visiting my brother in town and I have a beer. I'm in civilian clothes but I'm still wearing my GI socks. Do I have to turn myself in because I was drinking in uniform?'"

"Then, one of the officers said, 'Halt! You're making it too complicated. You know in your own mind whether something is right or not. You have to get this thing into your head so you don't have to think about it but just do it.'"

Blake said, after that, the honor code business began to make sense. "It was hard sometimes," he recalled. "You thought if somebody later admitted he had violated, maybe you should give him a second chance. Things have eased up since then, but I think if you asked my class today, most of them would vote for keeping it. I would. You want to know that, if you're in a combat situation, you can count on somebody without any question."

Hosmer noted that life under the code has changed with time.

"The code itself has remained essentially the same over the years," he said, "but the system for applying it has evolved a lot. In our time, it was straightforward. If there was a violation, you were gone. And you were expected to come and say so if you had violated."

No member of the Class of '59 was discharged for honor violations; 10 resigned for that reason.

Second Chances

"But, starting in the 1960s," said Hosmer, "a practice developed of acknowledging that some people can make a dumb mistake and it doesn't mean they are dishonorable and that they can learn from it." Since then, the history of the honor system has been punctuated by great shifts in the extent to which the academy allows cadets to have a second chance.

"The due process part has become laborious, now. It takes much longer for honor cases to get settled, now, because the due process part has be-

The Class of '59 created traditions and set high standards for all who followed. Its top graduate, retired Lt. Gen. Bradley C. Hosmer, said cadets graduated from the academy knowing how to handle pressure and well-prepared to learn.



come meticulously careful, and that has both pluses and minuses. The minus is that there are cadets who hang around for many months with a cloud hanging over their heads and the case may go either way," he added.

These changes were inevitable, Hosmer said, as the makeup of the cadet wing itself changed. "My crowd came out of a period when traditional values were fairly common across society," said the retired general. "The situation is uneven today. What you see coming out of the coastal and urban areas, for example, is starkly different from what you see coming out of the Midwest. Also, the notion that it is important and valuable and rewarding to do something for a purpose that is bigger than yourself is not thick on the ground among today's teenagers."

He quickly added, "Bringing that variety of attitudes up to a common denominator of what you might loosely call character is, in my opinion, the core challenge for a military academy. And getting that right is

one of the things we do more or less uniquely at military academies.

"On balance," said the general, "the diversity of the classes has been a good thing. I think it is helpful in meeting the core problems that all the services are going to face over the next decade or so, which is surviving in a period when the culture as a whole doesn't care much about the military because it doesn't have to."

Cadets in the Class of 2000 will have majored in fields such as astronomical engineering and space operations, done their homework on microcomputers in their dorm rooms, and gained hands-on experience by launching their own small satellites. Some, doubtless, will be astronauts.

By contrast, Pittman said, "I can remember in our third or fourth year when they suddenly had to crank in an astronautics program because of Russia's Sputnik. No textbooks existed and we had to use one produced by our instructors. When we started, the book hadn't been finished yet." ■

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, "Lucky Lady II," appeared in the March 1999 issue.

USAF has some special friends—19 of them—on Capitol Hill.

The Air Force Caucus



In the early 1960s, Cliff Stearns was a young Air Force officer stationed in Los Angeles. He used to travel around the US to work on the service's military space endeavors. He would go to Florida to accept ground equipment from contractors, up to Loring AFB, Maine, to take part in satellite testing, and back to California, to Vandenberg AFB, for launches.

The Air Force was on the cutting edge of technology, and he found that tremendously appealing. "At the time, the enormous possibilities were apparent to me," said Stearns, now a Republican congressman from Florida.

Fast forward to 1998. Now a 10-year veteran of the House, Stearns asked Air Force leaders what he could do to help them keep the service strong as it looked to develop new capabilities for the decades ahead. Their answer: Band together with like-minded legislators to support Air Force positions and needs on Capitol Hill.

He did just that. With fellow Air Force veterans Rep. Sam Johnson (R-Texas) and Rep. Joseph R. Pitts (R-Pa.), Stearns founded the Air Force Caucus last September. It is the first such group formed around pure Air Force issues.

"The Air Force Caucus, in itself, is a new phenomenon," said Stearns in an interview. "We felt that the service's mission is a little different from the other missions [of the US military]."

By Peter Grier

For example, he said, "Control and exploitation of space—that's pretty big."

Distinguished Records

The new caucus now has 19 members. Each has Air Force or Air National Guard service in his or her background. Some had notable military careers. Co-chair Johnson, for example, was a fighter pilot from 1951 to 1979 and was a prisoner of war in the Vietnam War for nearly seven years. Rep. Jim Gibbons (R-Nev.), an Air Force (1967-71) and Air National Guard (1975-95) pilot, won the Distinguished Flying Cross as an RF-4C flight leader in the 1991 Persian Gulf War. Rep. Heather Wilson (R-N.M.) is a 1982 graduate of the Air Force Academy, a former Rhodes Scholar, and was a US arms negotiator during the Bush Administration.

Members come from all parts of the country and both major parties.

"You spread the leadership and spread the politics, it helps," said Stearns.

So far, the group's formal schedule consists largely of breakfasts with the Air Force leadership. Stearns and his fellow co-chairs have been trying to organize a group trip to bases around the country for a firsthand look at service concerns.

Nowadays, a declining percentage of national lawmakers have military experience in their background, points



Staff photo by Guy Aceto

out Stearns. In 1994, about 40 percent of the House of Representatives and 61 percent of the Senate, were counted as veterans. Today, the percentage in the House is less than 30 percent and less than 50 percent in the Senate.

Members without military experience sometimes have to be convinced that the post-Cold War world still contains real security dangers, such as the possible proliferation of nuclear warheads, said Stearns. Such attitudes make the value of a service-specific caucus to the men and women of the Air Force greater than ever, according to the group's co-founder.

"For people in the mainstream Air Force, thinking that there are 19 members of Congress willing to go to bat for them ... has a morale effect," said Stearns.

Caucus members function as an informal lobbying arm for Air Force projects and proposals, making their views known on the House floor, in hearings, and other private legislative forums.

They are an effective force for channeling service concerns to the leadership in both the House and Senate, claimed Stearns. "When a person like [Senate Majority Leader Trent] Lott gets a call from Representative Johnson, ... it's a lot different from somebody from the Air Force calling."

The fact that Congress has passed legislation urging implementation of a national missile defense shows that

lawmakers do pay attention to Air Force concerns, according to Stearns.

"National missile defense is a big step," said Stearns. "The Air Force has to be at the forefront of this, and they don't have the funds."

Some of the issues the caucus is concerned about affect all the services. Pay and pensions are primary examples. Efforts to give the military a raise this year are a good start, noted Stearns, but, on the whole, US military pay still lags well behind that found in the US private sector.

Health Care Worries

Health care is another general worry. As chairman of the Veterans' Affairs subcommittee on health, Stearns is particularly concerned about the access to health care issue. He is supportive, for instance, of the effort to study whether opening up the Federal Employees Health Benefits Program to military retirees makes sense. He said that in some areas, the current Tricare health system is working all right but that in others it is not. In those problem spots, it might make sense to open up FEHBP to the military, he said.

He said FEHBP "gives choice. It has a very low inflation rate. It's private market oriented." Stearns added, "When you look at people who get benefits from the government, shouldn't people who volunteer to put their life on the line get first crack at good health care?"

In January, Stearns introduced legislation (H.R. 119) that would establish a 12-member task force to study the health care problems of Medicare-eligible military retirees. He said the group would look at all the promises concerning health care made to members of the military over the years and where the government is in terms of fulfilling those promises.

"Isn't the military deserving of high priority in its health care?" said Stearns.

However, most caucus members are concerned with specific Air Force issues. One is the lack of an officially designated civilian leader. Stearns and others have expressed concern to leading senators about the long period of time in which the Air Force has lacked a formally confirmed Secretary. Another is the struggle with the Marine Corps over the site of the proposed Air Force Memorial in Arlington, Va.

The Marine leadership has actively lobbied members of Congress in an attempt to block the Air Force Memorial, which would be in the general vicinity of the Iwo Jima Memorial on Arlington Ridge. Such active involvement by uniformed officers on a sensitive issue was inappropriate, according to Stearns. The Air Force Caucus wrote a letter to colleagues complaining about the Marine actions.

"The Marine Corps was stepping out and doing things when the Air Force wasn't," said Stearns. "The Air Force was not lobbying. The Marine com-

Air Force Caucus Membership

Rep. Cliff Stearns (Chairman)	Florida
Rep. Sam Johnson (Co-Chairman)	Texas
Rep. Joseph R. Pitts (Co-Chairman)	Pennsylvania
Rep. Jerry Kleczka (Co-Chairman)	Wisconsin
Rep. Mike Bilirakis	Florida
Rep. John Cooksey	Louisiana
Rep. Peter DeFazio	Oregon
Rep. Ernest L. Fletcher	Kentucky
Rep. Jim Gibbons	Nevada
Rep. Paul Gillmor	Ohio
Rep. Charles A. Gonzalez	Texas
Rep. Lindsey Graham	South Carolina
Rep. Van Hilleary	Tennessee
Rep. John Linder	Georgia
Rep. Ken R. Lucas	Kentucky
Rep. Ron Paul	Texas
Rep. Nick Smith	Michigan
Rep. Roger Wicker	Mississippi
Rep. Heather Wilson	New Mexico

mandant is not supposed to lobby. I think in this case the Air Force needed support.”

Among the specific legislative items the Air Force Caucus will likely focus on this year are pilot retention, Air Force infrastructure, and acquisition funding—particularly missile defense funding.

Retention of pilots might be helped by making sure the Air Force has the legislative flexibility and money to pay bonuses. Other critical skill areas have personnel shortages, too, said Stearns. The Air Force—as well as the Navy—is experiencing retention gaps in first- and second-term enlisted members.

Second-term enlistment rates have dropped 13 percent for the Air Force over the last five years.

“It’s one of the key areas we have to work on,” said Stearns.

Base Overload

As to infrastructure, the Air Force may have more trouble with excess base capacity than other services, according to Stearns. With so many deployments around the world, particularly now over the Balkans, the Air Force is taking money that would otherwise be devoted to infrastructure maintenance and improvement and using it to pay for sorties.

Stearns said that he personally has some trouble with the way the Air Force is being used. Over the last five years, the service has taken part in 25

deployments, he points out. Yet in the 10 years before that, there were only 10 major deployments.

Peacekeeping deployments in Somalia, Haiti, and Bosnia have already cost \$13 billion. The expense of the NATO operations over Kosovo will only be added on top of that.

“There comes a point where, if you stretch yourself too far in this business, you’re going to collapse,” he said.

Supplemental appropriations might eventually pay for sending US airpower around the world in 1999. Still, “we’re going to have to look at a base closure round again,” said Stearns. “The Air Force Caucus could stand up to the plate and say to colleagues,

‘Look, we need some more closures. Either you fund the Air Force or cut their overhead.’”

Stearns himself has already seen his district lose one installation—NAS Cecil Field, Fla. He is not optimistic that a round of closures will be approved during this session of the 106th Congress. But he said it will happen eventually and that until then the Air Force should be circumspect in its planning for a future base network.

“I think the Air Force is wise not to talk about base closure and to have any particular lists, because if any list gets out, you’re going to see all hell break loose from members of Congress who are in swing districts,” Stearns told Air Force Association members at the AFA Air Warfare Symposium in Orlando, Fla., in February.

On missile defense, Stearns, himself a former aerospace engineer, thinks lawmakers are waking up to the economic and strategic implications of launching such an effort. It is necessary in a world where nuclear proliferation is continuing, yet it is an unexplored frontier.

“How is the Air Force going to do this?” he asked. “We’re not just talking about funding a branch of the ser-

vices. We’re talking about a mission with such a broad implication.”

Other areas where the Air Force might need legislative help include expanding air mobility, upgrading conventional bombers, and bolstering support for continued fighter modernization. Funding for spare parts for engines is becoming increasingly important.

“I realize there are a lot of engines that are being used in our planes that are 25 years old, and so getting the spare parts for them is crucial to morale and training,” Stearns told AFA.

Push for Numbers

For the future, a goal of the Air Force Caucus is to motivate a larger, more active membership. Co-chair Stearns said that for his part he would like to see other organizations, as well as legislators, become members of the group.

“If we had a range of Air Force-oriented interest groups [in the Caucus], they could come together to advise us, ‘Here’s what we need right now,’” said Stearns.

Group trips could help further understanding of Air Force issues among legislators. Rounding up members for these delegation jaunts can be difficult, as they are often scheduled during breaks in the Congressional calendar, when district concerns compete for members’ time. But there is no substitute for meeting the rank and file where they live and work, according to Stearns.

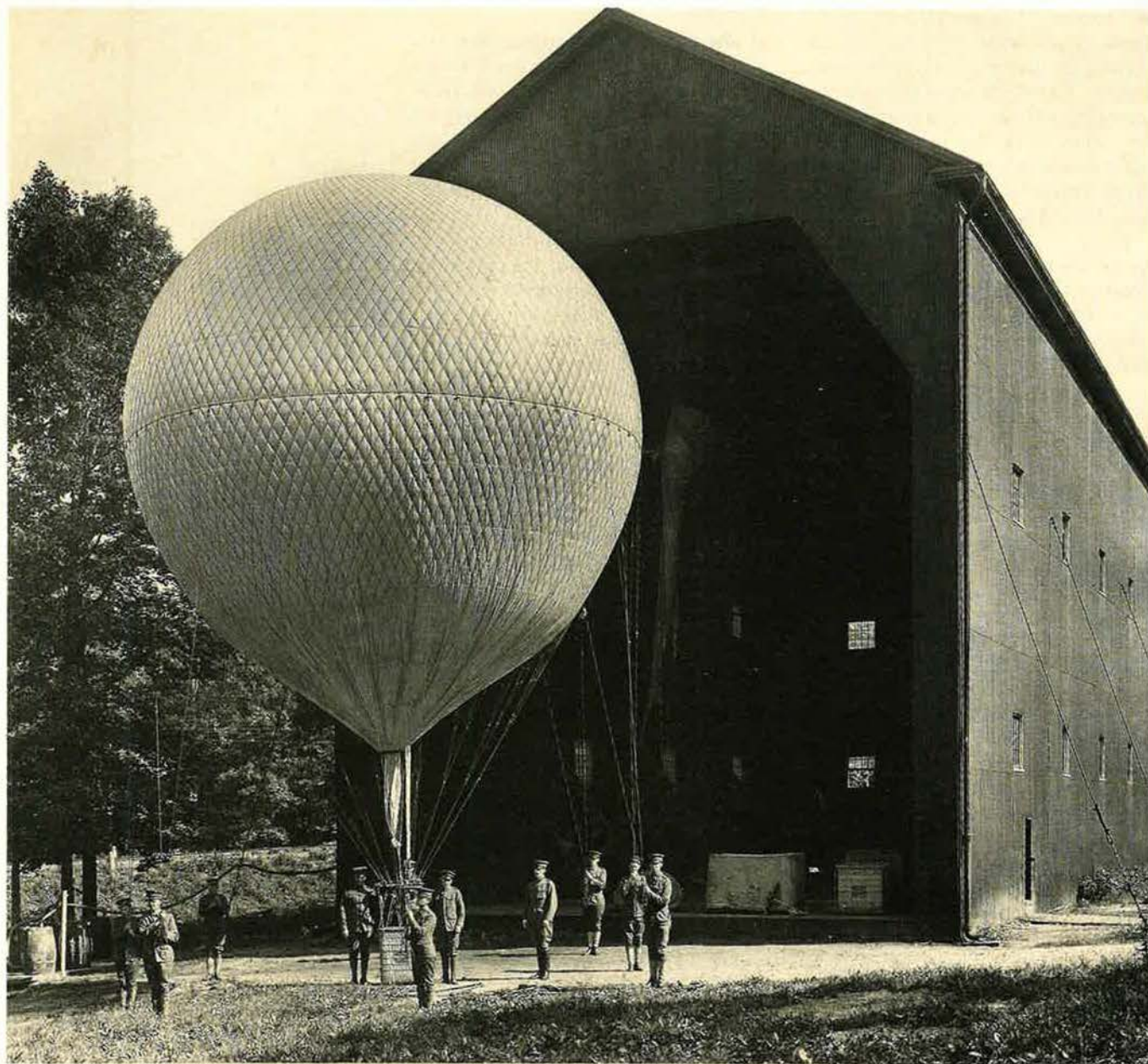
“We might hear from the Secretary of Defense, but most members of Congress don’t hear from the enlisted people or the pilots,” he said. “It’s worthwhile to meet these men and women.”

The caucus co-founder said that he believes the Air Force leadership has already found his group useful. They benefit just from knowing there are members of Congress they can call informally, he said, and let their hair down to reveal some of the things they’re really concerned about.

“They can get a little parochial and not worry about it. They need an outlet for talking about their issues, without looking partisan. I’m hoping this helps them, too,” said Stearns. ■

Peter Grier, the Washington bureau chief of the Christian Science Monitor, is a longtime defense correspondent and regular contributor to Air Force Magazine. His most recent article, “Partners in Space,” appeared in the February 1999 issue.

The Lighter than Air Force



Long before satellites and advanced technology, the hot-air balloon performed the first reconnaissance missions. The Army's first air arm was created during the Civil War, under the command of balloonist Thaddeus S. Lowe. The Balloon Corps of the Army of the Potomac, as it was called, proved to be a valuable asset in aerial observation but was disbanded in June 1863 due to

changes in Union Army command. In 1887, impressed with the balloon's contributions in the Civil War, Signal Corps chief Brig. Gen. Adolphus W. Greely established a balloon squadron, much like the one seen here at Ft. Myer, Va. During the Spanish-American War, the Signal Corps used balloons to observe Spanish forces and direct artillery fire in the Battle of San Juan Hill. Even during

the early stages of World War I, balloons continued to be used as recon vehicles. With the invention of the airship and airplane, the skies became unsafe for balloon travel, thus ending the use of balloons in recon missions.

The government says the program is working, but the complaints continue to pour in.

Tricare Goes Nationwide

By Peter Grier

FOUR years after letting its first contract, Tricare is finally up and running nationwide. Defense officials say the new health care setup has done nothing less than revolutionize the peacetime delivery of military medicine. They insist that it has provided better access to high-quality care for a larger number of beneficiaries, more cost-effectively, than previous systems.

Those on Tricare's receiving end do not always feel that way. Retired members of the military, in particular, contend that it does not always seem to meet their needs. From slow claims processing to access standards and billing limits, the complaints about Tricare just continue to pour in.

"There are still significant issues that must be resolved," warned Cmdr. Virginia M. Torsch, USNR, an assistant director of The Retired Officers Association, at a Congressional hearing on military health programs early this spring. Echoing those words at the same hearing was Sydney T. Hickey, an associate director of the National Military Family Association, who, like Torsch, spoke on behalf of the Military Coalition, a group of organizations (including AFA) representing the views of some 5 million active duty and retired personnel, plus their families.

A sampling of their testimony:

Slow claims processing. "For beneficiaries, claims processing delays often result in dunning notices from providers or even having their accounts turned over to collection agencies—jeopardizing their credit ratings if they fail to pay the claims out of their own pockets. In fact, [Military Coalition] associations have been informed that beneficiaries are routinely paying bills sent by providers rather than spend the hours, and sometimes days, necessary to fight the Tricare claims process. As the chief of staff of the Army noted recently, a claims system that requires only 75 percent of claims to be paid within 30 days is inadequate protection for uni-

formed services members and their families."

Rigid pre-authorization. "Requirements for pre-authorization for care for both Prime and Standard beneficiaries vary widely from Tricare region to region. For example, in Region 1, the managed care contractor requires pre-authorization for all inpatient care, regardless of the beneficiary's enrollment status (Prime or Standard) or residence (in or out of the catchment area of a Military Treatment Facility). The coalition is also very dismayed that pre-authorization is even required for Tricare beneficiaries with other health insurance that pays first. This blanket requirement for pre-authorization is creating havoc among beneficiaries in this region. For example, the coalition just heard of a case where a Tricare Standard beneficiary residing in a noncatchment area in Region 1 almost had to cancel his wife's surgery because he was unable to obtain pre-authorization in time. If a staff member from one of the coalition's associations had not stepped in and asked a representative from the managed care contractor in this region to look into this situation, the surgery would have had to have been canceled. Another Standard beneficiary in Region 1 received care from her local Veterans Affairs hospital (under contract as a Tricare provider) which did not get pre-authorization, so now they are trying to charge her \$3,000 for her inpatient care. Although we have been assured she will not have to pay this bill, both of these cases point to a breakdown in communication to providers about the requirement for pre-authorization, especially outside catchment areas."

Point of service charges. "The coalition also continues to hear of a problem that it raised in last year's testimony to this committee—the issue of Prime enrollees being unknowingly referred to an out-of-network provider and thus incurring point of service charges, which are much higher than

Prime copayments. Again, this problem now appears to originate from military providers referring Prime enrollees to out-of-network providers, not the civilian contractors. The civilian managed care contractors appear to have set up mechanisms to help eliminate any mistaken referral to an out-of-network provider. However, military hospitals have failed to implement any such procedures. In fact, the coalition recently heard about a Congressional staff member who incurred major health care costs, while still on active duty, from an erroneous referral by a military physician to an out-of-network provider. This individual happened to be a base commander and asked the very obvious question that, if a base commander has such trouble with unplanned, and unrequested, point of service charges, how does the enlisted service member prevent this from happening?"

Triple Option

Tricare is a triple-option health benefits package. Beneficiaries have a choice of Tricare Prime, a managed care Health Maintenance Organization type of option; Tricare Extra, a preferred provider option; and Tricare Standard, the old CHAMPUS fee-for-service system.

The heart of Tricare is the existing network of military hospitals and clinics—what officials call "the direct care system." This network has been augmented by managed care support contractors to provide health care and administrative services not available from military facilities.

"Approximately 75 percent of the health care is delivered in the direct care system, and nearly 87 percent of the 3.3 million people that are enrolled in the program are enrolled in the direct care system," Dr. H. James T. Sears, executive director of the Tricare Management Activity, told the Senate Armed Services Committee subcommittee on personnel.

Even critics admit the system has made progress from a slow start-up in many parts of the country. For instance, it is easier to get service provider representatives on the phone in many Tricare regions. Claims processing has improved.

Last year, 83 percent of all Tricare claims were processed within 21 days, according to Dr. Sue Bailey, assistant secretary of defense for health affairs. The goal for contractors to hit was 75

percent of claims within the three-week time period.

"Not Good Enough"

"Although meeting the standard, it is not good enough," Bailey told the Senate panel.

How true, say some recipient groups. Claims remain one of their biggest areas of concern.

A cumbersome and unresponsive claims process is a primary cause of frustration for both beneficiaries and civilian Tricare providers, said Torsch, representing the Military Coalition.

Providers often face months of delays in getting paid and have a difficult time even getting in touch with Tricare claims processors to discuss their problems, said Torsch. It is the single most frequently mentioned reason providers opt out of the system or decline to join it in the first place, she said.

It was a major cause, for instance, of the recent withdrawal of Group Health Cooperative of Puget Sound, Wash., as a network provider in Tricare Region 11.

"The loss of Group Health is particularly troublesome since GH has over 23,000 enrollees in Tricare Prime and moving these enrollees to other providers is no small task," said the Military Coalition in a written submission to senators.

The Military Coalition believes that Tricare's claims processing goals are not adequate to protect service members and their families. Some beneficiaries are routinely paying bills themselves rather than expend the energy needed to fight the claims process.

One big cause of these problems is that, in the entire nation, there are only two financial intermediaries familiar with the Tricare claims process, according to the coalition. With a virtual monopoly on the business, they have little incentive to invest in electronic claims processing or other new, efficient procedures.

Torsch recommended a complete redesign of Tricare claims processing in at least the two Tricare regions whose managed care contracts are being renewed next year. The aim is to streamline information flow and decision making.

"Adoption of such practices would likely save the government \$300 million per year," reported the Military Coalition, "because the \$9 Tricare per-claim processing cost vastly exceeds

the \$2-per-claim cost of best private practices."

Beneficiary concerns go beyond the well-known issue of claims, however. Other areas of worry include:

Overall funding. The Military Coalition and other groups remain concerned about the amount of money defense health programs receive in the budget. Although DoD added \$445 million to the medical budget in Fiscal 1999, and allocated another \$2 billion overall for the next five years, unanticipated medical costs from military operations could have an impact on the budget for the rest of the system.

Specifically, the coalition is calling for Tricare program funds to be based on the number of uniformed services beneficiaries who are eligible for the system, as opposed to being based on the number of beneficiaries who actually used the system the previous year.

Continuity of care. This does not exist under Prime, claim the critics. Depending on specialists and services that are available in local Military Treatment Facilities, patients can be shuffled back and forth between MTFs and civilian specialists. In civilian HMOs, the beneficiary's primary care manager acts as a gatekeeper, overseeing and recording all treatments and medications, whatever their source. But in Tricare Prime there is no such gatekeeper with a fully informed overview—at least, not when the beneficiary receives both MTF and civilian care.

"Their primary care manager in that case is normally the clerk at the Tricare service center," said Hickey.

Portability of enrollment and reciprocity of care are other particular Prime problems, said Hickey. It is DoD policy that Prime enrollees should be able to transfer their policy from region to region when they move and that a recipient from one region should be able to receive care in another when traveling. But this flexibility has yet to be implemented in all areas of the country, claims the coalition.

It can take weeks for Prime enrollees to transfer policies. "We have one case where it took five months to effect," she said.

Reciprocity is scarcely more widespread. This situation hampers beneficiaries who live near the border between regions, for example. The closest specialist for a procedure they need may be just across the border—

but getting approval for a visit can be difficult, if not impossible.

Seeking Seamlessness

"Tricare must become a seamless system to truly serve a beneficiary population that is probably the most mobile in the country," said the coalition's written presentation.

Such basic standards as ease of access are not being met for Tricare Prime in many regions. Critics continue to insist that they have many instances where standards for time of access and distance to treatment are not being met.

Interestingly, it is no longer civilian providers who are most often cited as the cause of these problems. "This is primarily at our Military Treatment Facilities," said Hickey.

Even Tricare Standard, the fee-for-service military health option, does not escape unscathed from critics of the new system.

For one thing the Standard catastrophic cap—the total amount a beneficiary would have to pay in the event of an expensive, acute medical problem—is \$7,500 for retirees. That is much higher than the \$2,000 or \$3,000 cap in many civilian fee-for-service plans.

Tricare Standard billing limits can also hinder beneficiaries. In 1995, the Pentagon unilaterally reinterpreted Standard's 115 percent billing limit in cases where beneficiaries also had third party insurance. This has cost beneficiaries considerable money, complain critics.

This Much, No More

Providers can charge whatever they want for a given procedure, but Tricare Standard only recognizes amounts up to 115 percent of its preset "allowable charge" for any given procedure. Say a beneficiary with third party insurance goes to a favored provider who charges a high price, perhaps 200 percent of Standard's allowable charge. The third party insurer pays first and antes up an amount equal to 115 percent of the allowable charge.

Under post-1995 rules, Tricare won't kick in an extra dollar. The beneficiary has already received the 115 percent of allowable charge limit—even though it was not the military doing the paying. Under pre-1995 rules, Tricare would have paid the balance that the third party insurer did not cover, since in any case that sum would be less than what the military would have paid if

the beneficiary didn't have third party coverage.

"DoD's shift in policy unfairly penalizes beneficiaries with other health insurance plans, by making them pay out-of-pocket what Tricare previously covered," said the coalition.

Fixing all these problems in Tricare will be far from easy. But coalition spokesmen insist that it is necessary to keep faith with the current and retired military members, and their families, who feel they were promised quality health care as payment in part for serving their country.

"The coalition believes that each of these problems must be addressed in an expeditious fashion in order for Tricare to enter the 21st century as a fully functioning uniform health care benefit," concluded Hickey.

Furthermore, it would be a mistake to think that Tricare's problems center on treatment for military retirees and their families. Shortcomings in defense health programs for retirees are spilling over into the active force as well, insists the coalition.

In the spring, the Army's 5th Recruiting Brigade held a Family Symposium in St. Louis. The meeting brought together military spouses to discuss matters of concern to recruiters, their families, and the Army. At the close of the symposium those present voted on their top five issues. According to Col. Charles C. Partridge, USA (Ret.), an official of the National Association for Uniformed Services, "Issue No. 2 was 'Timeliness of Tricare Claims Payment.' Issue No. 1 was 'Lack of Tricare Providers.'"

Pentagon and military service officials say that Tricare is a solid foundation on which to build. They are encouraged by surveys that show increasing satisfaction among Tricare users—93 percent of Prime users would re-enroll, according to a recent Pentagon poll.

However, the Defense Department does not insist that the system is perfect. Among the problems that Air Force Surgeon General Lt. Gen. Charles H. Roadman II identified for the Senate Armed Services subcommittee on personnel were claims processing difficulties, Tricare Standard maximum allowable charges, and improvement of beneficiary awareness.

Challenges

"As with the civilian sector, we are frequently met with local resistance to managed care, from local medical societies, civilian providers, and our patients," said Roadman. "This is all part of the education process with which we are challenged."

The health care budget remains a challenge, too. From 1997 to 1999, the Air Force delayed needed health care infrastructure and equipment purchases to pay for patient care, according to Roadman. The 2000 budget has halted this slide, but it has not totally redressed the shortfall.

"Facilities are still funded at about 80 percent of requirement," said Roadman. "Equipment replacement is funded at about 75 percent of requirement."

Some Tricare regions are doing better than others, Pentagon officials admit. Some are on top of their claims and access scheduling delays, while some are not.


DoD is attempting to reverse this situation through enforcement of today's standards and establishment of tougher ones. The current goal is to get 75 percent of bills processed within 21 days. This fall, the goal will rise to today's Medicare standard, which is a 90 percent closure rate in 21 days.

Monetary incentives may help, too. "If claims are left for over 30 days, ... there will be interest paid on those claims," said the Pentagon's top doctor, Bailey.

Phones will be monitored more assiduously. Training will be expanded. Phone systems will be added to help ease the access crunch. Confusion and out-of-pocket costs should be reduced for recruiters, ROTC members, active duty military personnel who support the Guard and Reserve, and other Tricare beneficiaries who work in areas remote from MTFs.

"We all know that we have tarnished the image of the military health care system through these [past problem] business practices, even though we give world-class delivery of health care on a regular basis," said Bailey. "We need to restore confidence in Tricare and that's what we're actively trying to do at this time." ■

Peter Grier, the Washington bureau chief of the Christian Science Monitor, is a longtime defense correspondent and regular contributor to Air Force Magazine. His most recent article, "Partners in Space," appeared in the February 1999 issue.



**The T-3A Firefly
is still grounded,
but the
Introductory
Flight Training
program
is in the air.**

The Pre-Pilots Fly Again

Civilian flying schools have contracts to conduct IFT, and some cadets are being scheduled for pre-pilot training at Air Force Flight Training Centers.

By Watter D. Miller

THE Air Force's new Introductory Flight Training program finally got fully up and running Feb. 1. On that date, the Air Force Academy's cadets once again began to undergo cadet pre-pilot training flying. USAF's commissioned officers destined for Specialized Undergraduate Pilot Training had begun to participate in the program a few months earlier.

IFT is the successor to the currently defunct pilot-screening program, which was suspended in summer 1997 after the crashes of three T-3A Firefly screening aircraft over the preceding three years of the flying program. These crashes resulted in the deaths of six Firefly crew members and touched off a political uproar.

The Firefly remains grounded for the moment. Now, the Air Force provides the IFT course entailing 40 hours of FAA-approved syllabus-prescribed flying time in light aircraft and completion of at least one solo flight. The syllabus generally follows the training required for a private pilot's license.

Civilian flying schools at more than 180 locations throughout the United States have been given contracts to conduct IFT for commissioned officers scheduled to enter SUPT.

An estimated 560 Air Force Academy cadets in the Class of 1999 were destined for SUPT. Because of IFT's



Staff photo by Guy Acento

The T-3A had been used to screen candidates before they entered undergraduate pilot school, but USAF suspended Firefly operations in July 1997 after a series of accidents that have been linked to the engine's fuel supply system.

late start, plans called for many of those cadets to undergo introductory training after commissioning. Some others were scheduled to fly at local Air Force Flight Training Centers (formerly Aero Clubs) before leaving the Academy.

During the hiatus in operations, USAF lacked any type of pre-SUPT screening program. The service's inability to prequalify pilot candidates hampered efforts to lower training attrition, which has become a critical problem. Declining pilot retention and training system constraints have kept the Air Force from

increasing pilot production. Strict selection at the start of the process results in more success, especially in the Air Force's technically advanced systems.

Cost Cutter

Lower attrition translates directly into fewer entering trainees, fewer and smaller bases and training facilities, fewer instructors, smaller and less costly spare parts and materiel inventories, and lower utility bills, to name some of the more obvious benefits. In short, it saves money. The imposition of high entry standards helps the Air Force to limit the quantity of expensive flying hours and other scarce resources that it expends on candidates with little potential to actually become rated pilots.

There has been a sharp erosion in USAF's ability to train new pilots. Col. Fred K. Wall, chief of operational assignments at the Air Force Personnel Center in San Antonio, said it is a long-term problem. "Before the problem can be turned around in 2002," he said, there will be "a deficit of some 2,000 to 2,100 pilots."

Because of increased operational requirements, decreased retention, training base closures, and belt-tightening measures forced by budget cuts and other factors, pilot training resources are stretched to capacity.

Next year—and for the foreseeable future—pilots must be graduated at a rate equaling the maximum



USAF acquired the T-41 in the mid-1960s for preliminary flight screening, and the Air Force Academy used T-41Cs, based on the Cessna R172E. In April 1992, the T-3 was selected to replace the Mescalero.

capacity of USAF to train them, about 1,100 a year. There is no "slop" available—and the steady requirement for a pilot force of 14,000 is not expected to decrease in the foreseeable future.

For all these reasons, the quality-in philosophy is critical to selecting and screening potential Air Force pilots. Today's smaller, near-capacity pilot training system can no longer absorb large numbers of entrants only to have many of them fail to complete the course before going on to advanced flying.

Careful introductory training, with the predictably lower attrition rates, is required to ensure an efficient and effective supply of pilots to the combat forces.

The Air Force expects that some 85 percent of those successfully completing the new introductory program will win their Air Force wings, according to Lt. Col. Dan Beatty, assistant to the chief of Air Education and Training Command's flying training division at Randolph AFB, Texas. It's the only way to do more with less and maintain a consistent SUPT output.

"We're in such a deep hole, now, the only thing that will get us out is to keep pilot production high for a long time," claimed Wall. IFT is one way to accomplish that.

Before IFT came into operation, USAF had sent some pilot trainees with no previous hands-on training or skills screening to SUPT. Predictably, elimination rates for those without screening or prior flying experience increased.

Four Times Better

During pilot training classes 99-1 through 99-9, 93 out of 589 active duty pilot candidates (15.8 percent) were eliminated. The success rate for those who had undergone the prescribed 20 to 25 hours of pilot screening was four times that of trainees who had not undergone any sort of screening.

This snapshot view of attrition is alarming. In terms of dollars and mission impact, each unsuccessful pilot trainee costs the Air Force about \$50,000 and deprives someone who



Staff photo by Guy Aceto

Without screening by the Firefly, pilot training attrition rates had been climbing, according to AETC. With a pre-pilot training program in place, USAF expects that about 85 percent of those who complete it will go on to earn pilot's wings.

might otherwise have won his or her wings from entering pilot training, said Beatty.

The requirement for predictable SUPT production in the face of declining pilot retention demands a relatively inexpensive way to ensure that pilot training candidates are viable prospects for Air Force wings.

IFT's civilian-contracted, per-student charge for a small aircraft such as the Cessna 172 or T-41 is \$4,000. This includes flying hour fuel costs for a minimum of 40 hours of flying time, ground school and instructor fees, aircraft maintenance, and all other factors associated with overhead, administration, and operation of the program.

Since suspension of the screening program in 1997, exhaustive studies of the Firefly problems have been conducted by USAF, AETC, and other field agencies. The Air Force announced in January that FAA supplemental-type certification has been obtained. Modifications to both the T-3A and the training syllabus have also been approved.

Pilot screening in the T-3A is expected to resume at the Air Force Academy and Hondo, Texas, when the program and aircraft changes are completed sometime after the year 2000.

In the interim, each of the remaining 110 Fireflies are expected to undergo 10 separate aircraft systems modifications at an estimated total cost of \$6 million.

Compared with the cost of the T-41, which is a high-wing basic trainer, the T-3A is more expensive, but, unlike the T-41, it offers aerobatic maneuver capability and the ability to operate "in the vertical," as many high performance Air Force combat aircraft are required to do. With such capability, prescreening before SUPT is expected to be more effective and attrition further reduced during jet training.

When contrasted with aircraft used in SUPT, however, the greatly reduced cost of light aircraft as introductory trainers is abundantly clear. Hourly cost for operating a T-41 or Cessna 172 IFT-type aircraft is approximately \$40 per flying hour. This compares with the beginning SUPT aircraft, the T-37, at \$251 an hour; advanced SUPT airplanes, T-38s, at \$618 per flying hour; and the T-1, used for those students destined to fly tanker and transport aircraft, \$164.

Once T-3As are returned to flight, AETC can begin another step on the road to returning to T-3 operations—the process of screening and training instructor pilots. AETC officials estimate a minimum of 18 months will pass before the T-3A is back in operation on a full-time basis. ■

Col. Walter D. Miller, USAF (Ret.), lives in Colorado Springs, Colo. His most recent article for Air Force Magazine was "Airmanship Spoken Here," in the December 1995 issue.

Throughout the 1930s, American airmen fought the Imperial Japanese Army in China.

Before the Flying Tigers

By Robert E. van Patten

FULLY 10 years before the advent of Claire Chennault's Flying Tigers, American pilots and airplanes were involved in an air war over China. What was to become the Sino-Japanese War in 1937 actually began with a Japanese incursion in Manchuria in 1931. This conflict festered for the next six years. In that period, pilots from the US, Britain, France, Italy, Russia, and probably Germany took part in battles in the skies over China.

With the exception of the Italian and Russian contingents, which were officially sanctioned by their governments, the pilots who trained the Chinese and who fought for them were adventurers, soldiers of fortune, and out-of-work military professionals. Most of them were Americans. Many historians consider this hit-or-miss, bloody little air war to be a backwater of events. Yet the battles fought by these early warriors laid the groundwork for a massive air war over China, Southeast Asia, the Mariana Islands, and the Japanese homeland.

The fighting history of US-built aircraft in combat inside China actually extends back to 1930, when American-produced light bombers were used in action against two northern warlords. In 1931, 20 light bombing-observation airplanes were ordered from Douglas. These are believed to have been the Type O2MC-4, large two-place, radial-engined biplanes, which were used as trainers at the Nanking flying school.

The invasion of Manchuria by Imperial Japanese Army units in September 1931 added impetus to the strengthening of the Chinese Air Force, not least because the Japanese attack put an end to a civil war between factions based in Nanking and Canton. The factions included all of the loose-cannon independent warlords except for a holdout in Fukien province.

The First Casualty

The first American aviator to die in combat against the Japanese, Robert Short, was killed Feb. 22, 1932. Short, a native of Tacoma, Wash., had been hired by the L.E. Gale Co. to fly and sell Boeing fighters in China. Relatively little is known about Short beyond the fact that he was an ex-Air Corps pilot





Two Japanese bombers scatter as Robert Short, in his Boeing fighter, goes after them. Short was among the first American pilots who fought for and trained the Chinese in the decade before World War II.

• SWAPSTON 99



By the mid-1930s, Curtiss Hawks had become the primary fighters used by the Chinese Air Force. Both American and Chinese pilots took Hawk IIs into combat against nimble Japanese fighters like the Mitsubishi A5M4 Claude.

seeking work. Described variously as a stunt and endurance pilot and as a soldier of fortune, he once said in a newspaper interview that he would be happy to die in his fighter.

Short had no official Chinese mandate to engage in air combat. However, he flew his Boeing Model 218 with loaded guns. Then, in mid-February 1932, he actually used them on a formation of Japanese Nakajima A1N2s flying off the carrier *Hosho*. Short damaged one of the Japanese aircraft and then disengaged. On the day of his death, Short was ferrying his Boeing from Shanghai to Nanking when, in the vicinity of Soochow, he encountered a group of Mitsubishi B1M two-seaters from the Japanese aircraft carrier *Kaga* (later to be part of the Pearl Harbor attack force). He attacked one of the Japanese aircraft, killing its gunner, but was trapped by the escorting A1N2s and shot down by Japanese pilot Yoshiro Sakemago. After his death, Short was so venerated by the Chinese people that the government erected a monument to him at the entrance to the Hungjao aerodrome in Shanghai.

Some idea of the limited capabilities of the CAF during this period can be gained from one observer who noted that, in 1931, there were only five Chinese pilots competent to fly all types of aircraft and another 20 capable of flying trainers. By 1934, there were about 200 native Chinese military pilots, but training standards were not high, and there

is no reliable information on how many of them had actually soloed.

In January 1932, the war brewing between China and Japan generated the so-called Shanghai Incident. It began as a Japanese reaction to a Chinese boycott of Japanese goods, a reaction that led to two months of hot combat. Japanese troops assaulted the Chinese 19th Route Army near Shanghai, and it was during this period that Short was shot down and killed.

The Chinese Air Force fared badly, despite its use of some 200 US, British, French, Russian, and Italian aircraft in battle. By the time the Shanghai Truce was signed, the Nanking government had finally become sufficiently alarmed about the shortcomings of Chinese airpower that it moved to establish a new and modern flying school utilizing American know-how.

In July 1932, the Chinese flying school saw the arrival of its first American military instructor pilots. They were led by John H. Jouett, who had been separated from the Army Air Corps as a consequence of budget cutbacks. China accorded Jouett the rank of colonel. He arrived in the company of other involuntarily retired pilots, all of whom retained their reserve ranks. Each recruit was cautioned to keep his contract with the CAF secret, part of a vain attempt to keep Japan from figuring out what was going on. The cadre was fleshed out with mechan-

ics, riggers, armorers, and engineers who either traveled to China with Jouett or were recruited by him after he arrived. About 30 American pilots were in China at this time (see box, p. 76).

Randolph of the Orient

Jouett immediately set about the task of turning the CAF flying school at Shien Chiao into an Asian Randolph Field, establishing an immediate program to upgrade the physical plant of the base. He insisted that all instruction be in the English language and used training aids, tech orders, and manuals he had brought with him from the US. The American instructors were pleased to discover that most of their CAF cadets were motivated and intelligent, and Jouett's flying school soon produced graduates and Instructor Pilots. This was a welcome change from earlier training efforts in which pilot candidates were selected on the basis of family status and connections.

Jouett annually cranked out graduating classes of 100 Chinese cadets until the contract expired in 1935 and he returned to America. The pace of work was nothing if not brisk. The notes kept by one American IP noted that he commonly logged 100 hours a month of flying instruction.

Life at the school was not easy. It suffered serious manpower losses due to injuries compounded by incompetent medical care. In that primitive and unsanitary environment, seemingly insignificant wounds could become terribly infected. Jouett had to be circumspect in his comments about the incompetence of local doctors, as this would cause immense political problems. Another problem was that the Chinese ground support and flying personnel were not as safety conscious as the American instructors would have liked.

The main flying school never came under Japanese air attack, but it was once thought to be seriously threatened by the aircraft of the forces loyal to the rebel Fukien warlord. The intelligence warning turned out to be false, but only after the German-trained Chinese anti-aircraft gun crews had a field day with their new Bofors automatic cannons. Fortunately they did not hit any of the friendly aircraft they had mistaken for marauding Fukien airplanes.

Chinese politicians and military

leaders sometimes gave Americans "confidential assignments," some of which strayed far from military tasks for which the pilots had been hired. Mostly, these did not violate the Neutrality Act and did not, therefore, raise legal dangers in the US. So strong was isolationist sentiment in the US at the time that any pilot caught engaging in an act of war on behalf of the Kuomintang (or any belligerent) would have been stripped of his citizenship. As the military situation in the Far East deteriorated, however, provisions of the Neutrality Act were far less stringently enforced. In April 1941 President Franklin D. Roosevelt issued an executive order permitting military pilots to fly and fight abroad for up to one year.

Sailing to Byzantium

The Americans had to cope with Chinese politics that were truly Byzantine. Take, for example, the experience of American pilot Thomas Taylor toward the end of his time in China. While flying money, destined to pay Chinese troops, from a bank in Hankow to one in Chungking, he had been approached on three occasions with a request to load the Condor with bombs and other ordnance to resupply Nationalist forces fighting the Communists they had cornered in Yunnan. Taylor said that, because of the Neutrality Act, he consistently refused. Finally, during a face-to-face meeting he had insisted upon, Madame Chiang Kai-



In 1938, both an American group of volunteers and a Soviet contingent were stationed in Hankow. Soviet aircraft in China included Tupolev bombers and Polikarpov fighters. The Japanese Army had captured this one in Manchuria.

shek pleaded, Taylor said, stating that the Communists would surely behead the American missionaries trapped in the area unless he flew bombs and ammunition to the CAF units there. Taylor, knowing that Communist troops had decapitated other missionaries, gave in.

Taylor was not the only American mercenary pilot who encountered Madame Chiang. In 1938, Cornelius Burmood showed up in China with two Beechcraft Staggerwing D17Rs, intending to sell them to Generalissimo Chiang Kai-shek as VIP transports. Burmood said Madame Chiang

had soon convinced him to serve as her personal pilot, but the American found himself hauling top Chinese officers through thick flak in every battle zone in China.

In the 1930s, China became the arena of a fierce competition to sell fighter aircraft to the CAF. The primary contestants were Italy and the US. The Italian candidate was the Fiat C.R.32, a fast, sturdy, and handsome product of the mind of Celestino Rosatelli. The other was the Curtiss Hawk, a proven design which, in the hands of Jimmy Doolittle as corporate demonstration pilot, decisively won the competition in May of 1933.

Doolittle resigned from the Army Air Corps in early 1930, establishing a reputation as a top acrobatic pilot, racing pilot, and consulting aeronautical engineer. The demonstration he put on with the Hawk at a show in Shanghai featured an acrobatic display that included an outside loop performed at such low altitude that even experienced pilots observed with terror. This display had both the newspapers and the CAF agog. From that time on, Hawks were the primary fighter series used by the CAF.

The greatest influx of American-made aircraft into the CAF came as a result of a 1936 fund drive in celebration of the 50th birthday of Chiang. The fund drive raised almost \$1 million; it was used, in part, to acquire 10 Boeing P-26As based



Even Jimmy Doolittle went to China in the 1930s. His work as a corporate demonstration pilot took him to a Shanghai airshow, where his acrobatic display in a Curtiss Hawk convinced the Chinese to buy the fighter for its air force.

at Nanking. These aircraft were divided into two squadrons and were flown by a mix of Chinese and mercenary pilots. The P-26s scored a success Aug. 20, 1937, when they shot down six bombers attacking Nanking. The Chinese career of the "Peashooters" was brief. By the end of 1937, they had suffered fatally from a lack of spare parts and were all out of service.

Then, on July 7, 1937, the Sino-Japanese War began in earnest. The two Asian giants had grappled for years in virtually continuous small-scale engagements. Now, they embarked on a path of mortal combat, commencing a conflict that was not to end until 1945, after a world war that brought the total defeat of Imperial Japan. Shortly after the official outbreak of hostilities, press reports in China heralded the arrival of more than 100 hotshot American pilots and creation of the 14th Volunteer Bombardment Squadron.

Chennault Arrives

Two months earlier, Claire L. Chennault had appeared in China as an aviation advisor to the Kuomintang. The US Army Air Corps had grounded him because of damaged hearing, bronchitis, and low blood pressure. Chennault had a reputation as a brilliant air combat tactician, as well as an outstanding acrobatic pilot. Never one to suffer fools in silence, Chennault had antagonized high-ranking Air Corps leaders—to the extent that they shuffled him out of the way by putting him in command of the Air Corps acrobatic exhibition team.



Claire Chennault (center) arrived in China in 1937 as an aviation advisor. He later organized the 14th VBS and the Flying Tigers. This 1942 photo shows him with Col. Robert Scott Jr. (left) and Brig. Gen. Clayton Bissell at Kunming.

In early 1937, however, an American friend, then serving in China, relayed to Chennault an offer from Madame Chiang to join the anti-Japanese effort. Chennault was more than ready for an opportunity such as this and arrived in China at the end of May 1937. He stayed for eight years. He first served as aviation advisor (and de-facto air chief of staff) to the Kuomintang in the period 1937–41. During that time, he organized the 14th Volunteer Bombardment Squadron and, in 1941–42, the famed Flying Tigers. He finished out his tour in China as commanding general of the US Fourteenth Air Force.

Organized under Chennault's leadership in the autumn of 1937, the 14th VBS (which some sources refer to as

the International Air Squadron) was the first predominantly American volunteer combat group in China. Chennault's pilot roster never numbered more than a dozen, even counting the odd French adventurer who occasionally would show up. The hard core of the 14th VBS pilot cadre consisted of James W.M. Allison, a veteran of fighter operations in the Spanish Civil War, Billy MacDonald, Luke Williamson, and George Weigle all of whom were handpicked by Chennault. Most of the rest who scrambled to join up in the 14th were not of the same high caliber.

The 14th VBS was stationed at Hankow in 1938 at the same time as a large Soviet contingent. The Soviet commitment in China consisted of twin-engined Tupolev SB-2 bombers and Polikarpov I-15 biplane and I-16 monoplane fighters. Following the demise of the 14th VBS, this Soviet force, amounting to over 120 aircraft, played a large role in air combat over China until they were withdrawn to deal with Japanese incursions along the Mongolian border and the outbreak of hostilities in Europe.

The combat history of the 14th is described only in pilot diaries. One surviving account records that the 14th was in heavy action during the winter of 1938. On Feb. 27, 1938, Vultee and Northrop bombers attacked Japanese troops and convoys in the vicinity of Loyang on the Yellow River. After bomb release, the

Among the American Pilots in China, 1932–40

James W.M. Allison
Art Chen
Claire L. Chennault
Jimmy Doolittle
E.D. Dorsey
Cecil Folmar
Franklyn G. Gay
Elwyn H. Gibbon
Harvey Greenlaw
L. Roy Holbrook
John H. Jouett
W.C. "Foxy" Kent
M.R. Knight
William C. MacDonald

Christopher Mathewson
John May
George E.A. Reinburg
Harry T. Rowland
Ronald L. Sansbury
John Schweitzer
Vincent Schmidt
Ellis D. Shannon
Robert Short
Sterling Tatum
Thomas Taylor
John "Luke" Williamson
George H. Weigle
Lyman Woelpel

formation's gunners administered a heavy strafing to troop concentrations near boats drawn up on the shore, apparently in preparation for a river crossing.

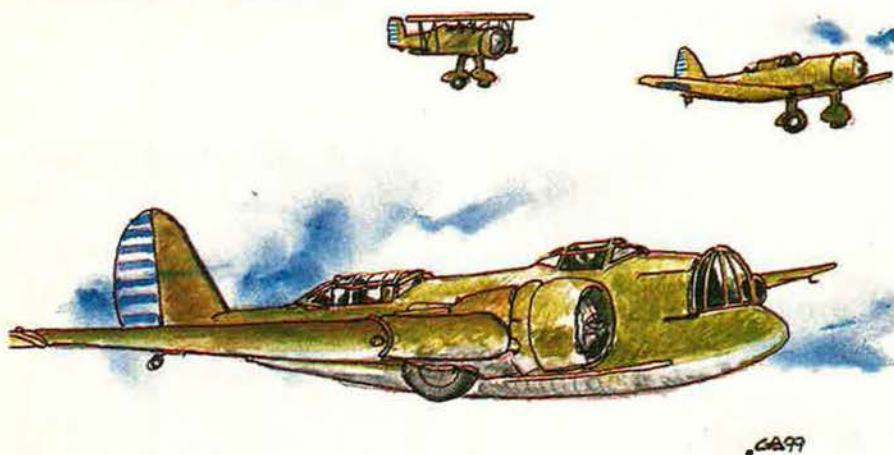
Short, but Sharp

Although the combat history of the 14th was short, it was intense. In the five months the outfit was a formal entity, one pilot recorded that he flew 116 sorties, which included 28 bombing missions and 15 night missions. Most of these missions were to targets in northern China and involved round-trip flying times as high as nine hours. Bombers weren't very fast in those days.

The 14th VBS was disbanded March 22, 1938, and, though it was gone, some of its pilots soldiered on in China. A letter written by Chennault records that, on April 29, 1938, his



The 14th VBS was the first predominantly American volunteer combat group in China. They paved the way for the American Volunteer Group—the Flying Tigers—like (l-r) John Alison, David Hill, Albert Baumler, and Mack Mitchell.



Before it was disbanded in 1938, the 14th VBS put in an intense five months of missions mostly to northern China. Its aircraft ranged from Hawk biplane fighters to Northrop bombers and some export versions (Boeing 139) of the Martin B-10s.

pilots participated with Soviet airplanes and pilots in an action that enticed the Japanese to fall into a trap prepared long in advance. It must have been some fight since eight enemy bombers and 13 fighters went down, accompanied by the loss of

nine CAF fighters. Pilots of two of those nine CAF aircraft bailed out safely and two others made successful forced landings. This "fur ball" included 60 fighters in the Chinese force against 12 bombers and 25 fighters in the Japanese force.

By the spring of 1941 it was time for the early warriors to pass the torch. The American Volunteer Group later known as the "Flying Tigers" was well on its way, beginning with men like Gregory "Pappy" Boyington and its established ace, A.J. "Ajax" Baumler, who, at the age of 22, had made five kills over Spain.

When America finally entered the war in late 1941, US military officers learned that the CAF had preserved some Chinese territory; such territory served as a sanctuary for at least a few of the Doolittle Raiders after their April 1942 raid on Tokyo. Soon after came the establishment of the China Air Task Force and the disbanding of the Flying Tigers. The Task Force was, in its turn, superseded by Fourteenth Air Force and from that point on, the air war in China accelerated in tempo and scope.

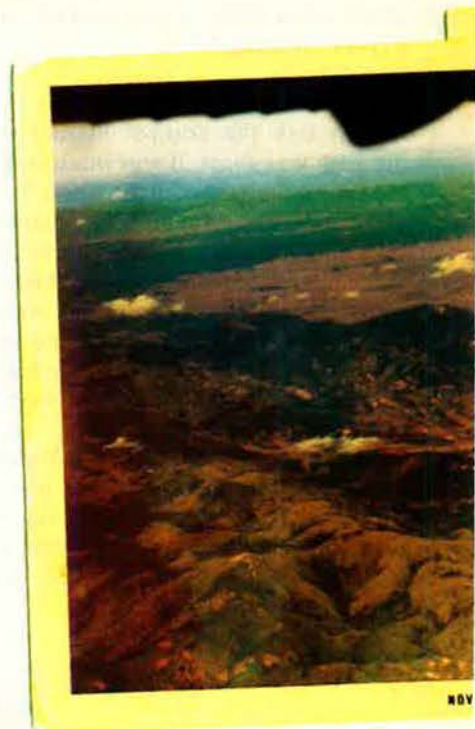
The efforts of these early aviators in China prior to the Flying Tigers helped the Kuomintang hang on long enough, and retain enough territory, to be able to provide the foundation for the major anti-Japan air campaigns of the early and mid-1940s. Without the skill and sacrifice of these obscure pilots, it is probable that there would have been no saga of the airborne supply line over the Hump and the history of the Fourteenth Air Force campaign would have been bloodier and more protracted. ■

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The “secret” war in Laos was a sideshow to the main war in Vietnam—and the crossroads of it lay here.

The Plain of Jars

By Walter J. Boyne



THE Plain of Jars is a 500-square-mile, diamond-shaped region in northern Laos, covered with rolling hills, high ridges, and grassy flatlands. Its average altitude is about 3,000 feet. It derives its name from the hundreds of huge gray stone “jars” that dot the landscape. About 5 feet high and half again as broad, these containers were created by a people of a megalithic iron-age culture and probably served as burial urns. Exactly who created them, and why their culture disappeared, is not known.

During the long Southeast Asian war, all sides found the Plain of Jars to be situated in a highly strategic location. The area was a home to several airfields and contained a limited road complex that connected various sectors of Laos to themselves and to the outside world. This crossroads has been a battleground for centuries but never so intensively as in this century’s many overlapping conflicts in Indochina.

The struggle for the Plain of Jars in Laos in the 1960s and 1970s was a mysterious and tragic affair, wrapped up in confusion and obscured by years of falsehoods and half-truths. It was a sideshow to the main war in Vietnam, but it was ennobled by some of the finest and most heroic flying in the history of the United States Air Force.

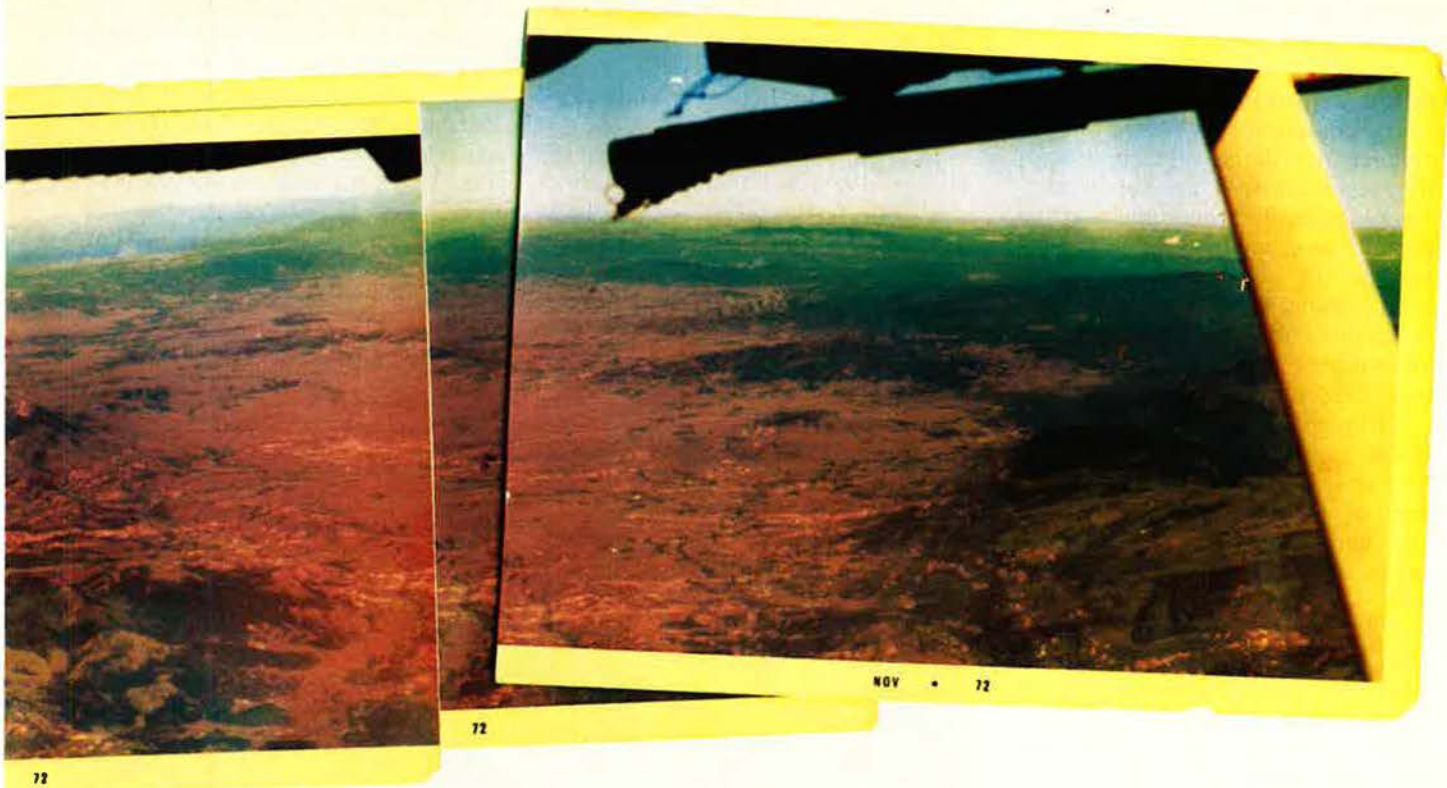
These valiant efforts were designed to support US-backed forces and destroy communist North Vietnamese units that opposed them. The many campaigns in the Plain of Jars were fought in parallel with a continuing bombing effort against the Ho Chi Minh Trail. The latter campaign would prove to be futile, for enemy activities in South Vietnam could be sustained on as little as 60 tons of supplies a day—the equivalent of about 30 trucks’ worth of materiel.

This Was the Home Team

The Royal Laotian Air Force made its first-ever strike on Jan. 11, 1961, using its entire operational fleet of four North American AT-6 aircraft, equipped with wing-pylon mounted rockets. Ten AT-6s had been provided, but there were not enough pilots to fly them.

The US arranged for training in Thailand, with the Waterpump program opening at Udorn in 1964. The RLAFF began an expansion that would see it receive 60 North American T-28Ds as its main attack force, supplemented by about 50 transports and 30 helicopters.

Like their infantry colleagues, few Laotian pilots were aggressive, and on critical missions the T-28s were often flown by Air America, Thai, or occasionally Raven FACs. A small number of Hmong pilots were trained, and despite their primitive upbringing in which the most advanced technology might have been a flintlock rifle, they proved to be exceptional. One, Lee Lue, a cousin of Vang Pao, was the veritable Hans-Ulrich Rudel of the Laotian war. The Raven FACs loved to work with him, for they considered him the best fighter-bomber pilot they had ever known. Lee Lue flew continuously, as many as 10 missions a day and averaging 120 combat missions a month to build a total of more than 5,000 sorties. Physically ravaged by fatigue and the endemic tropical diseases of the area, he literally flew until he was killed, shot down by heavy anti-aircraft fire July 12, 1969. Had the RLAFF had more Lee Lues, the outcome of the war might have been different.



Photos by Darrel Whitcomb

At the strategic Plain of Jars, US-backed forces fought North Vietnamese army and Pathet Lao units.

The Secret War

The Laotian war was a “secret” war, by tacit agreement of both sides. It was nominally a civil war, purportedly reflecting the divided interests and political loyalties of members of the Laotian royal family. In fact, the war was fought largely by surrogates for their own aims, the Laotians proving generally to be peace-loving even when—especially when—in uniform.

The communist force comprised tough, regular North Vietnamese army units and supplementary—and generally not very effective—local Pathet Lao units. They were opposed by the very ineffective Royal Laotian armed forces, whose leaders preferred to let the despised Laotian hill people, the Hmong, do the real fighting. The US supplied airpower on a very limited scale, initially, but in greater and greater amounts as the war progressed.

As the Hmong casualties rose, the US-sponsored fighting forces were increasingly augmented by Thai “volunteers,” whose numbers eventually reached 17,000. These mostly were mercenaries paid with US funds and led by the Thai army’s regular officers and noncommissioned officers.

The situation suited the US, which was loath to introduce American ground forces. The Hmong were supported by airpower and supplied by the CIA. Coincidentally, the North Vietnamese also were content to let the war simmer, as long as they could protect traffic along the ever-growing Ho Chi Minh Trail. Air sorties against the Plain of Jars tied up US military assets that otherwise would be used to bomb the trail. North Vietnam was confident that, when South Vietnam fell, Laos would fall.

The worst result of the 14-year struggle for the Plain of Jars was the destruction of a noble ally, the Hmong. They fought in countless battles against North Vietnamese forces and were in the end left to their fates. Originally numbering about 300,000 people, living high on mountain ridges and subsisting by means of slash-and-burn agricultural techniques, the Hmong suffered some 30,000 casualties, mostly young fighting men.

The Hmong families were driven from their homes to CIA-supported hilltop encampments, where they were fed by “soft rice drops” and armed by “hard rice drops.” When the end came, those who could do so

fled to camps in Thailand. Those who chose to remain in Laos were for years hunted down and killed by Laotian communists. A few Hmong relocated to the US.

The war was fought through the years on a seasonal basis, with US-sponsored forces advancing from April through September in the monsoon season and the North Vietnamese and its allies responding during the dry season of October through March. Perhaps unique to this ebb-and-flow war was an unusual vertical separation of territory, for the Hmong often dominated mountains and ridges even when the Pathet Lao or North Vietnamese owned the valleys below. It should be noted that the lowland Laotians discriminated against the hill people.

Laos is a landlocked country that shares a border with Cambodia, China, Thailand, Vietnam, and Burma (now called Myanmar). Its recorded history starts with the Lao kingdom of Lan Xang, founded in the 1300s. It has since suffered through six centuries of more or less unbroken warfare. In 1907, France established the modern borders of Laos, primarily to serve as a bulwark against Thai and Chinese expansion into what was then

French Indochina. It was granted independence in 1953.

In the Beginning

The communist influence in Laos originated with the 1950 creation of the Pathet Lao by Prince Souphanouvong and a hard-core communist from Hanoi, Kaysone Phomvihane. The US backed an unusual dual-regime arrangement consisting of Prince Souvanna Phouma and his neutralist government and that of the right-wing General Phoumi Nosavan.

Ultimately, the combination of Hanoi's interference and attempts by the US to control the development of internal Laotian affairs precipitated a crisis in 1962. Open warfare was averted, and despite the intensity that the conflict would reach over the next 13 years, both the US and North Vietnam would steadily deny any official involvement of regular ground forces in Laos.

The war would see Laos divided into three regions of de facto foreign control. The Vietnamese controlled the east, the area which became a corridor for the Ho Chi Minh Trail; US and Thai forces controlled the west, while the Chinese controlled the north, where they had enormous gangs of laborers building roads and railways for future use.

As the US became ever more involved in the war in Vietnam, the

importance of Laos and the Plain of Jars grew. Things remained relatively stable until 1968, with each side advancing during the season appropriate to it.

In 1968, however, things began to change. President Lyndon B. Johnson's declaration of a bombing halt over North Vietnam caused the intensity of the fighting—and the air war—to increase drastically in two Laotian theaters: the Plain of Jars and the Ho Chi Minh Trail. The conduct of the war in northern Laos was delegated

to the CIA-supported Hmong, who were led by a classic Asian warlord figure, Maj. Gen. Vang Pao. Napoleonic in stature and ambition, Vang Pao, had worked at age 13 with France against Japan and later against the Viet Minh, predecessors of the Viet Cong. He did so well that he was selected for officer training. In 1961 he was recruited by the CIA to serve as Hmong leader.

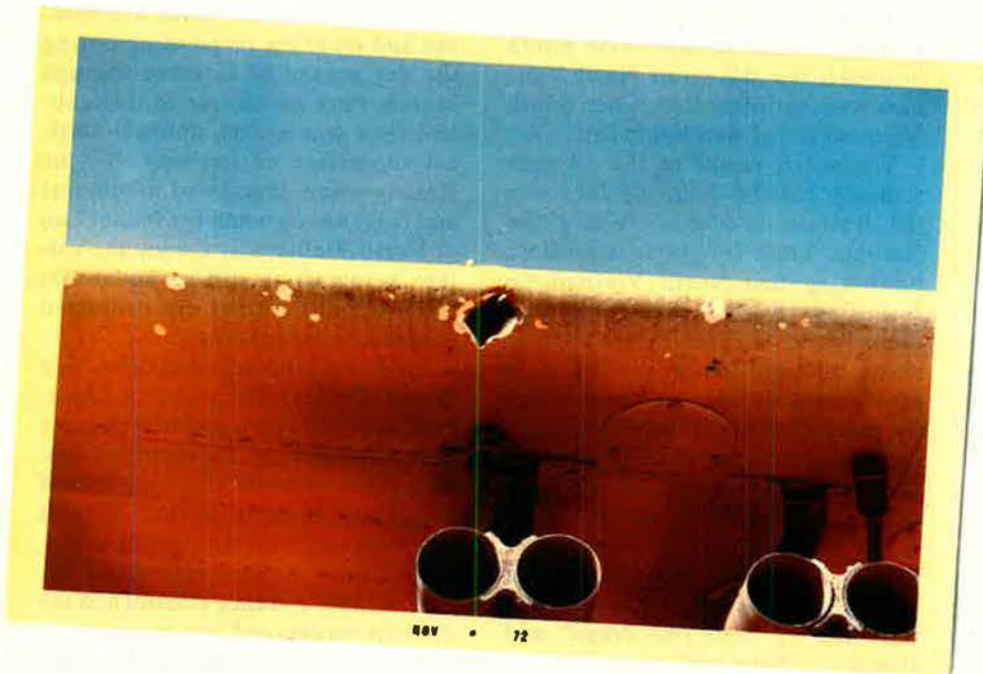
Type A Leader

Vang Pao was a type A person-



Photo by Darrel Whitcomb

By 1975, some 3 million tons of bombs had been dropped on Laos, including the Plain of Jars (above). The hole in the leading edge of a Forward Air Controller's O-1 below shows that threats from ground forces were always a danger.



ality, an enthusiastic and demanding leader, willing to do the dirty work himself and more than willing to lead in combat. He was trusted by the Americans, who delivered to him something no Lao leader had ever possessed, massive logistical support and airpower. He expanded the number of Hmong personnel under arms until they eventually numbered some 40,000. He saw to it that they were trained and well-equipped and led them first in guerrilla warfare and finally in conventional warfare against the North Vietnamese. Vang Pao was always proudly conscious that he was a Hmong who had made good in competition with the lowland (read, "highbrow") Laotians.

His leadership style led to some monumental victories but also caused some heavy defeats. His tactics resulted in heavy casualties over the years, so much so that eventually only preteen-age children and men over 45 remained to serve as soldiers. Everyone else had been killed, captured, or wounded. To spur recruitment, he would withhold rice from communities that sought to shield their young from joining his armies.

Nonetheless, in a country where fighters were few and fighting leaders almost non-existent, Vang Pao established himself as the man to deal with, and he was generally admired by the Americans who flew in his support, whether with the CIA-operated airlines or with the Ravens, the covert US Air Force Forward Air Controllers.

The year 1968 proved to be a watershed period of the conflict in Laos. The North Vietnamese committed more and more regular army units, and the Hmong villages were overrun, forcing evacuations to CIA-maintained hillside encampments. A serious setback occurred in March when a secret US installation at Phou Phathi (Site 85) fell to a determined North Vietnamese attack. Fitted with a modified TSQ-81 radar and a TACAN installation, the station had been vital for raids on Hanoi. Despite desperate efforts by Vang Pao and heavy air support, the site succumbed to overwhelming North Vietnamese army strength, with a heavy loss of life.

By the end of 1968, Laos was swarming with about 40,000 North Vietnamese troops and about 35,000 Pathet Lao. The Royal Lao Army was characterized at the time as "overweight in generals and underweight in fighting." It had 60,000 troops but still had a preference for leaving the real fighting to the Hmong.

Vang Pao scored one more great success, reconquering the Plain of Jars in 1969 with a brilliant attack heavily supported by American airpower. However, North Vietnamese troops recaptured the Plain again in early 1970 and held the initiative from that point on, twice besieging Vang Pao in his huge secret main base at Long Tieng. By this time, Air America was keeping some 170,000 Hmong refugees alive with airdrops of rice, a situation that had gone on so long that Hmong children were



Photo by Darrel Whitcomb

Air America flew in support of the Royal Laotian armed forces. The CIA-operated airline set up short runways (above), called Lima Sites, to transport arms, spies, equipment, and refugees and to carry out medevac missions.

said to believe that rice was not grown but simply fell from the sky.

The battles continued until US support ceased in 1973. Then the end came as predicted. Saigon fell April 30, 1975; Vang Pao and his family of six wives and 25 children flew out to Thailand on May 14. Thousands of Hmong followed by whatever means possible. The Pathet Lao announced their assumption of the government of Laos on Dec. 2, 1975.

Levels of Operations

Military aviation was seen in many forms and conducted at many levels of intensity in Laos over the course of the war. There were at least four general categories. The first, and the earliest, was the aircraft and airlift provided by the Soviet Union. The second was that furnished by the CIA, primarily by its proprietary, Air America. The third was the rather shaky support furnished by the Royal Laotian Air Force. (An exception was the excellent effort of Hmong pilots when, at last, they were trained to fly in the RLAf.) The fourth was the tremendous involvement of US airpower.

The story of CIA air operations has been told at length in several books, of which the most authoritative is Christopher Robbins' *Air America*. It began with the 1950 purchase by the CIA of Civil Air Transport, an airline started by Lt. Gen. Claire L. Chennault and Whiting

Willauer. CAT operated not only as an actual commercial airline but also as a conduit for covert US intelligence operations. In 1959 it was renamed Air America.

The struggle for the Plain of Jars cried out for Short Takeoff and Landing aircraft and for helicopters; Air America responded by acquiring such aircraft and building Victor Sites, extremely short runways often on mountaintops. These later became known as Lima Sites, and their number reached 400 by 1972.

In 1962, Air America greatly expanded its fleet in Laos, acquiring some 24 twin-engine transports, including the workhorse C-46 and the C-123. A similar number of STOL aircraft, made up of Pilatus Porter and Helio Courier types were also brought into service, along with 30 helicopters.

The relations between the official US military and Air America were often blurred, as assets, including aircraft like the C-130, were transferred in secret when the need arose.

Air America eventually employed more than 300 pilots to fly in and out of Thailand and Laos. In 1970 alone, it carried more than 46 million pounds of food to the Laotian people. It also carried arms, spies, radar equipment, and refugees and flew medevac missions.

As the war progressed, its equipment became more sophisticated and its missions more demanding. Air America crews flew at low altitudes

and in bad weather to insert or extract agents and combat units far behind enemy lines. They conducted photoreconnaissance missions during the day and used night vision equipment and sophisticated electronics for night reconnaissance. Late in the war, they even dropped "hot soup"—that is, napalm—on enemy positions, rolling barrels out the rear of Caribous.

Always controversial, the Air America crews flew valiantly under extremely difficult conditions. As the military situation in the Plain of Jars deteriorated, Air America's operations became increasingly hazardous. The proprietary often undertook missions in adverse weather and with terrain conditions that would have grounded regular military operations.

The Rescue Role

Air America was for a time the only organization capable of conducting aerial rescues of downed American airmen. Eventually supplanted by strong USAF rescue forces, quick reaction times by Air America crews saved many an airman before regular rescue helicopters could arrive. They also operated as FACs when there was no alternative.

Unquestionably, some Air America pilots violated the law, sometimes conspiring in the ship-

ment of contraband. The bottom line, though, is that Air America was asked to do jobs that Washington wanted done but could not or would not do itself. They did the jobs, at great risk, and suffered many casualties.

The first use of regular American airpower in Laos came in December 1960, when two reconnaissance missions were flown by the US air attaché's VC-47A. This was the harbinger of the future in more ways than one, for a unique situation developed in which the American am-

bassador in Laos was to become the controlling agency for the application of US airpower in Laos. The three American ambassadors in Laos during the long conflict all were powerful, assertive men who enjoyed directing military operations. They were Leonard Unger, William H. Sullivan, and George McMurtrie Godley. It was Sullivan who lobbied for the assignment of what became the 56th Special Operations Wing to Nakhon Phanom, Thailand. It scarcely

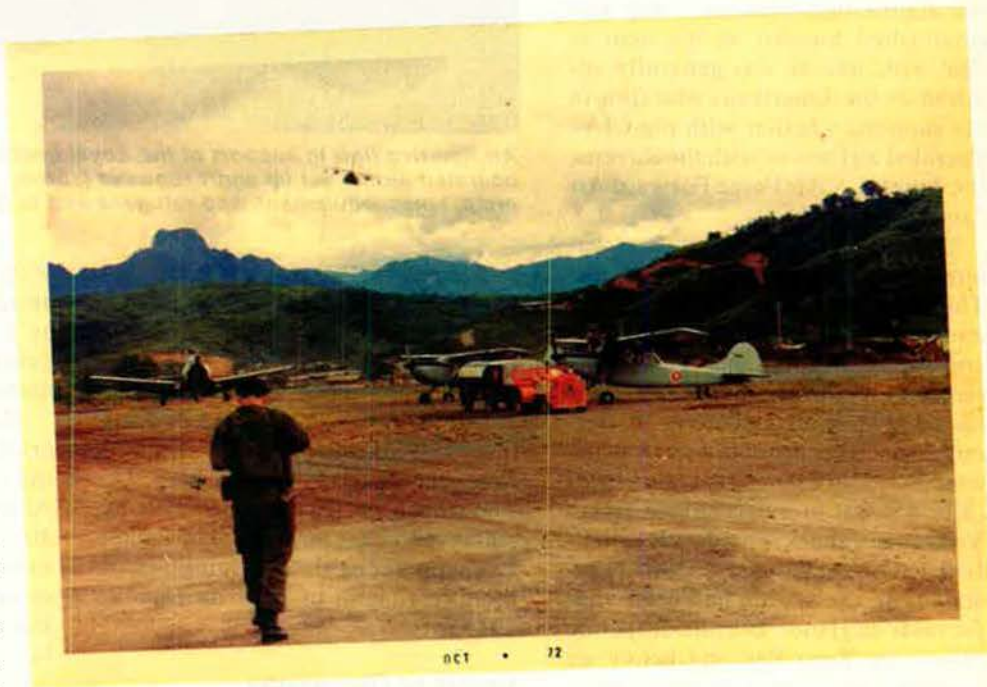


Photo by Darrel Whitcomb



On a tiny Lima Site, a T-28 and two Raven O-1s wait while a C-123 takes off (top photo). Air America helicopters, like this one, performed aerial rescues of US airmen, among the many jobs they carried out at great risk.

needs to be noted that the USAF commanders did not enjoy the fact that an ambassador, however committed and enthusiastic, was directing air operations.

Reconnaissance operations continued with SC-47s, one of which was shot down Feb. 11, 1962. This aircraft type was to be replaced by the RT-33A from Udorn RTAB, Thailand. In December 1962, the US began to launch "Able Mable" flights by RF-101s of the 15th Tactical Reconnaissance Squadron and the 45th TRS, operating out of Don Muang, near Bangkok, Thailand. For "protective reaction," the 510th TFS brought a detachment of F-100s while the 509th TFS provided a unit of F-102As.

Also in 1962, the buildup continued. Two squadrons of F-100D fighters were deployed to Takhli RTAB, Thailand. These were augmented by

Marine UH-34D and A-4 units. It was for a time a combined operation, featuring an RAF Hawker Hunter squadron and Australian Sabre squadron.

The success of a March 1964 Pathet Lao offensive led to the use of "Yankee Team" armed reconnaissance, using a combination of USAF RF-101Cs and US Navy RF-8As and RA-3Bs. US air operations intensified in 1964, with the initiation of the long-lived Operation Barrel Roll, which endured until 1973. The first attack, by eight F-100s, took place June 9, against Pathet Lao anti-aircraft positions. It soon became obvious that US FAC aircraft were necessary to strike the Pathet Lao and North Vietnamese forces. Initially called Butterfly, these FACs eventually were given the call sign Raven.

Greater Intensity

Beginning with the 1968 bombing halt over North Vietnam, Barrel Roll operations increased in intensity, and by 1970, B-52 sorties were called in to halt the North Vietnamese forces and keep them from overrunning Vang Pao's main camp at Long Tieng. The B-52 sorties built up at an amazing rate; by the war's end, some 3 million tons of bombs had been dropped on Laos, with 500,000 tons of this total dropped in the northern regions. The weight of bombs would enable besieged Hmong forces to hold on, favorably affecting the course of the war for as long as the B-52s continued to bomb.

Though the enemy feared the B-52 sorties, the Hmong were especially grateful for the AC-47 gunships, which were freed up for use in Laos after the arrival of the AC-119G/K gunships in Vietnam. The Spookys were perfect for Laos, where they were exceptionally useful in defending the mountaintop encampments of the Hmong. As the war went on, both AC-119s and AC-130s were increasingly used in Laos along the Ho Chi Minh Trail and in support of the Hmong.

Seasoned, combat-tested US Air Force FACs were recruited to fly as Ravens in what was called the Steve Canyon Program. It was known to be a very hazardous assignment. These Air Force officers worked in civilian clothes and carried no military identification, although enemy agents at Vientiane routinely photographed them upon arrival. Under



Photo via Darrel Whitcomb

In civilian clothes, without military ID, covert USAF FACs operated in Laos, supporting the Hmong troops. Among the last of these Ravens in the country were (l-r) Chuck Hines, Darrel Whitcomb, Craig Dunn, Terry Pfaff, and H. Ownby.

Project 404, the umbrella program for covert Air Force activities in Laos, they were considered "loaned" to the US air attaché in Laos, who became their nominal Air Force commander. In the field, they actually performed missions under the command of the CIA and of the Laotian generals.

Never were there more than a few Ravens. Originally, the group numbered only two at a time. This number grew slowly to a maximum of 20 operating at one time. Ultimately, fewer than 300 persons served as Ravens during the course of the war. Their O-1s and T-28s were based at the five airfields where one found air operations centers: Vientiane, Pakse, Savannakhet, Long Tieng, and Luang Prabang. The Ravens flew from these fields or from Lima Sites controlled by the Hmong or the Royal Laotian Army.

The Ravens flew almost continuously, often exceeding 120 hours per month and sometimes directing more than 100 sorties a day against enemy targets. Informal statistics indicate that the Ravens suffered casualty rates as high as 30 percent. They gathered an intimate knowledge of their terrain, and many be-

came extremely proud of and loyal to the work of the Hmong troops they were supporting. The Hmong in turn were grateful to the Ravens and gave them unconditional approval.

As one might expect of an organization forbidden to wear uniforms, led through a confusing chain of command, stationed in isolated outposts, and subjected to the utmost stress in battle, conventional Air Force discipline and decorum did not always prevail. Ravens became noted for an aggressive attitude, unusual dress, and a willingness to party. Their colorful history was recorded in another book by Christopher Robbins, *The Ravens*, and veteran Ravens will concede that the author got it mostly correct.

The tremendous fighting over and bombing of the Plain of Jars over a 14-year period decimated the population and destroyed its civilizational structures. Some Hmong returned to the plain to resume the timeless patterns of their lives. The seasons still come and go, the sky still fills with smoke from burning fields, and the mysterious jars still stand sentinel over the plain, now verdant with new life. ■

Walter J. Boyne, former director of the National Air and Space Museum in Washington, is a retired Air Force colonel and author. He has written more than 400 articles about aviation topics and 29 books, the most recent of which is Beyond the Horizons: The Lockheed Story. His most recent article for Air Force Magazine, "The Awesome Power of Air Force Gunships," appeared in the April 1999 issue.

AFA President Thomas J. McKee has appointed these council members and advisors for 1999.



AFA Councils and Advisors

Air National Guard Council

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 1st Lt. Timothy P. Kern
 SMSgt. Joseph J. Kuchera
 Lt. Col. Scott R. Leitner (Ret.)
 Maj. Ronald W. McDaniel

Lt. Col. Craig A. Noll
 Col. Henry Parker
 CMSgt. Carroll Rousseau (Ret.)
 SSgt. Julie A. Singewald
 Brig. Gen. Craig R. McKinley
 (Advisor)



Ernst



Hale



Kern



Kuchera



Leitner



McDaniel



Noll



Parker



Rousseau



Singewald



McKinley

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Alvey



Beaman



Cooper



Evans



Garland



Jones



Kuyawa



Loflin



Lyman



Matsler-Brod



McAdams



Salazar



Warren



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Grese

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 SrA. Homero Ruiz Perez
 TSgt. Jessica L. Wilson
 TSgt. Quinton K. Yoakum
 CMSAF Eric W. Benken (Advisor)



Campa



Ashmore



Caldiero



Edwards



Fermin



Gordon



Holguin



King



Lane



Moore



Morales



Sikora



Ruiz Perez



Wilson



Yoakum



Benken

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 1st Lt. Wesley P. Cox
 Peter Dettelis
 1st Lt. Leonard Giaquinto

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 Capt. Jonathon Herrmann
 Capt. Thomas Livingston
 Capt. Tom Nelson

2d Lt. Gwen Rutherford
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 Capt. Jeff Tyrcha
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 (Advisor)



Case



Averill



Baggstrom



Bailey



Branson



Cox



Dettelis



Giaquinto



Gordon



Herrmann



Livingston



Nelson



Rutherford



Santa Ana



Tyrcha



Regni

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Gingerich



Ahlquist



Bailey



Breslin



Calland



Devine



Graves



Hatcher



Iversen



Johnson



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AFA Presidential Advisors



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Robert L. Brooks, Civil Air Patrol Advisor
 Col. Robert J. Kraynik, Senior AFROTC Advisor
 Donna L. Tinsley, Medical Advisor
 Lt. Col. Jimmie Varnado, Junior AFROTC Advisor

AFA State Contacts



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AFA / AEF National Report

By Frances McKenney, Assistant Managing Editor

AFA Celebrates Space Day

The third annual Space Day celebration took place May 6, with Air Force Association chapters and schools nationwide participating through activities in their locations.

Both AFA and the Aerospace Education Foundation are among the more than 50 sponsors of Space Day, the culminating event of the "Embrace Space" educational initiative that focuses on the achievements, benefits, and opportunities in space.

Space Day opened with a ceremony at the National Air and Space Museum in Washington. Visitors explored exhibits including a space shuttle replica.

A live, interactive "Cyber Space Day" broadcast on the internet took place. Susan Stamberg, from National Public Radio, was a host for the four-hour cybercast that gave students a chance to ask John Glenn, Bill Nye the Science Guy, and astronaut Kathryn D. Sullivan, among others, questions about aerospace topics.

Earlier this year AEF prepared AFA chapters for Space Day by mailing information to chapter aerospace education vice presidents. It included suggestions on how to promote Space Day activities in their communities.

The **Colorado Springs/Lance Sijan (Colo.) Chapter** asked Gov. Bill Owens (R) to proclaim May 6 as Space Day. Centennial State AFA chapters also arranged for the mayors of Colorado Springs, Denver, Littleton, and Arvada to issue similar proclamations.

Charles P. Zimkas Jr., past chapter president, said AFA chapters invited former astronauts to visit schools that participate in the *USA Today*-AEF "Visions of Exploration" program. The astronauts were Bruce McCandless II, a veteran of two shuttle flights and now with Lockheed Martin in Colorado; Michael L. Coats, who flew on the *Discovery* shuttle in August 1984; and Ronald M. Sega, mission specialist on the first joint US-Russian space shuttle mission in 1994. He is dean of the College of Engineering and Applied Science at the University of Colorado at Colorado Springs.

In California, Edith A. Magerkurth, the state's aerospace education vice



USAF photo by Ron Johnson

AFA President Thomas McKee spent several days observing basic military training activities at Lackland AFB, Texas. At a lunch with trainees from the 320th Training Squadron, he learned firsthand how recruits feel about Gender-Integrated Training. At the table (l-r): Katrina Cordova, AEF President Jack Price, Linda Callaway, squadron commander Lt. Col. Chino Harris, Daniel Pena, McKee, and Aron Lee.

president, reported that the **Maj. Gen. Charles I. Bennett Jr. Chapter** helped the Castle Challenger Learning Center of the San Joaquin Valley carry out Space Day activities in Merced.

For a "Star Party" with telescopes, the chapter worked with a local astronomy club and helped round up volunteers. A play called "Profiles in Space," adapted by Magerkurth, debuted at the Learning Center that night, performed by students from Golden Valley High School in Merced. The play not only covers aviation history but is also a vehicle to provide information on where to train for aviation and aerospace careers.

Magerkurth, who won AEF's 1997 George D. Hardy Memorial Award for her aerospace education initiatives, said the play would be performed later at other places and that chapter members would be transporting the student actors to performances.

The Castle Challenger Learning Center is part of the Challenger Center for Space Science Education, founded in 1986 by families of the crew that died in the January 1986

explosion of the space shuttle *Challenger*.

In New York State, the **L.D. Bell-Niagara Frontier Chapter** presented their Teacher of the Year award to Maria C. Freitag on Space Day at an assembly for several first-grade classrooms.

New York State President Bonnie B. Callahar announced at the assembly that Freitag had also been selected as the state and the Northeast Region Teacher of the Year.

Freitag teaches at Forest Elementary School in Williamsville, N.Y., and has developed a space-oriented program for her first-graders. They have constructed and launched model rockets, constructed their own space suits and helmets, downloaded real-time pictures on the Internet of Glenn's spaceflight last year, and hosted a visit by former shuttle astronaut Joseph P. Allen IV.

Robert Bienvenue served as master of ceremonies for the Space Day assembly, attended by William C. Rapp, national director emeritus, and Richard Waring, chapter president.

Back to Basics

AFA National President Thomas J. McKee got a comprehensive view of basic military training at Lackland AFB, Texas, in March.

Beginning his activities at Randolph AFB, he met with Gen. Lloyd W. "Fig" Newton, commander of Air Education and Training Command, and received briefings from AETC directorates on recruiting, operations, and plans and programs. **Alamo (Texas) Chapter** member Col. John R. DiPiero, director of staff at AETC headquarters, and Bob Cantu, an AFA national director, sat in on these presentations.

At Lackland the next day, McKee and Jack C. Price, AEF president, listened to briefings on the 37th Training Wing's mission and then headed out to see some of the places and processes 35,000 civilian recruits per year go through for Air Force, Air National Guard, and Air Force Reserve basic military training. They observed activities at the confidence course, Warrior Week site, and a field training exercise.

Lt. Col. Chino Harris, commander of the 320th Training Squadron, gave

the visitors a squadron and dormitory tour, and the group lunched with 320th TS basic trainees Linda M. Callaway, Katrina L. Cordova, Aron Lee, and Daniel Pena.

Gender-Integrated Training has been a topic of Congressional concern, but McKee reported, "It was obvious to me during my lunch with the four trainees that they felt GIT was not a problem and that they understood why the Air Force supported it."

McKee later toured several other training squadrons. At the Air Force Clothing Initial Issue Function, he saw the wide range and sizes of military clothing items on hand for the trainees and even watched some new recruits get their first military haircuts. "The burr cuts reminded me of my own first Air Force haircut in 1970," McKee said.

Meanwhile ...

AFA President McKee worked in the many stops on this tour of basic training while attending the Eaker Institute's Defense Colloquium on Information Operations, held in San Antonio.

He also attended the **Alamo Chapter's** Blue Suit Awards Dinner at Lackland's Gateway Club, where more than 75 outstanding USAF members were honored. They represented 15 organizations. In addition, several chapter members received awards for their volunteer efforts.

More than 400 guests were present at the dinner, the culmination of two days of AFA activities held in conjunction with the colloquium.

Eugene E. Habiger, who was commander in chief of US Strategic Command until his retirement last August, received a special recognition award at the dinner. The plaque noted his extraordinary operational, planning, and command skills and that he had risen in the ranks from an Army enlistee in March 1959 to become a four-star general. Habiger is an Alamo Chapter member.

An Evening in Fort Worth

Gen. Joseph W. Ralston, vice chairman of the Joint Chiefs of Staff, Rep. Kay Granger (R-Texas), and Texas Gov. George W. Bush were among the honored guests at the **Fort Worth (Texas) Chapter's** 12th annual black-tie gala in March, "An Evening in Fort Worth."

About 300 people turned out for the reception, dinner, and dance, held as a fund-raiser for the chapter's educational programs. The 531st Air National Guard Band performed before the dinner and in the opening ceremonies, and a local high school's jazz band provided the dance music to cap the evening.

In his speech to the gathering, Ralston noted the importance of Fort Worth's defense companies—including Lockheed Martin, Bell Helicopter Textron, and Northrop Grumman—to the nation. He also spoke about the difficult decisions to be made on NATO military operations in Kosovo.

Granger spoke briefly about the status of military forces and stressed the need for a strong military.

Among the special guests at the event were James M. Keck, former AEF president (1988-89) and chairman of the board (1989-94).

USAF photo by June Spadechene



At the black-tie gala "An Evening in Fort Worth," individual mobilization augmentee MSGt. Yvonne Robillard (AFRES), the Fort Worth (Texas) Chapter secretary, and her husband, retired MSGt. David Robillard, met Gen. Joseph Ralston, vice chairman of the Joint Chiefs of Staff, and Diane Ralston.



Elisabeth Humphries, Dallas (Texas) Chapter president, was joined by (right) Thomas Kemp, vice president (Southwest Region), and (left) Bill Harris of the Armed Forces Communications and Electronics Association in presenting a token of thanks to Marine Corps Maj. Gen. (sel.) Michael Hough. Deputy director of the Joint Strike Fighter program, Hough had presented a briefing on the JSF to a joint meeting of the AFA and AFCEA chapters.

Proceeds from An Evening in Fort Worth help fund the chapter's AFJROTC and AFROTC projects and its sponsorship of 60 classrooms in the *USA Today*-AEF "Visions of Exploration" program. A Fort Worth military base newspaper featured the event on its cover and ran two pages of color photos taken at the gala.

Heroic Story

In telephoning **Badger State (Wis.) Chapter** members one by one, to encourage them to attend meetings, Chapter President Russ Klug received many suggestions on whom to invite as guest speakers.

Chapter member George Henderson, for example, recommended his son, Vietnam War POW William J. Henderson, who became the chapter's March meeting guest speaker.

A USAF pilot from 1969 to 1973, Henderson's OV-10 was shot down by a surface-to-air missile April 3, 1972. At the time, 1st Lt. Henderson was participating in a search and rescue mission to recover Lt. Col. Icael E. Hambleton, who had been shot down behind enemy lines.

After Henderson's aircraft was hit, he ejected in the middle of the fireball and landed in a field. Although he hid under some vines, he was captured when a squad of North Vietnamese soldiers began digging a machine gun pit virtually on top of him. He ultimately ended up at the "Hanoi Hilton" before his release in March

1973. Today he is director of human resources at Allen-Bradley in Milwaukee.

The story of the search for Hambleton is told in the book *Bat-21* and in the 1988 movie, starring Gene Hackman as Hambleton. Several of the pilots who attempted the rescue, including Henderson, were combined into one character, portrayed by actor Danny Glover.

Sikorsky Perspective

Sergei Sikorsky spoke to the **Frank Luke (Ariz.) Chapter** in March about the development of aviation, stressing the perspective of his father, Igor Sikorsky, designer of Pan Am's "Clipper" and the first practical single-rotor helicopter.

Chapter President Harry Bailey said Sikorsky showed slides and told the audience at the Luke AFB, Ariz., enlisted club that "the first visual evidence of a helicopter-like toy, invented by the Chinese around 800 B.C., appears in a 1460s painting in a French church."

Sikorsky said his father's lifelong interest in author Jules Verne led him to develop the helicopter. According to Bailey, Sikorsky noted that the helicopter and its life-saving role became his father's most gratifying accomplishment.

Retired from Sikorsky Aircraft since 1992, Sergei Sikorsky is a longtime AFA member and a consultant who frequently visits Russia and Europe.

On a recent trip to Russia, he was able to read aircraft logbooks that had only recently been made available to the public; they documented his father's aerial exploits before his immigration to New York City in 1919.

Angelo DiGiovani, state president, attended the chapter dinner meeting, as well as cadets from JROTC and Civil Air Patrol units. "This was a fabulous opportunity to learn about historical events from a personal perspective," commented Bailey.

March Marches

Several Florida chapters helped sponsor an AFA Florida AFJROTC drill competition held at Embry-Riddle Aeronautical University in Daytona Beach, Fla., in late March. About 600 cadets, representing 21 schools in the state, turned out for the event. They competed for 31 trophies in drill team, color guard, and individual categories and were judged for overall excellence and for best commander, exhibition, regulation, and inspection.

David R. Cummock, state president, presented the best-of-the-meet Bob Johnson Trophy to the winning team from Pine Ridge High School in Deltona, Fla. The same school also received the AFA Florida Trophy for overall excellence. Cadets Evie Dunbar and Serena Wilson accepted the award.

Cadet Johann Gonzalez from Hialeah Senior High School in Hialeah, Fla., received the Eric A. Ortega Trophy for color guard excellence. Richard A. Ortega, state vice president for aerospace education, made the presentation. The award is named in honor of his late son.

Also on hand to present awards were Marguerite H. Cummock, **Brig. Gen. James R. McCarthy (Fla.) Chapter** president; Tommy G. Harrison of the **Central Florida Chapter**; Robert F. Cutler from the **Gen. Nathan F. Twining (Fla.) Chapter**; and Kenneth R. Beers, representing the **Florida Highlands Chapter**.

Other Florida chapters sponsoring trophies at the drill competition were the **Cape Canaveral, Col. H.M. "Bud" West, Eglin, Gainesville, Gold Coast, Indian River, Jerry Waterman, John C. Meyer, Miami, Panama City, and West Palm Beach Chapters**.

Embry-Riddle cadets planned the day's events and carried out the activities with 160 volunteers. William L. Sparks, AFA national director, narrated the awards ceremony.

Earlier that month, the **John W. DeMilly Jr. (Fla.) Chapter** cosponsored a JROTC pass in review near Homestead ARB, Fla., in March.

Army Maj. Gen. Alfred Valenzuela, deputy commander in chief of US Southern Command, served as reviewing officer for the 1,200 cadets on parade. They represented 21 of Miami-Dade County's 22 JROTC units, including 16 Army, four Air Force, and one Navy group.

Braddock G. Holmes Senior High School of Miami won the competition. Its cadets hauled home a 7-foot-tall award, the William Susser Memorial Trophy, named in memory of the chapter's longtime treasurer and a former chapter president.

To carry out this first pass in review, the DeMilly Chapter joined forces with Miami-Dade County Aviation Department, Dade County public schools, and the 482d Fighter Wing (AFRC) of Homestead ARB. Local Air Force Reserve, Marines, and Coast Guard organizations pitched in, providing a static display of aircraft that included an F-16, F/A-18, and helicopters.

Thunderbird Steak

The Langley (Va.) Chapter hosted its 23d annual steak dinner for the Thunderbirds, USAF's aerial demonstration team, at the Langley AFB, Va., Bayside Enlisted Club in March.

The Thunderbirds perform an "approval show" at Langley each year to earn the Air Combat Command commander's go-ahead to begin their flying season.

About 140 attended the informal dinner, including Lt. Gen. Thomas J. Keck, ACC vice commander; Brig. Gen. Theodore W. Lay II, commander of the Thunderbirds' parent organization, 57th Wing; Brig. Gen. (sel.) Gary R. Dylewski, 1st Fighter Wing commander; and CMSgt. Jim Finch, ACC command chief master sergeant.

Chapter member Ellen Merilic, the event's coordinator, added that 25 enlisted members from the 1st FW joined the dinner at the invitation of their command chief master sergeant, CMSgt. Bruce Robinson.

As thanks for the chapter's support, Thunderbirds leader Lt. Col. Brian Bishop gave an autographed picture to Chapter President Barry Creighton.

Academy Hockey

The L.D. Bell-Niagara Frontier (N.Y.) Chapter hosted a night of hockey at Niagara University in March, when the US Air Force Academy's hockey team came to town for the final two games of their season.

According to Chapter President Richard Waring, the Falcons were surprised to hear a large group of fans clapping when they scored their first goal at this out-of-town game.



Chapter President Lt. Col. Richard Waring, USAF (Ret.) (left), and retired Brig. Gen. William Rapp, an AFA national director emeritus, were among the L.D. Bell-Niagara Frontier (N.Y.) Chapter members who turned out to cheer for all-American candidate Justin Kieffer (center) and the US Air Force Academy hockey team in a game at Niagara University.

Although the academy team lost the intercollegiate game 4-2 earlier in the evening, the entire 22-member hockey team and about 80 AFA guests turned out for a chapter-sponsored reception at a Niagara Falls hotel.

Waring and AFA National Director

Emeritus William C. Rapp presented an AFA Citation to the hockey team's head coach, Frank Seratore, to thank him for bringing academy hockey to upstate New York.

Also on hand was team captain Justin Kieffer, who went on to end the

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C7 Denim Shirt. 100% soft cotton with button-down collar by Gear. Embroidered with AFA/USAF 50th Anniversary logo. **\$40**

C8 Polo Shirt. 100% combed cotton with embroidered AFA logo. Unisex sizes: M, L, XL, XXL. Red, white or dark blue. **\$27**

C9 AFA Silk Tie. Embroidered AFA logo. Maroon with navy stripes or navy with maroon stripes. **\$23**

C10 AFA Necktie. Silk and polyester covered with full-color AFA logos. Dark blue only. **\$15**

season with 24 assists and 38 points. The team lost its second game to Niagara's Purple Eagles the following night, completing their 1998-99 season with a record of 15-19-2.

War Stories

Thomas V. Thain Jr., a World War II P-51 fighter pilot, spoke to a quarterly meeting of the **Columbia (S.C.) Chapter**, relating how he helped shoot down a German Me-262 near Regensburg, Germany, in March 1945. He also spoke about shooting down a Bf-109 earlier that month and reminisced about his eight years in the military.

The chapter meeting took place at the Flight Deck Restaurant, an aviation theme restaurant in Lexington, S.C., Thain's hometown. Filled with aircraft photos and models, the restaurant also features a huge print of Thain's fighter, framed with other period photos, including one of Thain as a young pilot with the 84th Fighter Squadron, 78th Fighter Group, based in Duxford, UK.

Jubilee

The **Francis S. Gabreski, Queens, and Nassau Mitchel Chapters** in New York held the fifth Jubilee of Liberty Medal ceremony in March, honoring veterans who took part in the Normandy invasion of France in June 1944.

Twenty-six veterans received a certificate, special proclamation, and the medal, authorized by the Normandy government in 1991. The tricounty New York chapters have periodically made formal presentations of the medal to Normandy veterans who weren't able to travel to France to receive them during 50th anniversary commemorations of the invasion.

Held at Hofstra University in Hempstead, N.Y., the latest ceremony's attendees included more than 100 family members and 30 AFA members, including Chapter Presidents Roy Pitter from the Gabreski Chapter; Ed Keil, Queens Chapter; and Fred DiFabio, Nassau Mitchel Chapter. William Stratemeier, AFA New York downstate vice president, served as master of ceremonies for the four-hour event.

Mission to the Moon

With funding help from the **Leigh Wade (Va.) Chapter**, several seventh-grade students from Colonial Heights Middle School in Colonial Heights, Va., commanded a rocket to the moon in a computer simulation in March.

The chapter paid to transport 10 students to the Science Museum of Virginia in Richmond, Va., and also paid the fee that allowed the youngsters to use the museum's computer lab.

From the lab, the students connected via the Internet to Space Explorers Inc. Following a script, they mimicked actions of those who actually put the Lunar Prospector satellite into orbit in January 1998 with an Athena II rocket. The students then downloaded real-time data that the satellite currently sends to NASA as it orbits the moon searching for water.

At the end of their mission, a Space Explorers representative debriefed them over a speaker phone.

The students' teacher, Melinda Kelley, is a Leigh Wade Chapter member and was the AEF Regional Teacher of the Year in 1998. Her students also take part in Space Day.

Scholarships

Six Embry-Riddle Aeronautical University cadets received scholarships sponsored by William W. Spruance, an AFA national director emeritus. The scholarships are named in honor of several USAF, AFA, and AEF leaders.

Eric McUmber received the Doyle E. Larson Scholarship. Paul Vicars received the Gen. Lloyd W. "Fig" Newton Scholarship. A scholarship named for Michael J. Dugan went to Robert Ungerman, while Katherine Harwell received the Thomas J. McKee Scholarship. The Jack C. Price Scholarship went to Tracy Goff. Marisa Wyssling received a scholar-

ship named for the president of the university, George H. Ebbs.

Spruance, an AEF trustee and member of the **Diamond State (Del.) Chapter**, funds all of these scholarships.

More AFA/AEF News

■ **Falls Cities (Ind.) Chapter** President John Dietrich and chapter members Robert H. Anthis and James Humbert attended the AFROTC Awards Banquet for Jeffersonville High School, Jeffersonville, Ind., in April. Dietrich presented an AFA award and certificate to cadet Eric Argentieri, who was selected for the honor on the basis of his military leadership potential. Anthis presented four other awards. Dietrich said about 130 people attended the ceremony, which was covered by local newspapers.

■ **The Enid (Okla.) Chapter**, city of Enid, and local Rotary Club commissioned a plaque to honor Vance AFB, Okla., for its accomplishments in 1998. Oscar Curtis, chapter secretary and program chairman, joined Enid Mayor Mike Cooper in presenting the plaque to Col. Curtis Bedke, 71st Flying Training Wing commander, on March 1—proclaimed Vance Day in Enid. In his remarks, Bedke thanked the Enid citizens, saying the city and the base are "partners in the sky."

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-aeff@afa.org. ■

AFA Conventions

- June 4-6 **Arizona-Nevada-New Mexico State Convention**, Laughlin, Nev.
- June 4-6 **Iowa State Convention**, Sioux City, Iowa
- June 4-6 **New York State Convention**, Owego (near Binghamton), N.Y.
- June 4-6 **Ohio State Convention**, Dayton, Ohio
- June 11-12 **Mississippi State Convention**, Jackson, Miss.
- June 19 **Louisiana State Convention**, New Orleans, La.
- July 9-10 **Oklahoma State Convention**, Tinker AFB, Okla.
- July 16-18 **Pennsylvania State Convention**, Trevoise, Pa.
- July 17 **Minnesota-So. Dakota-No. Dakota State Convention**, Minneapolis, Minn.
- July 17-18 **Virginia State Convention**, Arlington/Alexandria, Va.
- July 23-25 **Texas State Convention**, McAllen, Texas
- July 30-31 **Florida State Convention**, Daytona Beach, Fla.
- July 30-31 **North Carolina State Convention**, Fayetteville, N.C.
- July 30-31 **Washington-Oregon State Convention**, McChord AFB, Wash.
- Aug. 4-5 **Michigan State Convention**, Fort Wayne, Ind.
- Aug. 7-8 **Missouri State Convention**, Branson, Mo.
- Aug. 14 **Georgia State Convention**, Warner Robins, Ga.
- Aug. 20-21 **Colorado State Convention**, Colorado Springs, Colo.
- Aug. 21 **Illinois State Convention**, Galesburg, Ill.
- Aug. 21 **Indiana State Convention**, Indianapolis, Ind.
- Aug. 27-28 **Arkansas State Convention**, Fayetteville, Ark.
- Sept. 11 **Delaware State Convention**, Dover AFB, Del.
- Sept. 13-15 **AFA National Convention**, Washington, D.C.

1st CEG (RBS), all detachments. Sept. 26–Oct. 1, 1999, in Bossier City, LA. **Contact:** Emerson McAfee, 2015 Sunlake Blvd., Apt. 304, Huntsville, AL 35824 (256-772-7052) (emcafee@logsa.army.mil).

5th AF (WWII and Korea). Sept. 15–19, 1999, in Omaha, NE. Units include the 314th Composite Wg and Hq squadron, 5th Bomber Command, 5th/108th Station Hospital, 80th Service Gp, 405th Signal Co, and 502d Tactical Control Gp. **Contacts:** Louis J. Buddo, PO Box 270362, St. Louis, MO 63127 (314-487-8128, 314th Composite Wg and 5th Bomber Command). Virgil Staples, 725 16th St., West Des Moines, IA 50265 (515-225-8454, 80th Service Gp). Jeff H. Seabock, PO Box 3635, Hickory, NC 28603 (828-324-6464, 5th/108th Station Hospital). Phil Treacy, 2230 Petersburg Ave., Eastpointe, MI 48021-2682 (810-775-5238, 405th Signal Co). Fred Gorsek Jr., 5015 Wolf Creek Rd., Sherman, IL 62684 (217-496-2510, 502d Tactical Control Gp).

7th Ferrying Gp, Gore Field, Mont. (WWII). Aug. 26–29, 1999, at the Holiday Inn Great Falls in Great Falls, MT. **Contact:** Byron McMahon, 1200 32d St. S., Apt. 63, Great Falls, MT 59405-5340 (406-771-0437).

13th BS Assn, Korea. Sept. 29–Oct. 2, 1999, in Orlando, FL. **Contact:** Charlie Hinton, 585 Teakwood Ave., Satellite Beach, FL 32937-3109 (407-773-6665) (chinton@iu.net).

17th/47th BW, Hurlbut Field, FL, and RAF Sculthorpe, UK. Oct. 14–17, 1999, at the Radisson Beach Resort in Fort Walton Beach, FL. **Contact:** Ed Johnson, PO Box 462, Mary Esther, FL 32569 (850-302-0020) (ejohn@brandons.net).

37th FS Assn (WWII) and current 37th Flying Training Sq. Sept. 30–Oct. 2, 1999, in Branson, MO. **Contacts:** Leslie E. Knapp, 9819 Gemini Dr., San Antonio, TX 78217-3204 (210-655-0908) or Frank Gallup, PO Box 415, Sunapee, NH 03782.

39th FIS, F-94Bs and F-86Ds, Japan (1954–57). Oct. 15–18, 1999, in San Antonio. **Contact:** Ken Fleenor, 13735 Corinth, Universal City, TX 78148-2620 (phone: 210-658-2572 or fax: 210-658-4840) (KandAFLNOR@aol.com).

43d BG Assn (H). Oct. 17–24, 1999, at the InnSuites Hotel & Resort in Tucson, AZ. **Contact:** James Thompson Jr., 7018 Calle Bellatrix, Tucson, AZ 85710-5333 (520-747-9490).

58th BW Assn (B-29), including the 11th, 12th, 13th, and 14th Photo Recon Sq; 25th, 28th, 86th, and 87th Air Service Gp; and 40th, 444th, 462d, and 468th BG. July 27–Aug. 1, 1999, at the Hilton Charleston North in North Charleston, SC. **Contact:** Harold P. Crowell, 12637 S.W. 62d Ave., Miami, FL 33156-5618.

86th Fighter-Bomber Gp, A-36, P-40, and P-47 (WWII). Sept. 22–25, 1999, at Vandenberg AFB, CA. **Contact:** Sid Howard, 211 Brownstone Dr., LaHabra, CA 90631-7397 (714-992-2504).

91st Recon Sq (LR) Photo, Panama/Trinidad (1945–46). Oct. 21–24, 1999, in San Antonio. **Contact:** Allen Weddle, 9748 Golden Dr., Orangevale, CA 95662 (916-988-0753) (aweddle@compuserve.com).

93d BW, Castle AFB, CA (B-52s, KC-135s). Oct. 15–17, 1999, at McClellan AFB, CA. **Contact:** Phil Barger, PO Box 163, Penryn, CA 95663 (916-663-2948).

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.

320th BG. Oct. 27–30, 1999, at the Crown Reef Resort in Myrtle Beach, SC. **Contact:** Ralph Woolf, 4095-A Palm Bay Cir., West Palm Beach, FL 33406 (561-686-9075).

363d FG, Mustangs (WWII). Oct. 1–3, 1999, at the Harvey Suites Hotel, Dallas/Fort Worth Airport in Texas. **Contact:** Felix Kozaczka, 1112 Kiowa Dr. W., Lake Kiowa, TX 76240 (phone/fax: 940-665-5363).

390th BG (H) Veterans Assn, Eighth AF, Station 153, Framlingham, UK (WWII). Sept. 21–26, 1999, in Charleston, SC. **Contact:** Ken Rowland, PO Box 28363, Spokane, WA 99228-8363 (phone: 509-467-2565 or fax: 509-467-2565) (rowland@ior.com).

417th BG, Fifth AF, southwest Pacific. Sept. 20–22, 1999, at Harrah's Reno in Reno, NV. **Contact:** K.W. Klopp, 3031 Knollwood Dr., Cameron Park, CA 95682 (530-677-3717).

420th Air Refueling Sq (TAC), RAF Sculthorpe, UK (1955–64). April 10–13, 2000, at the Holiday Inn Palo Verde in Tucson, AZ. **Contact:** William E. Dietzel, 8477 E. Norwich Ave., Fresno, CA 93726. (559-291-1239) (BDietzel@aol.com).

452d BW, Korea (1950–52). Aug. 7, 1999, at the Petroleum Club in Long Beach, CA. **Contact:** Gene Hoffman, PO Box 3785, Long Beach, CA 90803 (562-438-7138).

456th BS, 323d BG, Ninth AF (WWII). Oct. 19–24, 1999, in Tucson, AZ. **Contact:** Tom Curtin, 1874 Southwood Dr., Surfside Beach, SC 29575 (843-650-0405).

460th FS, 348th FG, southwest Pacific (WWII). Sept. 23–27, 1999, in Washington. **Contact:** DeWitt R. Searles, 1605 Duntery Pl., McLean, VA 22101 (703-356-8956) (drsearles@prodigy.net).

462d Service Sq, 358th FG. Oct. 1–3, 1999, at the ClubHouse Inn & Conference Center in Nashville, TN. **Contact:** Lubbertus H. Lok Jr., 19070 Maple Rd., Effort, PA 18330 (570-629-3488).

465th Service Sq Assn, Eighth AF. Oct. 21–24, 1999, in San Antonio. **Contact:** Bill Butts, 611 Clyde Ct., San Marcos, TX 78666 (512-392-2517).

484th BG Assn, Fifteenth AAF, Italy (WWII), all ground and air personnel. Oct. 6–9, 1999, in St. Louis. **Contact:** Bud Pressel, 436 Hunting Park Ln., York, PA 17402 (717-757-1218).

487th BG (H), Eighth AF (WWII). Oct. 4–11, 1999, in San Francisco. **Contact:** Roy Levy, 10162 Robin Ave., Fountain Valley, CA 92708 (714-962-6293).

1090th SRG, Det. A, Sandia Base, NM (1950–53). Sept. 28–Oct. 1, 1999, in Albuquerque, NM. **Contact:** Bob Brooks, 4187 S. St. Louis Ave., Tulsa, OK 74105 (918-744-5115) (rbrooks120@aol.com).

1435th and 15th Air Evacuation Sq. Oct. 20–24, 1999, in Riverside, CA. **Contact:** J. L. Jones, 21378 Westover Cir., Riverside, CA 92518 (phone: 909-697-2659 or fax: 909-656-4339).

1503d Supply Sq, Haneda, Japan (1946–56). Oct. 11–13, 1999, at the Settle Inn in Branson, MO. **Contact:** Ed Bimler, 119 Keith Rd., Newport News, VA 23606 (757-930-1210).

1906th/1881st Communications Sq, Hill AFB, UT. Sept. 11, 1999, at Timber Mine Restaurant & Steak House in Odgen, UT. **Contacts:** Sande Kellogg, 833 W. 2350 N., Layton, UT 84041-4701 (801-776-3188 or 801-524-7661) (sande.kellogg@siemenscom.com) or Alvornia Thacker, 3392 S. 4700 W., Hooper, UT 84315 (801-731-0244).

Air and Security Police, Wiesbaden, Germany, all years, all squadrons, including the 60th, 517th, 7100th, 7122d, and 7150th. Sept. 23–26, 1999, in Colorado Springs, CO. **Contact:** Rowland D. Garver, 182 E. Fifth St., Peru, IN 46970-2340 (765-473-7184).

Air Force Navigator/Observer Assn. Sept. 22–26, 1999, at the Hope Hotel, Wright-Patterson AFB, Ohio. **Contact:** Wayne Pittman (937-426-1289).

Air Weather Recon Assn. Sept. 15–18, 1999, in San Diego. **Contact:** David Magilavy (phone: 949-631-7607 or fax: 949-631-4110) (davidmagilavy@compuserve.com).

FTD Mobileer. Sept. 23–26, 1999, at the Holiday Inn Hotel & Suites in Wichita Falls, TX. **Contact:** Leo V. Watts (940-855-2906) or Jim Kincaid (940-569-0408).

Nagoya/Moriyama Radio Receivers Site, 1st Comm. Sq, Japan (1952–56). Oct. 5–11, 1999, at the Holiday Inn Select Convention Center in St. Louis. **Contact:** J. Seay, 1507 Collier Ave., Rantoul, IL 61866-3504 (217-893-0320) (p-seay@juno.com).

Aviation Cadet Class 59-15N, navigator training. Sept. 23–26, 1999, in Lake Conroe, TX. **Contact:** Mike Ferris, 7281 Kingston Cove Ln., Willis, TX 77378 (409-856-4689) (bearboat@mcia.com).

OCS Class 49-B. Oct. 22–23, 1999, at Lackland AFB, TX. **Contact:** Bob Faley, 27850 Espinoza, Mission Viejo, CA 92692-2156 (949-770-2521) (BKLYNNOMAD@aol.com).

Pilot Class 42-D, Stockton Field, CA. Sept. 21–24, 1999, at the Flamingo Resort Hotel & Conference Center in Santa Rosa, CA. **Contact:** Noel Turner, 200 Deer Valley Rd. #2M, San Rafael, CA (phone: 415-499-8916 or fax: 415-499-8927) (leonrenrut@aol.com).

Pilot Class 53-A, all bases. April 5–9, 2000, in San Antonio. **Contact:** Pilot Class 53-A Reunion Assn, 1620 Peach Leaf St., Houston, TX 77039 (956-727-4475) (reunion53a@aol.com).

Society of the Strategic Air Command. July 12–16, 2000, at the Holiday Inn Convention Center in Omaha, NE. **Contact:** SAC Society, PO Box 1244, Bellevue, NE 68005-1244 (402-293-7433).

Swiss Internees. Oct. 14–17, 1999, in Savannah, GA. **Contact:** Guy Earle, 25 N. Cromwell Rd., Savannah, GA 31410 (phone: 912-897-6326 or fax: 732-901-0899) (bobsia@aol.com).

Unit Reunions

WWII Air Commando Assn, 2d Gp, CBI, and 3d Gp, southwest Pacific. Oct. 20-24, 1999, in Fort Walton Beach, FL. **Contact:** W. Robert Eason, 10031 Barnetts Ford Rd., Orange, VA 22960-2307 (540-672-4074).

Seeking personnel who served with the **48th TFW** or **494th Fighter-Bomber Sq** (1951-55) for a reunion. **Contact:** Bill Murphy, 3950 W. Redfield Rd., Phoenix, AZ 85053 (602-843-2080) (Wmurphy293@aol.com).

Seeking veterans of the **US Army Air Corps** training units in Miami Beach, FL, 1942-45, and other WWII AF veterans for a reunion Dec. 3-7, 1999. **Contact:** Forrest S. Clark (B24vet@aol.com).

Bulletin Board

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For a book, seeking contact with and information on **C-124 II** Globemaster aircrew members, particularly participants in Operations Deep Freeze, Gyroscope, and Ice Cube and operations in Korea and the Congo. **Contact:** James L. Seay, 1507 Collier Ave., Rantoul, IL 61866-3405 (217-893-0320) (p-seay@juno.com).

Seeking contact with **Lt. James D. Grey** and the family of **Col. Ceil L. Wells**. Both were with the 358th FG. **Contact:** Lubbertus H. Lok Jr., 19070 Maple Rd., Effort, PA 18330 (570-629-3488).

Seeking contact with **Robert D. Hays**, 37th FS, WWII, whose last known location was Miami. **Contact:** Leslie E. Knapp, 9819 Gemini Dr., San Antonio, TX 78217-3204 (210-655-0908).

Seeking pictures or slides of an F-4, F-51, F-84F, F-86, F-100, F-111, and P-47 in **391st FS** colors or markings for use in a squadron history. **Contact:** Steve Classick, 1238 N. Caucus Way, Meridian, ID 83642.

Seeking contact with or information on **Malcom Lindsey**, of Marana AFB, AZ, Class 58-E, who attended the University of Colorado, entered USAF in November 1956, and graduated from basic flight training at Goodfellow AFB, TX, in December 1957. **Contact:** Don Severe, PO Box 3707C5, Denver, CO 80237 (303-773-3343) (dsevere@uswest.net).

Seeking members of the 68th BS, 44th BG, Eighth AF (UK), in early 1943 who knew **1st Lt. R.C. Lunenfeld**, killed on a raid over Wilhelmshaven, Germany, Jan. 27, 1943. **Contact:** Robert Lunenfeld, 8 Lynn Ct., Hampton Bays, NY 11946.

Seeking copies of **391st BG (Martin B-26) Special Orders**, 1943-45, for crew listing. **Contact:** George T. James, 8461 Traminer Ct., San Jose, CA 95135 (snrglfr@msn.com).

Seeking contact with anyone from the 738th BS (H), 454th BG (H), WWII, with information about the loss of B-24 **The Goast**, during a mission over Genoa, Italy, June 4, 1944. Especially interested in contact with **TSgt. Wilbur V. Hawks** and **SSgt. John F. VanLare** of Newark, NY. **Contact:** William D. Hicks, PO Box 752, San Mateo, FL 32187-0752 (w.deanhicks-fla@worldnet.att.net).

Seeking members of **OCS Class 58-A** to form alumni association. **Contact:** Merle R. Browning, H.C. 52, Box 611, Hemphill, TX 75948-9620 (409-579-3121) (mbrow@sabinenet.com).

Seeking information on or any books, magazines, or other material on the 1960s TV series **"12 O'Clock High."** **Contact:** Gary A. McIntosh, 5043 Tuscarora Rd., Niagara Falls, NY 14304-1169 (716-297-3259) (Fyrfann@aol.com).

Seeking members of the **3d SOS**, Nha Trang AB, Vietnam, in the 1960s. **Contact:** C.R. Timms, 620 Lowry Ln., Seneca, SC 29678 (864-888-4133).

Seeking **James R. Moore II**, of St. Louis, who was group commander in the AAC during WWII and a flying crew member. His last known address was in Los Angeles. **Contact:** James M.

Parise, 117 N. Washington St., Boston, MA 02114-2115.

Seeking prints and photos of Spectre **AC-130E gunships**, particularly during duty in Southeast Asia on the Ho Chi Minh Trail. **Contact:** Jack Lamb (973-364-0044) (jlamb@perproinc.com).

Seeking members of **Aviation Cadet Class 59-15N**, navigator training, who graduated Aug. 19, 1959, Harlingen AFB, TX. **Contact:** Mike Ferris, 7281 Kingston Cove Ln., Willis, TX 77378 (409-856-4689) (bearboat@mcia.com).

Seeking **MSgt. Coy Edward Johnson**, of London, KY, who was with the 93d BG, Castle AFB, CA, 1950-52, and 5th AF, Japan, in the early 1950s. **Contact:** William E. Martin, PO Box 72205, Yuma, AZ 85365 (520-783-5310).

Seeking contact with former USAAF **B-24 Liberator** and USN/USMC **PB4Y-1 Liberator** and **PB4Y-2 Privateer** crew members for a database. **Contact:** International B-24 Museum, 31001 Magnuson Ave., Pueblo, CO 81001 (phone: 719-948-9219 or fax: 719-948-2437) (pwam@usa.net).

Seeking information on **Fit. A, 53d/59th WRS**, for a history to be used by the US Air Force Museum, Wright-Patterson AFB, OH. Also seeking a squadron shoulder patch for museum collection. **Contact:** Kenneth E. Mears, 6936 Jonetta St., Huber Heights, OH 45424.

Seeking information on the conversion of a **C-47B** into a glider at Nichols Field, Philippines, and its movement to Tachikawa, Japan, in November 1946. **Contact:** Harrison W. Rued, 2321 Oakwild Ln., Santa Rosa, CA 95401.

Seeking post-1954 **3d BG/Wg publications** "Invader" or "Vanguard" for republication of 13th BS (Korea) Assn magazine. **Contact:** Bill Ricketts Jr., 11650 E. Calle Aurora, Tucson, AZ 85748-8319 (520-885-1438) (bill-ricketts-jr@juno.com).

Seeking contact with or information on organizations formed by post-WWII **B-29 operators, maintainers**, etc. **Contact:** J.L. Pattillo, 1143 Glenview Rd., Santa Barbara, CA 93108 (phone or fax: 805-969-2796).

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.

Seeking contact with anyone who knew flight instructor **R.M. Kreig**, Oxnard, CA, Class 43-A. **Contact:** Bob Powell, 1545 Rainier Falls Dr., Atlanta, GA 30329 (404-636-3747).

Seeking contact with members of the Eighth AF bomb squadron to which **TSgt. Manuel S. Vasquez** belonged. Vasquez was in basic training in Pueblo, CO, and advanced training at Ft. Bliss, TX, in 1942. He served in the UK between January and February 1943 and was a B-17 tail gunner on **Ruptured Goose** when it was downed. **Contact:** Joe Herrera (559-528-6298).

Seeking contact with **Clifford Leroy Christensen**, who might have been born in December 1917. He was a member of Eighth AF, Bovingdon AB, UK, 1942 to July or August 1945 and had been a teacher. **Contact:** Susan van Diemen, PO Box 144, Uraidla, South Australia, Australia 5142 (phone: 61-8-8390-1214 or fax: 61-8-8379-6244).

Seeking any crew member on the SA-16 that rescued **Lt. Richard Frailey** from the Yellow Sea at the mouth of the Yalu River and returned him to Kimpo AB, South Korea, June 15, 1953. **Contact:** John Lowery (916-933-3520) (john.lowery3@gte.net).

Seeking **letters, diaries, photos, or other mementos** from WWII for Florida State University's Department of History. **Contacts:** William O. Oldson or Mae Nielander, The Institute on World War II and the Human Experience, Florida State University, Tallahassee, FL 32306-2200 (phone: 850-644-9033 or fax: 850-644-6402).

Seeking information on and photos of the markings of the **F-105F Thunderchief**, #638301, assigned to the 357th TFS, 355th TFW, Takhli RTAB, Thailand, flown by **Lt. Col. Leo Thorsness** and **Capt. Harold Johnson** April 19, 1967. Particularly interested in photos of the aircraft with names of the crew chiefs on the aircraft's right side canopy after its Medal of Honor mission. **Contact:** Matt Fray, 10538 Lighthouse Way, Indianapolis, IN 46256 (317-842-3326) (mfay@iquest.net).

Seeking a copy of the book **Valley of the Shadow**, by Maj. Ward Millar. **Contact:** Robert P. Garnet, 2265 Jester Ct., Reno, NV 89503 (775-747-9090).

For the Korean air force's 50th anniversary celebration Oct. 2, 1999, in Seoul, Korea, seeking pilots and maintenance crew members who participated in the **Korean War**. Also seeking **Colonel Hess**, 6146th Counsellor Gp commander, and **6147th TCG** members. **Contact:** Col. Hak Soo Yoon, The Office of the Air Attaché, 2450 Massachusetts Ave. NW, Washington, DC 20008 (phone: 202-939-5693 or fax: 202-483-1843).

Seeking information on the post-WWII career of **Col. Arthur DeBolt**, commander of 2d Air Commando Gp, India, during WWII. **Contact:** Harry H. McCormick, 830 W. Quincy Ave., Englewood, CO 80110.

Seeking **Sgt. Frank M. Jackson**, a mechanic crew chief possibly stationed at Holloman AFB, NM, in 1950. **Contact:** John Black (915-877-3256) (gtmst@aol.com).

Books

Compiled by Chanel Sartor, Editorial Associate

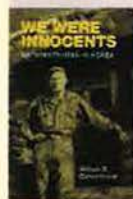
Caldwell, Donald. *The JG 26 War Diary Vol. 2: 1943-1945.* Seven Hills Book Distributors, 1531 Tremont St., Cincinnati, OH 45214 (513-471-4300). 1998. 576 pages. \$49.95.



Menard, MSgt. David W., USAF (Ret.). *Before Centuries: USAFE Fighters 1948-1959.* Howell Press, 1713-2D Allied Ln., Charlottesville, VA 22903 (800-868-4512). 1998. 128 pages. \$34.95.



Russell, Edward T., and Robert M. Johnson. *Africa to the Alps: The Army Air Forces in the Mediterranean Theater.* US GPO, Supt. of Documents, Mail Stop: SSOP, Washington, DC 20402-9328 (202-512-1800). 1999. 34 pages. \$2.25.



Dannenmaier, William D. *We Were Innocents: An Infantryman in Korea.* University of Illinois Press, 1325 S. Oak St., Champaign, IL 61820 (217-244-4689). 1999. 230 pages. \$26.95.



Mets, David R. *The Air Campaign: John Warden and the Classical Airpower Theorists.* Air University Press, OAS/PR, 160 W. Selfridge St., Maxwell AFB, AL 36112-6610 (334-953-2773). 1998. 86 pages. \$10.00.



Russell, Edward T. *Leaping the Atlantic Wall: Army Air Forces Campaigns in Western Europe, 1942-1945.* US GPO, Supt. of Documents, Mail Stop: SSOP, Washington, DC 20402-9328 (202-512-1800). 1999. 34 pages. \$2.00.

Haulman, Daniel L. *Hitting Home: The Air Offensive Against Japan.* US GPO, Supt. of Documents, Mail Stop: SSOP, Washington, DC 20402-9328 (202-512-1800). 1999. 39 pages. \$2.75.



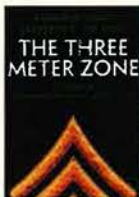
Nanney, James S. *Army Air Forces Medical Services in World War II.* US GPO, Supt. of Documents, Mail Stop: SSOP, Washington, DC 20402-9328 (202-512-1800). 1998. 37 pages. \$4.25.



Smith, R.G., with Rosario "Zip" Rausa. *The Man and His Art, R.G. Smith: An Autobiography.* Schiffer Publishing Ltd., 4880 Lower Valley Rd., Atglen, PA 19310 (610-593-1777). 1999. 112 pages. \$29.95.



Jenkins, Dennis R. *Fairchild-Republic A/OA-10 Warthog: WarbirdTech Series Vol. 20.* Specialty Press Publishers and Wholesalers, 11481 Kost Dam Rd., North Branch, MN 55056 (800-895-4585). 1998. 100 pages. \$16.95.



Pendry, Command Sgt. Maj. J.D., USA. *The Three Meter Zone: Common Sense Leadership for NCOs.* Presidio Press, 505 B San Marin Drive, Ste. 300, Novato, CA 94945-1340 (415-898-1081). 1999. 230 pages. \$24.95.



Tibbets, Paul W. *Return of the Enola Gay.* Mid Coast Marketing, 1620 E. Broad St., Co.umbus, OH 43203 (877-330-0870). 1998. 339 pages. \$15.00.

Jenkins, Dennis R. *Boeing/BAe Harrier: WarbirdTech Series Vol. 21.* Specialty Press Publishers and Wholesalers, 11481 Kost Dam Rd., North Branch, MN 55056 (800-895-4585). 1998. 100 pages. \$16.95.



Peters, Ralph. *Fighting for the Future: Will America Triumph?* Stackpole Books, 5067 Ritter Rd., Mechanicsburg, PA 17055-6921 (717-796-0411). 1999. 210 pages. \$19.95.



Tucker, Spencer C. *Vietnam.* The University Press of Kentucky, 663 S. Limestone St., Lexington, KY 40508-4008 (800-839-6855). 1999. 244 pages. \$19.00.



Kennedy, David M. *Freedom From Fear: The American People in Depression and War, 1929-1945.* Oxford University Press, 198 Madison Ave., New York, NY 10016 (800-451-7556). 1999. 936 pages. \$39.95.



Rosenkranz, Keith. *Vipers in the Storm: Diary of a Gulf War Fighter Pilot.* McGraw-Hill, 11 W. 19th St., New York, NY 10011 (212-337-5951). 1999. 325 pages. \$24.95.



Warnock, A. Timothy. *Air Power versus U-boats: Confronting Hitler's Submarine Menace in the European Theater.* US GPO, Supt. of Documents, Mail Stop: SSOP, Washington, DC 20402-9328 (202-512-1800). 1999. 24 pages. \$1.75.

Pieces of History

Photography by Paul Kennedy

College Park



Just outside Washington is the College Park (Md.) Airport, site of many "firsts" in aviation history. Wilbur Wright—whose brother's watch is shown here—started things off in 1909 when he conducted flying lessons at College Park for Lts. Benjamin Foulois, Frank Lahm, and Frederic Humphreys. Wright made the first dual-instruction flights with Lahm and Humphreys, then set a world speed

record of 46 mph at the site. Other College Park milestones: The first woman airplane passenger departed from the airport. It became the first military air base. It saw the first use of field lights. It was the site of the first bomb drop from an aircraft with a bombsight. In 1912, Lt. Henry H. "Hap" Arnold set a world record for height when he took off from College Park and

climbed to 6,540 feet. The world's oldest, continuously operated airport, the College Park facility will celebrate its 90th birthday this September.

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