

September 2001/\$4

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

**Bomber Questions
And Long-Range Issues**

**Wesley Clark's War
Photochart of USAF Leaders**

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By John T. Correll, Editor in Chief

Down Payment

By last winter, a consensus had formed that the armed forces were in trouble. They had been cut repeatedly, yet they were deploying to conflicts and contingencies more often than before.

Readiness was down. Spare parts and munitions were depleted. Capital equipment was wearing out and not being replaced. Time and again, force modernization had been postponed.

By various estimates that crossed partisan lines, the services needed between \$50 billion and \$100 billion more a year just to avoid slipping further into decline. On its way out of town, the Clinton Administration proposed a modest defense increase.

Immediate relief was expected from the Bush Administration, which had made military decline a main theme of the election campaign, promising that help was on the way.

Thus, it came as a surprise in January when the White House announced that Bush would stick with the 2002 Clinton defense budget until Secretary of Defense Donald Rumsfeld had completed a sweeping review of force structure and requirements.

Bush said the Clinton budget he inherited was "only a start." The "full investment" would be forthcoming after the Rumsfeld review. "We must put strategy first, then spending," he said. "Our defense vision will drive our defense budget, not the other way around."

Meanwhile, the Administration turned its energies toward a more urgent priority, pushing a tax cut through Congress.

To conduct the review, Rumsfeld brought in teams of outsiders, who labored behind closed doors. That gave rise to all sorts of rumors about changes and reductions.

In May, Rumsfeld launched a news media blitz to explain that the review had been misinterpreted. It was exploratory and informational, he said, and no big decisions had been made. The action shifted to the Pentagon's regular Quadrennial Defense Review, which had been side-

lined in deference to the outsider review.

Halfway through the year, the armed forces got a supplemental appropriation for 2001. The amount was about a third of what they actually needed, but they would not have to park their airplanes for lack of operating funds.

Because of the drawn-out review, however, the Pentagon was dead last among federal agencies in submit-

What priority does the White House put on defense?

ting its revised 2002 budget to Congress, which it did in late June. By then, the tax cut had consumed much of the budget surplus, and other claimants had gotten their bids in for the money that was left.

The 2002 defense budget proposal is \$328.9 billion, an increase of \$18.4 billion. Rumsfeld will not say how much he asked for, but according to press reports, he was cut off at the pass—and not for the first time—by the Office of Management and Budget.

Rumsfeld wanted a \$35 billion increase for 2002. The OMB counterproposal was \$15 billion. The settlement wasn't far from OMB's number.

Asked if the defense review had been budget-driven after all, Rumsfeld quipped that "life is budget-driven." Perhaps so, but the Administration's whole premise for staging the review and deferring a decision on defense had been to establish the requirement first and let that determine the budget.

Rumsfeld reminds us that the proposed increase is the biggest for defense in years, and he is correct. But as he also knows, it leaves a big gap, some of which Rumsfeld hopes to fill with the next budget.

He told Congress that it will take \$347 billion in 2003 "to keep the

department going next year on a straight-line basis with no substantial improvements" and "before addressing important transformation issues."

That calls for another increase as big as the \$18 billion proposed for 2002, which will undoubtedly meet resistance from OMB. Even if he gets the full amount, Rumsfeld will be hard-pressed to cover the existing problems with it.

He will still be looking for money to pay for two of the Administration's declared objectives: ballistic missile defense and transforming the military to exploit the technological Revolution in Military Affairs.

A new cloud appeared on the horizon in late July, with reports that a revised estimate now projects the federal surplus to be lower than expected next year. The 2002 defense proposal may have to be scaled back.

The President properly described some of the early budget numbers as a "down payment." Up to now, though, OMB has been allowed to prevail consistently in interdepartmental negotiations. That raises the question of what priority the Administration really puts on defense.

The promised defense recovery looks to be running out of gas.

The suggestion is made, both inside and outside of government, that most of the recovery, recapitalization, and transformation of the military can be funded by cost savings, cutbacks, and internal realignments.

No doubt some reductions can—and should—be made, but in situations like this, the most deserving candidates have a way of escaping the noose. Also, it is not realistic to believe that the services can come up with enough savings to pay for 10 years of neglect.

In 1995, for the first time in almost 50 years, the nation's allocation for defense slipped below 4.0 percent of the Gross Domestic Product. Not coincidentally, it is since then that the worst of the military deterioration has occurred.

It all depends on where the priorities lie. ■



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Horse Races

One of the few points I agree with [in the editorial "The Purpose of War," August, p. 2] is: "The objective is not to destroy the enemy but to gain a strategic result." I suggest that you cannot gain strategic result without eliminating your enemy's will to resist and attack you (a basic tenet of Sun Tzu). Effects-based targeting just doesn't work.

No one can doubt the measure of effectiveness we demonstrated during the Gulf War. I witnessed firsthand the daily rack-up of bridges and tanks destroyed, infrastructure damaged, but we never really impacted the will of the leadership in Baghdad.

While it may be true that the daily [no-fly-zone] missions over Iraq prevent the missile sites from powering up their radar, our 11th year in this role has not impacted the will of the Iraqis to fire the odd missile now and then. Our continuing role in the Gulf would have ended long ago [if we had] adopted Professor [Conrad] Crane's measure of successful war: "It concludes with a triumphant march through the enemy capital."

Lt. Col. Herbert M. Harrington Jr.,
ANG (Ret.)
Wilmington, Del.

While I agree with the basic premise, all of the tenets endorsed in the editorial have been articulated for centuries, the earliest example being found in *The Art of War*.

The basic message is to attack the enemy's political center of gravity, defeating him if you are successful and thereby gaining your own political objective as a result. As noted by Clausewitz, "War is politics by other means." Obviously, the military strategy or tactic used to attack an enemy's center should be tailored to the objective of the attack. In some cases land forces are appropriate, in others they are not. As a service it's important that we be intellectually honest when new thinking occurs and when it doesn't—this time it didn't.

Col. Charles J. Jernigan,
USAF (Ret.)
Edmond, Okla.

Being one of only 44 US Army Air Forces officers [in] World War II who were qualified—.50-caliber gunners (MOS 611), navigators (MOS 1034), bombardiers (MOS 1035), and radar observers, bombardment (MOS 0142) [using] AN/APQ-13 radar—I take exception to your remark: "[The Circular Error Probable—] the Air Force's standard calculation of accuracy—for long-range bombers was 3,300 feet."

Our training ended on Aug. 25, 1945, and the margin of error was 50 feet. As long as the pilot could see to take off and land, finding the target area and obliterating the target, completely covered by clouds was a simple task with the AN/APQ-13 radar and Norden bombsight. We were trained as the odd man of a B-29 crew, an aide to the navigator and bombardier for the November invasion of Japan.

The method we were trained for navigating and bombing through overcast [conditions] is not even covered in the Radar Observer's (Bombardment) Information File, July 1945, issued to me Sept. 4, 1945, two days before I was to be transferred from Williams Field, Ariz., to Herrington, Kan., a B-29 overseas staging base. Transfer to take effect 1800 hours, Sept. 6, 1945. Hostilities with Japan ended at 1530 hours Mountain Time Sept. 6, 1945, and not Aug. 14, 1945. Transfer canceled at 1600 hours Sept. 6, 1945. My 201 file proves the above.

Capt. Herbert W. Schimke
Onekama, Mich.

■ *It was not a "remark." It was a fact. In 1943, the CEP—the standard mea-*

sure of bombing accuracy—for B-17s was 3,300 feet. By 1970, the CEP for F-4s delivering iron bombs in Vietnam was down to 500 feet. In Operation Desert Storm in 1991, F-117s achieved a CEP of 10 feet with laser-guided bombs. The CEP for B-2s in the air war over Serbia was 20 feet, but they did it without laser designation, using satellite data from the Global Positioning System instead.—

THE EDITORS

Three Fighters

Bravo Zulu (Navy slang for "job well done") to John Tirpak for his outstanding article "The Three Fighters" [July, p. 26]. He did a wonderful job of explaining the roles and missions and more importantly the need for the F-22 Raptor, Joint Strike Fighter, and Super Hornet. A nation with a \$9 trillion gross domestic product can surely afford all three aircraft.

I personally feel that the investment of precious and scarce taxpayer dollars for these aircraft is a good air dominance insurance policy. Far too often during the 20th century, American military personnel were killed because this nation lacked air superiority. It should be the policy of this nation never to let it happen again. The procurement of these three new aircraft represents a good first step.

Jim Dolbow
Alexandria, Va.

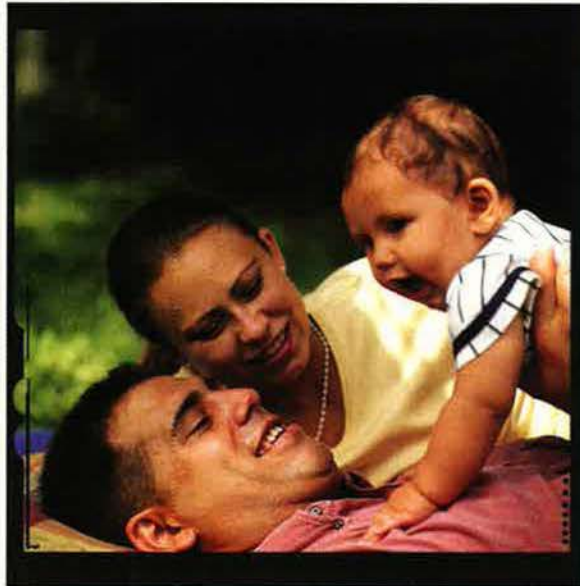
I applaud your balanced and informative article on the F/A-18, F-22, and JSF programs. It surprises me, however, why discussions of tactical airpower and its cost always ignore the other tactical air assets—the US Army's attack helicopters. The Comanche, currently under development, is an enormously expensive aircraft—the GAO recently reported that each will cost \$39 million and the total program cost will be \$48.1 billion. Thus, a helicopter will cost more than an F-16 or even a JSF. Longbow Apaches are less expensive, "only" \$24 million apiece according to the CBO, and then there's the Black Hawk upgrades estimated to cost several billion dollars.

All that is real money. It would there-

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fore seem that any discussion of tactical aviation—what is needed, what it costs, and what can be trimmed—should always include the price tag and utility of attack helicopters. Cost is certainly important, but if we also consider the factors of range, payload, and vulnerability, how do attack helicopters stack up against the Super Hornet, Raptor, and JSF?

Phillip S. Meilinger
McLean, Va.

The Axe

This is truly a time of testing the courage and integrity of high ranking active duty Air Force officers to speak up about the dangerous and destructive proposal to take out of service more than a third of our most capable strategic bombers, the B-1. [See "Aerospace World: In Major Shift, B-1B Bomber Fleet Comes Under the Axe," August, p. 13.]

The B-1 bomber is a paid for, relatively new, and very effective strategic weapon system. In an era when our bombers—B-52s—are very old or relatively new but very few in numbers—B-2—it will be a terrible mistake to phase out some of our B-1s and to consolidate the remainder at just two bases. If we phase out B-1 bombers, in the near future we will be desperately trying to develop, fund, and build replacements at a terrible cost and perhaps too late for America.

Col. Robert M. Byrom,
USAF (Ret.)
Crozet, Va.

Speaking of the Last Flight

In your article "The Last Flight of Wang Wei" [July, p. 51], the author compared the F-8 to the MiG-21. Even though the F-8 is a modified design borrowing much from the MiG-21, a more accurate comparison would be to the Su-15 Flagon.

Capt. Todd Breitmann,
Florida ANG,
Tyndall AFB, Fla.

"The Last Flight of Wang Wei" perpetuated the incorrect designation of the Chinese pilot's aircraft that has appeared in the media since the incident on April 1. It was not an F-8 but a J-8, built by the Shenyang Aircraft Corp. The original J-8 was a Chinese-built derivative of the single-engine MiG-21, which the Chinese have operated since the early 1960s. The J-8 II which Wei flew is a twin-engine, greatly upgraded design.

Cmdr. Peter B. Mersky,
USNR (Ret.)
Alexandria, Va.

I realize this is a sensitive subject that must be approached with utmost care, but this EP-3 spyplane [Distinguished Flying Cross] award matter has been grinding on me since it occurred.

First let me say that I am very proud of the airmanship exhibited by the entire crew and especially the pilots. Without question they are made of the stuff it takes to be military pilots, and I applaud their efforts and successful landing. Even so, they did exactly what would be expected of them and saved their own and their crew members' lives. There is, however, a matter of precedent and fairness that has thus far been ignored.

These DFCs were awarded for a single mission, not even a true combat mission, whereas I can recall thousands of pilots risking their lives flying real combat missions in Korea, Vietnam, and the Gulf War and at the end of their tours getting a pat on the back for a job well done and a ticket back to the real world. What about them? The comparison effectively downgrades the contribution of every pilot who completed a combat tour and was never even considered for anything more than multiple Air Medals.

[B]ased upon this precedent, every pilot and aircrew member who didn't get at least one DFC for the aforesaid combat tours should get one now, even if it be posthumously, regardless of the cost.

Lt. Col. Rolland S. Freeman,
USAF (Ret.)
Longboat Key, Fla.

The Time Bomb

Regrettably, this "time bomb" has already gone off and [Air Force leaders] do not even know they have been fraged when the best they can offer is "recruitment will likely be the key to maintaining civilian workforce quality." [See "The Civil Service Time Bomb," July, p. 54.]

If accident investigators arrived on the scene of this bomb blast, what would they find? They would find the field littered with mortally wounded: The bodies of those who recognized these problems early on but because of indifference, a terminal case of the Peter Principle, or politics, just passed the buck.

They would find severely wounded: Those personnel who are in the civilian personnel system but do not have the requisite training or experience to function in the job. Unreasonable priority placement practices and classifiers that impose specious reasoning to a position force unqualified personnel

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into critical areas, such as Precision Measuring Equipment Laboratories. Personnel departments, either through incompetence or through intention, erroneously keep personnel costs in check by misclassifying a range of personnel for positions. How can anyone reasonably expect a PMEL technician, with years of formal training and certification in metrology and calibration, to be replaced by a civil service electronics mechanic with no formal training in metrology and calibration?

Investigators would also find the walking wounded: Those haggard personnel who get the job done but must wait an inordinate amount of time for reinforcements. When a Civilian Personnel Office is notified that an organization will have a vacancy, [it is] unable to provide a timely list of replacements. The system is so ponderous, inefficient, and ineffective that CPOs may not be able to produce a certificate for up to six months. If a [security] clearance or a newly released veteran is involved in the selection, add more time for waivers, paperwork processing, and such. If the position requires a position review, add more time—months.

And lastly, the [investigators would find] those who are just shell-shocked: Those in critical positions that are misclassified and improperly graded. Air Force civil service directors of aircraft maintenance are classified under the same family of Office of Personnel Management jobs as cemetery administration and dry cleaning and laundry plant management.

Or you can ask OPM what is the difference between an aircraft mechanic and a person who, as a condition of employment, must hold an FAA airframe and power plant certificate with which to work. Guaranteed [the answer] you will get: "They are both just mechanics."

How can any agency recruit qualified replacements when those who classify these positions do not know what they are doing? Is it unreasonable to expect that if positions are properly classified, qualified personnel could be recruited?

Maybe the recruitment effort needs to start at headquarters, OPM, and civil personnel offices. The current crop has buried us with incompetence, inefficiency, and indifference.

Mark A. Hewitt

Deputy Director of Maintenance
 Laughlin AFB, Tex.

You addressed the fact that, for the most part, USAF can't compete with private sector pay scales and that "recruitment requires emphasis on other attractions, such as job security, generous leave allowances, and travel opportunities."

When I began my career with the Air Force 15 years ago, that was true. Job security is no longer there. I would like to retire from the Air Force, but it is very likely that I won't have the opportunity. There was a time when benefits like job security made up for lower pay. No more.

You point out only six paragraphs later that "the goal is to reduce the share of the workforce made up of permanent civil service employees." Then later you talk about outsourcing and base closures. Every time there is another A-76 study, more jobs are lost. If the function isn't totally outsourced, then jobs are cut to make the function competitive. I am slowly watching all of our base jobs being nibbled away, and on top of that is the possibility that the base may close anyway during the next round of closings. That seems to be what DOD wants. It really doesn't matter what installation we work at, the same thing is happening everywhere.

Letters

I am proud to be an Air Force civilian employee, but I wouldn't make the same decision now, and I wouldn't recommend anyone else do, either. The benefits like leave and insurance are still good, but job security doesn't exist anymore. There is high turnover in industry, but if you are likely to lose your job anyway, go for the bucks.

Gary Chamberlain
 Warner Robins, Ga.

I found the article very interesting, particularly the paragraph that stated aircraft engine mechanics are in the top 10 of the hardest-to-fill civil service jobs. As a former USAF jet engine mechanic and current USAF engine field rep, I keep a close watch on current aircraft engine mechanic job openings. The most experienced engine mechanics available for the military aircraft/engine environment are those who used to wear the uniform, specifically recent military retirees.

There are a couple key reasons why the majority of these folks are not attracted to civil service engine mechanic positions. One is the 180-day hiring restriction. This is a built-in obstacle that prevents various federal agencies from being competitive with private companies. By the time the 180-day time window has passed, most of those skilled mechanics, who wish to remain engine mechanics, have been recruited by a private company.

The second main reason is simple: pay. The majority of wrench turning civil service engine mechanics will never rise above the wage of a WG-10. Many of the job openings over the past few years have been as low as the WG-07/08 level. I guess those who have the hiring power have never heard, "You get what you pay for."

Tim Tursick
 Luke AFB, Ariz.

It's Frightening

Interservice rivalry has always been with us, and outward exhibits of esprit de corps are laudatory—when held within the bounds of civility and common sense. But I find assertions by [retired Army] Gen. Gordon Sullivan to be offensive, unprofessional, and thoroughly in error. [See "Aerospace World: Army Supporters Lash Out at Technology, Missile Defense, Airpower, and Spending 'Rat Hole' in Space," July, p. 13.]

When he made the attributed remarks—"ground forces [in the 1991 Gulf War] achieved in 100 hours what airpower could not achieve in six

weeks of around-the-clock bombings”—did he actually believe that our Army could have as easily sliced through the Iraqi forces had not our airpower (Air Force, Navy, Marine, and Army) first knocked out their radar (thus their commanders' eyes and ears), vanquished their air forces, and ultimately reduced their ground troops to a point of utter apathy?

Coalition victory, to me, was always inevitable, but our effortless progress in the ground war was due in no small part to the initial air onslaught. I find such shortsightedness by one of our nation's top staff officers to be not only obtuse but damn frightening.

Jim Vanore
Cape May County, N.J.

Early Overflights

The article "The Early Overflights" [*June, p. 60*] makes the following statement regarding a joint USAF-USN overflight program in the spring of 1952: "The twin-engine, unpressurized P2V-3W ... Neptune flew at about 15,000 feet and identified radar and radio signals that would indicate radar sites and airfields. The pressurized RB-50 flew much higher and well behind the Neptune. Crews on these flights main-

tained complete radio silence, so everything depended upon timing, as the RB-50 was to photograph the areas the Neptune identified."

I'd like to ask how, with complete radio silence, did the RB-50 crew know which areas the Neptune had identified for it to photograph?

Henry R. Kramer,
London, Ky.

■ *The RB-50 flew above and behind but within visual range of the Neptune. Good catch.*—THE EDITORS

[When NRO historian] Cargill Hall informed me that the Heartthrob program [overflights conducted by "light-weight" RB-57As] was now declassified, and I could make a full presentation [at the Defense Intelligence Agency symposium] to include the specific missions, I set to work putting the 45-year-old story together. Immediately I hit the "declining memory" wall.

There were no records, other than the flying hours on my Form 5, showing that I had flown over 800 hours in the Heartthrob version of the RB-57 and 165 hours at pressure suit altitudes—about 75 percent of the high altitude missions flown between October 1955 and August 1956. All of

the Heartthrob overflights over the USSR satellite countries were most likely flown in this time period. Studying the maps after all these years, I was able to remember three missions in Hungary and Czechoslovakia and one abort on penetration in the northern Adriatic Sea.

There were no records and no photos that could be linked to the project after all these years. Secrecy was such that no records were kept, no logbooks or diaries, no squadron or group files. Nothing was kept at the time, so obviously nothing was available to reconstruct some 45 years later. One of the more amazing aspects of the Heartthrob program, to me, was the degree to which its security was never compromised. We had the airplanes on the Rhein Main AB [Germany] flight line every day for over four years, and our secret missions were never compromised to my knowledge.

Some 45 years later you will not find the Heartthrob mission talked about in histories and documentaries. They all leap from the B-45s to the B-47s and then to the U-2s and SR-71s. And even those in the know act as though all the Canberra reconnaissance flying was done by the RAF—this in spite of the openness of the 10

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AFA's Mission

To promote aerospace power and a strong national defense.

To support the needs of the Air Force and Air Force people.

To explain these needs to the American people.

Letters

Heartthrob aircraft on flight lines in Europe and in the Pacific in 1955-59 and with [Soviet leader Nikita] Khrushchev openly complaining about Canberra overflying. And in 1955 Rhein Main was already a joint-use base with Air France, Lufthansa, et al., in and out every day.

["The Early Overflights"] article concentrated on the Asian overflights during and after the Korean conflict and the SAC overflights of the USSR. Undoubtedly these missions were more important and more dangerous and deservedly more interesting. To his credit, however [Walter J.] Boyne is the first author I've read who mentioned the Slick Chick and a light-weight Heartthrob RB-57 at all.

Three Heartthrob pilots—Col. Joe Guthrie, Lt. Col. Lou Piccioni Jr., and me—and one Slick Chick pilot, Col. Cecil Rigsby, were participants in the DIA symposium. There were only 10 Heartthrob aircraft—six in Europe and four in the Pacific. And they were not RB-57 configuration.

Maj. Gen. Gerry Cooke,
USAF (Ret.)
San Antonio

["The Early Overflights" article states] "RB-45s were withdrawn from daylight operations." Our crew with photo navigator Capt. Joseph G. Girardo, pilot 1st Lt. Oliver K. Nasby, and I flew all but one of 35 missions in daylight over North Korea and other places.

Maj. William J. Kristen Jr.,
USAF (Ret.)
St. Louis

■ *We stand corrected.*—THE EDITORS

Taking Offense

As an integrated avionics technician assigned to the 4450th Tactical Group from 1982 to 1986, I thoroughly enjoyed the article in the June issue about the F-117, especially the story about the short history of the F-117. [See "Two Decades of Stealth," p. 32.]

However, I was offended by the statement in that story: "Pilots on the program were selected for maturity and skill but led a monastic existence, living at the secret base and flying in the dead of night, and coming home to their families only on the weekends." The same high standards applied to the maintainers who put their hearts and souls into the success of the program.

For the first years of the program, maintainers were also handpicked for technical skills, maturity, and ability to deal with new systems and new problems. We also were on-site all week

and only saw our families on the weekends. Who do you think gets the planes in the air and prepares them to fly again after a tough night of missions? All of us in the program were well aware of the importance and prestige of getting the aircraft off the ground every night, and fixing them every day, especially in the early days when we were all learning just how the aircraft worked and how much care it required.

I have never worked with such a group of professional people who had to be a cut above the average in technical skills and who also had to tolerate family separation. Please give these people the credit they deserve for making this program the success that it was and still is!

SMSgt. Craig M. Happ,
USAF (Ret.)
Khamis Mushayt, Saudi
Arabia

The First Air Staff

In regard to Herman S. Wolk's article "The First Air Staff" [June, p. 66]: I must take exception to his statement that the Combined Chiefs of Staff was created in August 1941 at the Argentia, Newfoundland, conference between Prime Minister Churchill and President Roosevelt. No such action occurred at that conference. Moreover, Roosevelt did not make any military commitments although Churchill was very desirous of getting America involved against both Nazi Germany and the Japanese empire.

The main purpose of the conference was the proclamation of the Atlantic Charter, a statement of rights and principles by the heads of the two most prominent democratic governments. High level military officials from both countries attended the conference, including Maj. Gen. Henry H. Arnold.

The Combined Chiefs of Staff of the wartime Allies was actually created in Washington, D.C., at the conference held in December 1941 to January 1942 known as Arcadia, which followed American entrance into World War II. See *Roosevelt: The Soldier of Freedom* by James MacGregor Burns (p. 183) and also *The Grand Alliance* by Winston Churchill, who stated that the most valuable result of Arcadia was the setting up of the Combined Chiefs of Staff Committee (p. 686).

In his book *Global Mission* Arnold discusses the meetings at Argentia where he expressed his ideas on the use of airpower against Germany or Japan and the fact that the diversion of American production of aircraft and related equipment to Great Britain and

Russia would be to the detriment of the US Army Air Forces' combat effectiveness that had been given so much emphasis since the fall of France in June 1940.

Brig. Gen. Richard B. Posey,
USAF (Ret.)
Camp Hill, Pa.

■ *We did indeed mix up the formal creation. In his book, Arnold calls the August meeting the "forerunner" of the Combined Chiefs of Staff.*—THE EDITORS

I read with great pride and considerable nostalgia "The First Air Staff." In particular I was most pleased to see my father (George H. Brett) pictured and to read that he had been properly identified as the acting Chief of the Air Corps—a point most authors have missed in writing about those so challenging and critical days.

There are probably very few of us left who were privileged to know these key players who were instrumental in putting together the first Air Staff. I did meet Gen. [George C.] Marshall on a few occasions and knew Arnold's and [Maj.] Gen. [Frank] Andrews's families in a very personal way. I am very grateful that my father shared

with me, at that time, his views and permitted me to be present, mainly at the dinner table, with these great men. Needless to say I was given specific instructions on being seen not heard.

The Army and the Army Air Corps was very small and all senior officers knew each other and most had served together at some time in their careers. This also included their families. For me and many of my friends, our earliest ambitions were to be pilot officers. Those of us who were fortunate to realize our ambitions had a life that could not be equaled.

I found Wolk's article to be accurate, very interesting, and timely as we go into this new century. The more written about those so perilous and far reaching times can only create a most positive motivation for the men and women of today's Air Force.

Lt. Gen. Devol Brett,
USAF (Ret.)
Alexandria, Va.

About Kelly Field

Your excellent article in the July issue [*"The Return of Kelly Field,"* p. 46] was well-received by those of us who were proud to have been graduated from Kelly Field.

Our Class 42-B was graduated in


two sections: Feb. 6, 1942, and Feb. 13, 1942. Kelly was still a large grass airfield at that time. Among the Feb. 6 pilots sent to Operational Training Units was 2nd Lt. Thomas B. McGuire Jr.

The article gave the names of Kelly Field pilots after whom USAF air bases were named. It omitted McGuire, who [flew] P-38s in Fifth Air Force in World War II and shot down 38 Japanese aircraft, becoming the second highest scoring US fighter pilot in any US war. McGuire AFB near Ft. Dix, N.J., is named in his honor. [He was] awarded the Medal of Honor posthumously.

Col. Thomas Stone Ryan,
USAF (Ret.)
Alexandria, Va.

The article [mentions] the jet-powered B-36D. To those younger readers who are unfamiliar with the B-36, this phrase would seem to indicate that the Peacemaker was solely jet-powered. I'm sure you know that the four jet engines on this aircraft were meant only to augment the plane's main power suite of six [reciprocating] engines. Perhaps the sentence should have referred to "the jet-augmented B-36D."



MSgt. James B. Walker,
USAF (Ret.)
Dayton, Ohio




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We Had a Missile Shield

[About] the proposed missile shield, I really do not know what the plan would look like or encompass, but here is one thing I do know: The US at one time had the best missile defense system that was ever assembled or ever will be assembled. [See "Aerospace World: Washington Starts Missile Defense Sales Pitch," July, p. 19.] It took a lot of long hard work by completely dedicated people. It was operational from March 1946 to May 1992. It was called Strategic Air Command.

SAC was commanded by some of the best generals in the Air Force. It had the best trained flight crews and the best maintenance crews in the Air Force. In its full operational capacity SAC provided a protective shield that could only be detected by satellite and not always by them. The whole world knew about SAC, and Russia and Red China feared it the most.

We have the aircraft and firepower to build another system just as effective as SAC was. The Air Force has some very dedicated and intelligent people in its ranks today. SAC did the very job it was formed to do and did it with great pride and success. It can be done again. There are still some people around who are descendants of the old SAC family. They will know exactly what to do. Yes, I spent 24 years in SAC on the tankers KC-97 and KC-135. I loved every minute of it. SAC will be back.

CMSgt. Donald W. Grannan,
USAF (Ret.)
Fort Worth, Tex.

All Over Again?

[The news item] "Osprey Crash Caused by Hydraulic, Software Failures" [*Aerospace World*, June, p. 15] states, "A titanium hydraulic line burst, causing total loss of fluid in the V-22's primary flight control system." Is this a case of déjà vu all over again? If memory serves, the F-14 prototype crashed out on Long Island some 30-plus years ago because of the failure of titanium hydraulic lines.

Lt. Col. Joseph E. Quinn,
USAF (Ret.)
Las Vegas

To Bomb a Bridge

"The Chart Page: To Bomb a Bridge" [p. 9] in the July issue tells a great story of how technology has benefited the warfighter. However, I'd like to dispel a misconception concerning the explosive power of the future Small Diameter Bomb. While the SDB may be used against some targets that are now serviced with a 2,000-pound war-

head, it will not possess an equivalent blast/fragmentation capability. There is no warhead explosive fill that could be stuffed into a 250-pound bomb that could match the destructive power of a Mk 84.

The SDB will be effective because of its accuracy and its employment against targets that can be killed with a small warhead. While bridges have not been identified as a key SDB target, further analysis of its potential capabilities and operational employment concepts may establish them as legitimate targets.

Col. Dennis Miner
USAF (Ret.)
Yorktown, Va.

Oh, Those Numbers

Please be very careful of statistics. Your example in the June magazine is misleading. [See "The Chart Page: The Rated Force Goes Down," p. 23.] Yes, there are fewer rated officers today, but there are also fewer NCOs and airmen. If you had done the math, you would know that there are 11.1 officers per plane in today's Air Force, compared to 1944's 4.3 officers per plane.

[A] USAF goal from the late 1980s was to never have a senior NCO serve under a junior officer. That is not a goal anymore as we have many more officers today than we have had at any time in our history per capita for the total population. Please use your statistics judiciously.

SMSgt. Kevin Perdue,
USAF
Jacksonville, Ark.

[There is a] missing-man rated officer [statistic from the] year 1944. [It] is, of course, the bombardier: at least 20,000.

Lt. Col. Norman F. Comly,
USAF (Ret.)
Lakewood, N.J.

To Abaya or Not

I read with great interest your article[s] about Maj. [Martha] McSally's inability to conform to the rules for serving in Saudi Arabia. [See "Aerospace World: Female USAF Fighter Pilot Slams Dress Rules in Saudi Arabia," June, p. 16, and "Senators Target Dress Code in Saudi Arabia," July, p. 12.]

She claims to be a fighter pilot because she has been selected to fly an attack-fighter aircraft. Having been there for many years, my version of a fighter pilot represents more attitude than just the ability to roll upside down, put a pipper on a tar-

get, and to press the pickle switch at some given moment.

A fighter pilot's attitude may not always be conformity, for he has to do what needs to be done to succeed and be able to out think the box in which he finds himself at any given moment. The fighter pilots we all think of and know as heroes did not achieve their greatness by opposing their country's rules and their commander's policies. They lived within those boundaries and did what was required of them—being able to stretch the envelope just a little more in performance. Can't you just see a Bong, McGuire, Olds, or Ritchie creating an international situation because he has to wear a long-sleeve shirt to go into town between sorties?

Robert E. Patterson,
Shalimar, Fla.

Never underestimate an adversary. Never overestimate an ally. None of our military personnel are "property" of the Saudis. The Muslim kingdom needs USAF personnel more than we have requirements for their oil. The United States has oil resources in our own territory. Do not waste our youths on allies that are not worth a grain of sand.

Emmett N. Bailey Jr.
Henderson, N.C.

Is it just an example of arrogance or is [McSally] really that ignorant of protocol? We have lived and worked in Saudi Arabia for more than five years. With more than 25 years of active duty on both the enlisted and officer sides of the workforce we find her attitude offensive.

More than 17 years of our Air Force life was spent working and living in countries around the world. We always had respect for cultural diversities. The abaya is just one of the items we have to contend with while having the privilege of living and working around members of another society. My wife wears the abaya when out in public and has a scarf around her neck. If confronted by a religious policeman she pulls the scarf over her head to cover her hair. We then proceed on with our business without additional problems.

If the major is traveling in a car from one point to another without mingling with the local population, there is no need to wear the abaya. However, to prevent problems with local authorities, she should respect their cultural and religious differences. It's a small price to pay when serving in an overseas location. The com-

mander should stick to the rules and not change them for one disgruntled employee.

Douglass and Tonya Dippert
Khamis Mushayt, Saudi Arabia

One More on WASPs

Ruth Helm's June letter ["WASPs," p. 7] is not quite correct. I was stationed at Great Falls, Mont., with the 7th Ferrying Group in October 1942. My first flight to Alaska was Oct. 16, 1942. I made 28 flights to Alaska after that. We first took the P-39s, A-20s, B-25s, and C-47s to Fairbanks where the Russian pilots would then fly them to Russia. There were some women Russian pilots, also flying planes to Russia. It was later that we flew to Nome where the Russian pilots took over. And we also flew into Anchorage where pilots flying in the Aleutian Islands would pick them up.

Lt. Col. Robert J. Craig,
USAF (Ret.)
Novato, Calif.

Correction

In the May issue, the contractor listed for the C-21 on p. 146 in the "Gallery of USAF Weapons" should be Gates Learjet.

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An Enclosed Cockpit, Please.



The crew of this B-9 might have been a bit chilly in their open cockpits, but this bomber's technology was on the leading edge when Boeing designed it in 1930. The B-9 was the Air Corps' first all-metal monoplane bomber. The low-wing aircraft had internally braced cantilever wings and retractable landing gear. It had a .30-caliber machine gun in the front and rear cockpits and could carry

more than 2,000 pounds of bombs. With two 600 hp R-1860-11 engines in nacelles ahead of the wings, the Y1B-9A version produced a maximum speed of 188 mph. Such speeds made open cockpits impractical, and the B-9 was one of the last US open-cockpit bombers. Only seven were built. The B-9 never entered production, being surpassed by the Martin B-10.

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Verbatim

By Robert S. Dudley, Executive Editor

Once Is Enough

"[A]m I confident we can have a ... successful base closing round? The answer is no, I'm not. And no one could be. It is a very difficult thing to do. ... After a great deal of consultation on the Hill, the conclusion by the people who were doing that consulting was that a single [base closure] round would be better than two or three or five or 10, the latter being akin to cutting a dog's tail off one inch at a time, hoping it doesn't hurt so much."—**Secretary of Defense Donald Rumsfeld, Aug. 3 remarks to Pentagon reporters.**

Running on Empty

"If we don't have \$18 billion, we won't do \$18 billion. ... There has been a request for additional funds for defense ... and in education. I do think we're going to have to exercise some fiscal discipline. We may not be able to see as much spending as some people would like in a number of areas."—**Sen. Trent Lott (R-Miss.), Senate minority leader, in July 31 Washington Times. He referred to President Bush's request to increase next year's Pentagon budget by that amount.**

What the Rogues Know

"To those who wonder why so many of the regimes hostile to the United States—many of them desperately poor—are investing such enormous sums of money to acquire ballistic missiles, I suggest this possible answer: They know we don't have any [anti-missile] defenses."—**Deputy Secretary of Defense Paul Wolfowitz, July 12 statement to the Senate Armed Services Committee.**

One Way or Another

"These are not going to be traditional arms control negotiations with small armies of negotiators inhabiting the best hotels in Geneva for months and years at a time. ... It's our full intention to engage [with Moscow] as robustly, as expeditiously, and as sincerely as we can. ... We hope that the Russians will see this as part of the new strategic frame-

work in a cooperative mode that is in both of our interests, but we will move ahead on our own, if need be."—**Undersecretary of State for Arms Control and International Security John R. Bolton, July 24 Senate Foreign Relations Committee hearing on President Bush's plan for a new Russian-American "framework" that includes deployment of US missile defenses.**

Third Tablet of Moses

"[A]ny policy that seeks meaningful reductions in nuclear weapons must include the deployment of effective [anti-ballistic missile] defenses. Defenses provide a hedge against cheating or a sudden breakout from a deep-cuts agreement. There is the basis in this logic for a new bipartisan compact on defenses and disarmament. The Bush Administration's approach has been heavily weighted on the side of the former. Officials should get started on offensive reductions and speak more pragmatically about defense plans and programs. For their part, instead of blindly defending the ABM treaty as if it were the third tablet Moses brought down from the mountain, Democrats should refocus on the real danger: nuclear weapons. ... Democrats should not rule out the desirability of supplementing deterrence with effective defenses on ideological grounds or on the basis of a mistaken nostalgia for the misremembered comforts of [Cold War-era] deterrence."—**Barry M. Blechman, assistant director of the US Arms Control and Disarmament Agency 1977-80, in July 25 Los Angeles Times.**

Friendly Advice

"Here's some unsolicited advice for two old friends, Donald Rumsfeld and Paul Wolfowitz: Resign. Right now, that may be the best service they could perform for their country, for it may be the only way to focus the attention of the American people—and the Bush Administration—on the impending evisceration of the American military. ... [A] few weeks ago, Secretary of Defense Rumsfeld went

to the White House to present his Fiscal Year 2002 budget request. After some five months of review, Rumsfeld had concluded that he needed approximately \$35 billion in additional funds for FY 2002, with more to come in FY 2003. ... Rumsfeld was mauled. The Office of Management and Budget demanded that Defense receive only a \$15 billion increase over the Clinton baseline. They 'compromised' at \$18 billion. President Bush duly approved the halving of his Defense Secretary's request and moved on to more pressing business."—**Republican political commentators Robert Kagan and William Kristol, in July 23 Weekly Standard.**

In Rumsfeld's Defense

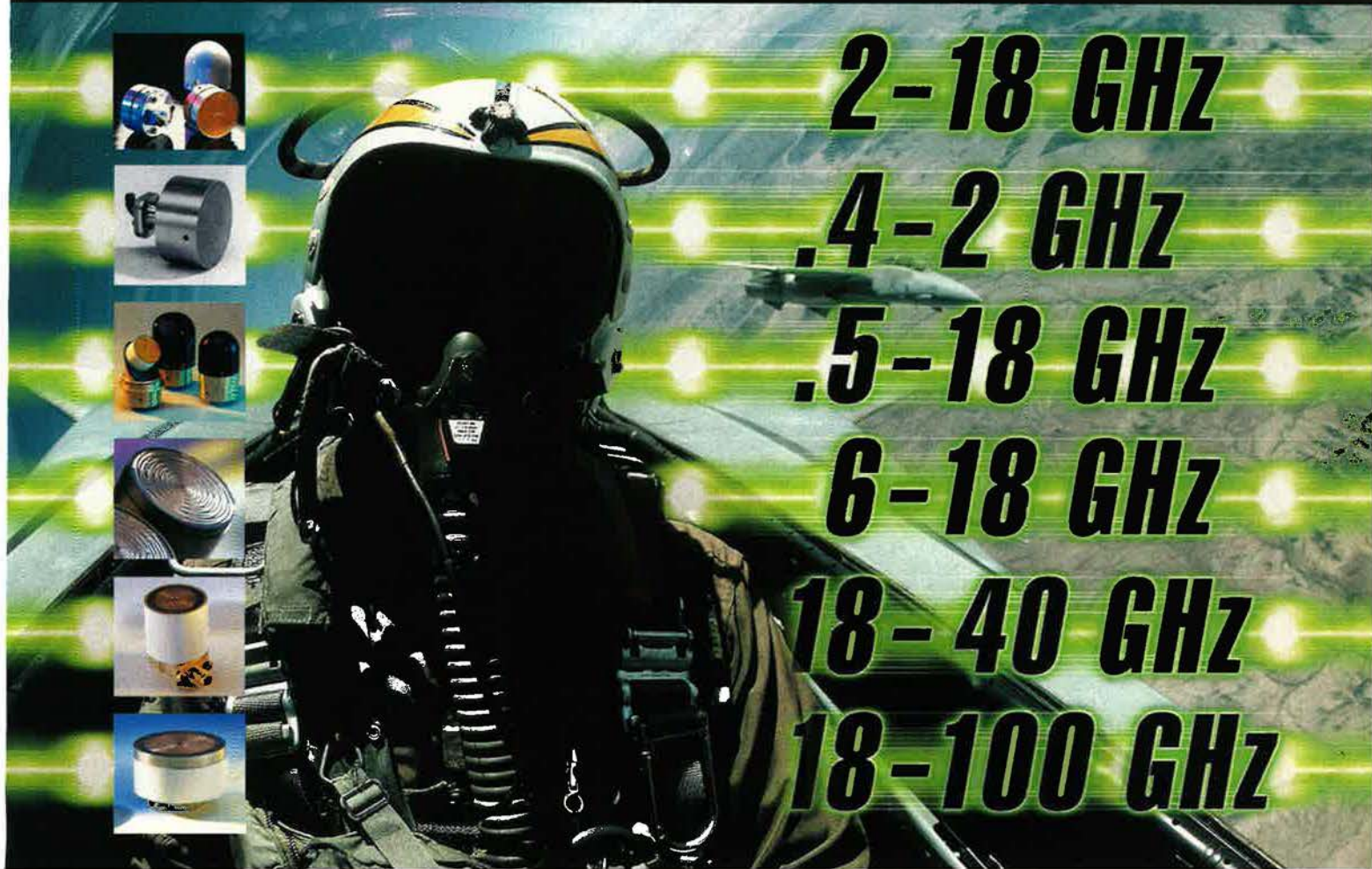
"I'm not asking for him [Rumsfeld] to resign. He's trying to do the right thing. He's just not getting the support he needs from the White House and OMB. It all goes back to the tax cut."—**Rep. Norm Dicks of Washington, senior Democrat on House defense appropriations subcommittee, July 21 Congressional Quarterly Weekly.**

Precision Tank Rounds

"Sometimes, when you have a conflicted target, where they have decided to take their warmaking potential and put it into innocent area sanctuary, where your large explosive weights would cause unacceptable damage, in those cases, your most precise instrument may be a tank sabot round [from a distance of about two miles] that can attack a target like that without the collateral damage."—**Gen. Eric K. Shinseki, Army Chief of Staff, in July 30 testimony to the House Appropriations defense subcommittee.**

Modest to a Fault

"The Navy is the last outfit that has to be told, 'Oh, well, you have to transform yourself,' because they already have, [but] they haven't been very good at publicizing it."—**Naval analyst Norman Friedman, quoted in July 14 National Journal.**



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Aerospace World

By Peter Grier

F-22 Cleared For Production

After long delay, the Pentagon's Defense Acquisition Board finally cleared USAF's F-22 Raptor to begin production.

The Aug. 15 decision denotes official Bush Administration endorsement and settles for at least four years any question about whether DOD will continue to back and fund the supersonic stealth aircraft.

The decision came with strings attached, however. The Air Force and Lockheed Martin must find substantial cost savings. If not, the Pentagon will trim production from today's planned 339 aircraft to only 303 aircraft.

To improve efficiency, the service will have to add about \$5 billion, which it expects to later recoup through savings.

Congress will have to approve a \$5 billion increase in the production cost "cap" it imposed on the program a few years ago.

Edward C. Aldridge, DOD's acquisition chief, said, "The program has met all of its exit criteria for entering low-rate production and is performing to design goals." He expects Congress will go along with the restructured program.

Jumper Confirmed for CSAF

The Senate on Aug. 3 confirmed Gen. John P. Jumper, commander of Air Combat Command, to be the next Chief of Staff of the US Air Force.

The White House had announced July 16 that President Bush nominated Jumper to succeed Gen. Michael E. Ryan, who retires this month.

The new Chief is a 35-year veteran of the service. A fighter pilot, Jumper completed two tours of duty in Southeast Asia and received the Distinguished Flying Cross with two oak leaf clusters, among other awards.

Over the years he has commanded a fighter squadron, two fighter wings, and a numbered air force. Pentagon jobs included a tour as deputy chief of staff for air and space operations and as senior military assistant to two Secretaries of Defense.

"General Jumper knows our mission and our people inside out, and



USAF photo by TSgt. Jim Varhegyi

Gen. John Jumper testifies before the Senate Armed Services Committee during his confirmation hearing to be the next Air Force Chief of Staff. Jumper will replace Gen. Michael Ryan, who retires this month.

he has the vision, leadership, and experience to assure the US Air Force remains the world's pre-eminent aerospace force," said Ryan.

Roche's Eye Falls on the B-52

James G. Roche, Secretary of the Air Force, told a House panel July 16 that the Administration will likely request a reduction in the size of the B-52 bomber fleet when it submits its 2003 budget request next year.

"It's my intention to do exactly that," Roche said at a hearing of the House Appropriations defense subcommittee.

Money saved by retiring a certain number of B-52s could be used to upgrade those that remain, according to the service's civilian chief.

Today's bomber fleet includes a total of 94 B-52Hs, the only variant still in operational service. Only 44 are considered to be fully combat-ready. Moreover, the Air Force has said it needs only 76, meaning 18 are expendable.

Next year will mark the 50th anniversary of the first flight of the BUFF. The youngest in service is nearly 40 years old. It is still a formidable sys-

tem, however, and would employ standoff weapons in the nuclear and conventional role.

B-1B Cuts Likely To Be Delayed

It will take longer than expected to execute the Air Force's proposed reduction in B-1B bombers.

Roche said as much at a Senate Armed Services Committee hearing July 10.

Shrinking the B-1 fleet from 93 to 60 aircraft and consolidating all remaining bombers at two bases might take all of 2002, if the operation is to be done "in a sensible manner," he said.

When the reductions were announced in June the Air Force plan was to move the airplanes by this Oct. 1. Then reality—and a Senate-passed budget amendment prohibiting use of 2001 funds to pay for the move—took hold.

Budget Boost Not Enough, Say Services

In coming years, the US military will need budget increases over and above the \$18.4 billion added by the Bush Administration to its Fiscal 2002

spending plan if the services are to maintain procurement and readiness accounts, according to their leaders.

"We will need more money," Roche told a July 10 Senate Armed Services Committee hearing.

Flat budgets simply won't cut it, agreed Chief of Naval Operations Adm. Vernon Clark. Low levels of investment in the 1990s mean the Navy needs about \$34 billion a year for procurement, he said, as opposed to today's \$24 billion annual level.

"We must buy 180 to 210 aircraft and nine ships a year to sustain the 1997 QDR force level of 4,200 aircraft and 310 ships," he said.

However, the committee's new Democratic chairman, Sen. Carl Levin (Mich.), warned that money is already tight due to the effects of the recently passed tax cut and nonmilitary spending initiatives.

Army Needs More Troops, Says Shinseki

To fully carry out its current missions, the Army needs to grow by upward of 40,000 active duty troops, Army leaders told the House Armed Ser-

vices Committee on July 18. Back in 1995, Army end strength was 532,000. Since then, the Army has maintained a high operations tempo and deployed thousands of troops to various Balkan hot spots, yet end strength today stands at around 480,000.

B-1B Scheme Hits Wall of Opposition on Capitol Hill

A proposed reduction in the B-1B bomber force has turned into one of the hottest political potatoes the Pentagon has seen in a while.

The plan, announced in June, has already sparked determined opposition from members of Congress whose districts would be affected by the move. McConnell AFB, Kan., Robins AFB, Ga., and Mountain Home AFB, Idaho, are bases which stand to lose B-1B units.

Kansas lawmakers, for instance, are emphasizing that the Kansas Air National Guard can fly a B-1B for only \$6,600 an hour, as opposed to the Air Force average cost of \$10,600, and that the average B-1B technician at McConnell has 15 years of experience, far higher than the service norm.

"I think we're going to win this one on a long-term basis," said Sen. Sam Brownback (R-Kan.) at a July 9 press conference following a meeting with Air Force officials.

Pentagon officials, for their part, say that shrinking the B-1B force could free up \$1.5 billion to outfit the remaining Lancers with new precision weapons, self-protection systems, and reliability upgrades.

"This is the kind of efficiency we owe the taxpayers," Secretary of Defense Donald Rumsfeld told a House panel July 16.

"The Army is too small for the mission load it is carrying [and] under-resourced for the size that it is," said Chief of Staff Gen. Eric K. Shinseki.

Shinseki then endorsed a 40,000 increase figure mentioned by a panel lawmaker but used no specific numbers himself.

The new Secretary of the Army, Thomas E. White, added that the service today has trouble managing normal commitments, much less operational missions.

"You can see that in the personnel readiness of commands like the Training and Doctrine Command," said White.

Two Killed in California F-16 Crash

Two crew members died in the July 17 crash of an Air Force F-16 near a mountain range in the eastern California desert.

The aircraft was flying a photo mission out of Edwards AFB, Calif., to record the test flight of another F-16. It went down at about 7 a.m. near China Lake Naval Air Warfare Center, in an area studded with volcanic peaks.

Killed were Maj. Aaron George, a test pilot with the 416th Flight Test Squadron, and Judson Brohmer, an aerial photography subcontractor working with Lockheed Martin.

Investigators could not immediately determine if either or both of the men ejected from the aircraft. A board of officers will investigate the accident.

First Jet Lost in No-Fly-Zone Operation

A USAF F-16 en route from Incirlik Air Base in southern Turkey to a patrol mission covering the no-fly zone

Wolfowitz and the "Reckless" Three-Percent Solution

At a July 11 House Budget Committee hearing, Deputy Secretary of Defense Paul Wolfowitz issued a strong plea for more defense spending, starting with the Fiscal 2002 DOD budget. This is an excerpt of his statement:

"The increase in the 2002 budget is ... devoted to beginning urgent rehabilitation of the 20th century force that we have and begins building the force of the 21st century. This 2002 budget gets us started on the road to rehabilitation. [It] is a bridge budget to what we hope will be the transformation budget of 2003.

"I'm reminded of another point in our history when it was a challenge to make a case for increased defense spending. In 1950, Gen. Omar Bradley urged President Truman to spend at least \$18 billion on defense. [Figures herein not adjusted for inflation.] The Joint Chiefs gave an even higher estimate at \$23 billion, and the services' estimate was higher still at \$30 billion. But the President said we couldn't afford that much—\$15 billion was as much as we could afford. Six months later, we were suddenly in a war in Korea. Just as suddenly we found we had no choice other than to budget some \$48 billion—a 300 percent increase. How much better it would have been to have made the investment earlier. ...

"We have spent an historical average of about eight percent of GDP on defense, in part because we have not spent enough in peacetime to prepare for, and deter, war. We can't know who may challenge us in the future, or where, or when. Today, we are more in the range of three percent of GDP, but it is reckless to press our luck or gamble with our children's future.

"To think we can't afford an insurance policy of roughly 3.5 percent of GDP today to deter the adversaries of tomorrow and underpin our prosperity and, by extension, peace and stability around the globe is simply wrong. When compared with the cost in dollars and human lives if we fail to do so, it is cheap at that price. ... [W]e are much wiser to make smaller investments now rather than pay the premium rate later on."

over northern Iraq crashed July 18. Pilot Capt. Michael A. Nelson Jr. ejected safely from the aircraft and was taken to a hospital in the Turkish city of Batman, according to local press accounts.

The Turkish military said engine failure, not hostile action, was the cause of the crash.

Although the accident marked the first loss of a fixed-wing aircraft over Iraq since the end of the Gulf War, two USAF F-15s mistakenly shot down two Army helicopters in northern Iraq in 1994, killing 26.

Iraqi Missiles Near US Aircraft

An Iraqi surface-to-air missile on July 24 flew so close to an Air Force U-2 reconnaissance aircraft that the pilot felt the reverberations from its warhead's explosion, according to news service reports.

The airplane was carrying out a mission over southern Iraq as part of Operation Southern Watch. It returned safely to base.

Combined with another recent incident in which a Navy E-2C surveillance aircraft flying in Kuwaiti airspace observed a plume from a missile fired from within Iraq, the U-2 attack may herald an important change in Iraqi targeting techniques, according to the Pentagon.

In the past, Iraqi air defense batteries have concentrated their fire on faster, lower-flying fighter aircraft.

Washington and Moscow Agree To Seek New "Framework"

President Bush and Russian President Vladimir Putin struck a surprise agreement July 22 to discuss a package deal of missile defense deployments and deep cuts in nuclear arsenals.

The hope is that the talks will produce a new framework for thinking about nuclear deterrence and arms control.

Bush's national security advisor, Condoleezza Rice, traveled to Moscow on July 25 to set up a schedule for fast-track talks.

"The two Presidents have developed a good relationship and we have the basis for cooperation on these new threats," she told a Moscow television station.

In the forthcoming talks, Washington will not attempt to amend the 1972 ABM Treaty to allow missile defense deployments, said US officials. Rather, it will ask for a joint withdrawal from the treaty. Absent joint withdrawal, the US would seek some sort of political declaration about the permissibility of missile defense work.

If Russia does not agree to either withdrawal or a declaration, the US would go forward and announce its unilateral withdrawal from the ABM pact, said officials.

Now they may have modified their weapons in an attempt to reach slower-flying surveillance aircraft that pass overhead at altitudes Iraqi missiles were previously unable to reach.

To date, no US or allied aircraft has been hit by Iraq, although Baghdad occasionally claims such successes. However, the recent incidents continue the pattern of Iraqi

aggressiveness in shooting at coalition aircraft, said DOD spokesman Rear Adm. Craig Quigley.

Strategic Commander Says Go Slow on Nukes

Adm. Richard W. Mies, commander in chief of US Strategic Command, told lawmakers July 11 that deep reductions in nuclear weapons would not necessarily make the world a safer place.

Depending on how they are structured, such cuts could reduce the flexibility of nuclear arsenals, which in turn could make the nuclear balance between the US and Russia less stable.

Mies told a subcommittee of the Senate Armed Services Committee that it is "naïve" to believe that "the nuclear danger is directly proportional to the number of nuclear weapons and, accordingly, lower is inevitably better."

The Bush Administration has proposed that the current US stockpile of some 7,000 nuclear warheads be substantially reduced as part of a transition to a nuclear doctrine that depends at least partially on defensive as well as offensive forces.

Mies did not comment directly on the Administration's plans.

Rumsfeld, Chiefs Push Base Closures

Painful as it may be for local communities, the Department of Defense really, truly needs to close more bases to save money, Secretary of Defense Donald Rumsfeld said July 16.

The Pentagon wants Congress this

On Friday the 13th, It Was Over for Kelly and McClellan

Two of the Air Force's largest and most venerable bases—Kelly AFB, Tex., and McClellan AFB, Calif.—ended their tours of military duty in bittersweet closure ceremonies.

The existence of both officially ended Friday, July 13.

Both big depots were ordered closed during the Base Closure and Realignment Commission rounds of the 1990s. Both were once among the largest employers in their areas, and both are attempting to regain their former status as economic centers via reinvention as private aerospace and industrial parks.

Sen. Kay Bailey Hutchison (R-Tex.) told a crowd of 2,000 at the San Antonio-area base, "Kelly did not die. Instead, it is renewing its place in our city."

Thousands of miles away, Sacramento officials echoed the sentiment.

"This is a great day to reflect on the past, look at the present, and look into the future," said Stuart Lichter, executive vice president of McClellan Park LLC, which is working to redevelop the base in conjunction with Sacramento County.

In Texas, the industrial park KellyUSA has already attracted about 5,000 private sector workers and 37 companies. Together with 7,000 remaining Defense Department contract jobs, employment at Kelly is still 12,000, noted local officials in the *San Antonio Express-News*.

KellyUSA's goal is to create or retain 21,000 jobs by 2006.

McClellan, at one point, was home to 24,000 workers and residents. Today, McClellan LLC has attracted 67 tenants, according to the *Sacramento Bee*.



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Airborne Jammers

Missile Warning Systems

F-4 Phantom: Radar Upgrade

RF-4: Navigation Attack Radar

F-15 Eagle: Radars

F-16 Falcon: Mission Computers

F/A-18 Hornet: Radars and Radar Warning Receiver

F-22 Raptor: Radar (Joint Venture) and Processor

F-111: Terrain Following Radar

F-117 Stealth: Targeting System

Joint Strike Fighter: Avionics and Weapons

B-2 Spirit: Radar

C-130 Hercules: Talon-1 Navigation Attack Radar

AC-130 Spectre Gunship: FLIR and Fire Control Radar

CV-22 Osprey: Radar and Infrared Systems

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The Ups and Downs of Pentagon Research and Development

President Bush's amended 2002 Pentagon budget, released June 27, adds \$5.6 billion to Research, Development, Test, and Evaluation accounts. The total rises from \$41.8 billion (proposed in April) to \$47.4 billion, the highest level since the Reagan Administration.

As seen in Fig. 1, USAF got \$14.3 billion, more than any other service or agency. Much of the new funding, however, went to ballistic missile defense, with spending set at \$7 billion.

According to a July 18 Congressional Research Service report, some 80 percent of RDT&E funding focuses on operational hardware and software. The rest goes to the more basic Science and Technology program. The amendment actually reduced the S&T component to \$8.8 billion (Fig. 2).

As seen in Fig. 3, RDT&E spending peaked in 1987, declined for eight years, and bottomed out in 1995-96 before turning up.

Source: CRS Issue Brief, "Defense Research: DOD's Research, Development, Test, and Evaluation Program," by John D. Moteff, July 18, 2001.

Fig. 1
Defense R&D Funding: Who Gets It?

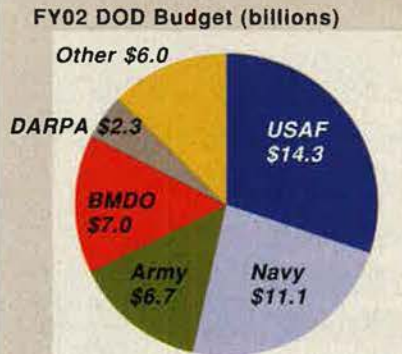


Fig. 2
... And Where Does It Go?

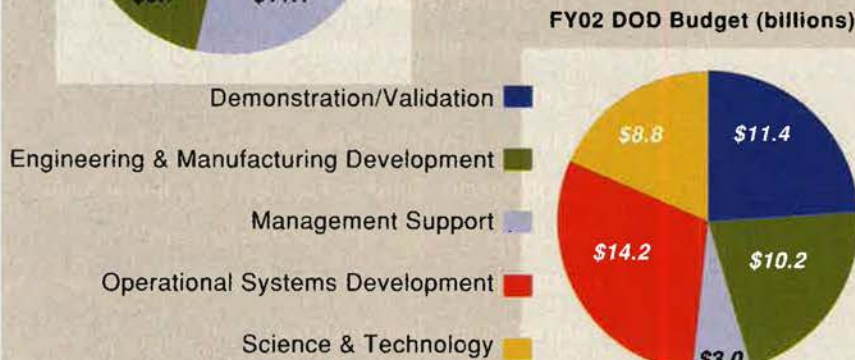
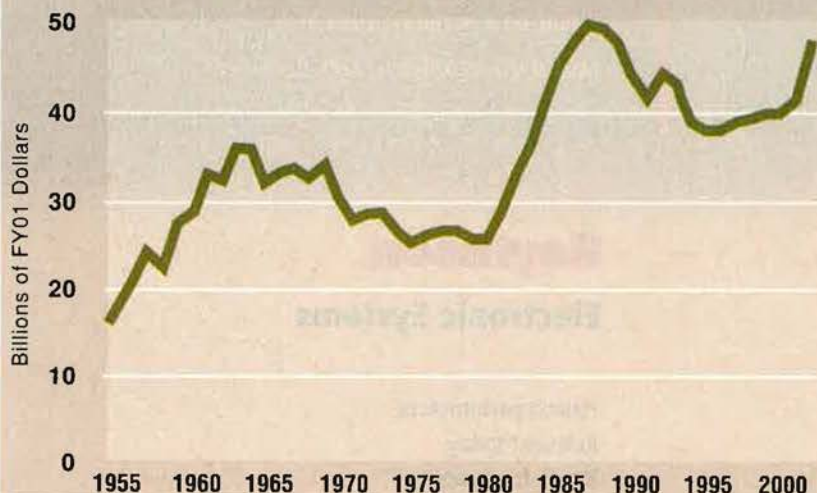


Fig. 3
RDT&E Funding Trend



year to approve creation of another commission to recommend base closings—for what would be the fifth round of closures since 1988. Administration plans call for a 25 percent reduction in the number of domestic installations, producing a projected annual savings of \$3.5 billion.

"As little stomach as I have for it, we will be coming at you on base closing," Rumsfeld told the House Appropriations Committee's defense subcommittee.

The leaders of the armed services seconded Rumsfeld's point in separate Capitol Hill appearances. The Air Force has saved about \$5 billion a year from previous closure efforts, said Gen. Michael Ryan, the Chief of Staff. "The Air Force is overbased for the force structure we have today. We think that we can save significant amounts of money in the out-years with a base closure."

Ryan appeared before the Senate Armed Services Committee.

The verbal support of Ryan and the other Chiefs makes it more likely—although far from a sure thing—that lawmakers will acquiesce to the Administration's desires.

Russia Sells China New Fighters

China has signed a deal with a Russian aircraft manufacturer to purchase upward of \$2 billion worth of Su-30 ground attack jets, reported the *Washington Post*.

The contract involved 38 airframes, according to one Russian press account. Two years ago Beijing bought an initial batch of 40 Su-30s, of which 10 are believed to have been delivered.

The Chinese air force has already developed a potent air-to-air capability via purchase of Russian Su-27 fighters. Seventy to 100 Su-27s are now thought to be in Chinese service.

The addition of ground-attack aircraft would give Beijing a more modern force and improve its ability to threaten or even attack Taiwan, said analysts.

Pilot Dies in Shaw F-16 Accident

Capt. Mitchell Bulmann, a pilot with the 77th Fighter Squadron, Shaw AFB, S.C., was killed July 6 when his F-16CJ crashed into the Atlantic Ocean about 40 miles east of Charleston, S.C.

At the time of the accident Bulmann was participating in an air-to-air training mission within a military training area.

The Coast Guard recovered Bulmann's body but did not find the aircraft. The search for the F-16 ended

GAO Warns Parts Are Big Problem for Air Force Readiness

A new report from the General Accounting Office documents the Air Force readiness problems caused by parts shortages over the last five years—but also concludes that the situation is beginning to improve.

The Congressionally mandated study looked at the E-3 Airborne Warning and Control System and C-5 transport aircraft programs and the F-100-200 engine.

"Specifically, the Air Force did not meet its mission capable goals for the E-3 or C-5 during Fiscal Years 1996–2000, nor did it meet its goal to have enough F-100-200 engines to meet peacetime and wartime goals during that period," said the study.

Overall Air Force mission capable rates ranged between a high of 78.5 percent in 1996 to a low of 72.9 percent in 2000.

Rates for the systems GAO studied were similar: The E-3 mission capable rate varied between a high of 82.5 percent in 1996 to a low of 71.9 percent in 1998, while the C-5 rate swung from a high of 64.2 percent in 1996 to 59.5 percent in 1999.

Parts shortages were a major cause of downtime, though far from the only one. And the most-cited reason for parts shortages was underestimation of need, according to GAO.

One three-month projection put the F-100-200 program requirement for a particular engine bolt at 828, based on past experience. Actual new demand in one quarter: 12,000.

July 8. The Air Force has a board investigating the accident.

Navy Seeks Vieques Alternative

A panel headed by retired Adm. Leighton W. Smith Jr. and retired Marine Gen. Charles Wilhelm has begun drawing up a list for live-fire sites suitable to replace the Navy's Vieques training range, the Pentagon announced July 19.

Defense Department officials have long called Vieques's combination of deep water, sandy terrain, and relative isolation a virtually irreplaceable training asset. But intense local opposition has led the Bush Administration to rule that the Navy must abandon the Puerto Rican island by May 2003.

At least one proposed alternative has already generated its own local controversy. Texas officials have expressed reservations about a Navy plan that would involve approach corridors over Padre Island National Seashore and amphibious training on the nearby Texas Gulf coast.

Nor is the Navy the only service with a recent no-bombing-in-my-backyard problem. On July 16 a federal judge barred the Army from resuming live-fire training in Hawaii's Makua Valley until at least Oct. 29, pending resolution of a lawsuit brought by a local environmental group.

State Mulls Blocking Vaccination of Guardsmen

The Massachusetts legislature is considering a bill that could protect members of the state's National Guard from being forced to participate in the Pentagon's anthrax vaccination program.

The legislation would require Guard members to give personal consent before receiving drugs or vaccines that are not licensed for their intended use or have not been proved safe and effective in tests on humans. The military could circumvent these restrictions only via Presidential executive order.

State Rep. Mary Rogeness, sponsor of the bill, has termed the anthrax vaccine experimental and cited at least one constituent who had life-threatening blood clots develop in one leg following vaccination.

Similar legislation was introduced in the legislature of Connecticut, the

only other state that has considered imposing a stricture. That bill failed to win passage out of committee.

Officer Trainee Dies at Maxwell

Angel A. Castro Jr. collapsed during a morning run and died July 2 at Maxwell AFB, Ala. Castro was in the officer training program at the Officer Training School at Maxwell.

Prior to entry into OTS, the 15-year Air Force veteran served as an avionics technician at Elmendorf AFB, Alaska.

Two trained medical technicians, who were also in the OTS class, immediately provided CPR, but Castro was pronounced dead after arrival at a local hospital.

Castro's death came just two weeks after a trainee death at Lackland AFB, Tex. Darryll M. Logans, who was in basic military training at the Texas base, also collapsed during routine physical conditioning. (See "Aerospace World: Trainee Dies at Lackland," August, p. 23.)

The Air Force is investigating the causes of both deaths.

Privatization Plan Draws Fire

The Department of Defense wants to conduct an experiment in the privatization of a few base commissaries.

Less than a month after Defense Secretary Donald Rumsfeld broached the issue with Congress, a key House panel said not so fast.

"Our major legislative accomplishment this year may be what we will not do," Rep. Roscoe Bartlett (R-Md.), the chairman of the House Armed Services panel that oversees

Spectacular Test Success Buoys Missile Defense Effort

A successful intercept test cheered the Pentagon's missile defense program officials following two previous failures.

In the July 14 event, a prototype interceptor launched from Kwajalein Atoll in the Marshall Islands flew for 10 minutes then hit and destroyed a mock warhead, launched from Vandenberg AFB, Calif., at an altitude in excess of 140 miles.

The interceptor's sensors were able to distinguish between the intended target and its decoy balloon, said officials.

The Administration is proposing to accelerate and expand missile defense testing, with six more flight tests scheduled in the next year. Plans call for the Ballistic Missile Defense Organization to conduct at least 20 intercept tests over the next five years, said Secretary of Defense Donald Rumsfeld.

"These tests are designed to demonstrate that ballistic missile defense is no longer a problem of invention but rather a challenge of engineering," said Rumsfeld in a taped message for a meeting of defense proponents in Huntsville, Ala., on July 16.

Not every aspect of the test went perfectly. The X-band radar located on Kwajalein Atoll that was used to steer the interceptor toward its target was overwhelmed by the many data points produced by debris following the collision.

The malfunction shouldn't be a reason for concern, said the Pentagon. It was the first time the X-band radar had been used in a post-collision assessment mode.

"It is through trying things and experimenting with things that you learn from them," said Rumsfeld.

the issue, declared July 26. "Specifically, we will not authorize the Department of Defense to test commissary privatization."

Key lawmakers are concerned that any such effort would undermine the value of what many in the military consider a key benefit—discount prices for groceries.

Currently, the 284 military commissaries are managed by the Defense Commissary Agency. They receive about a \$1 billion subsidy from the Defense Department every year.

The Congressional Budget Office estimates that military families save about 20 percent on their grocery bill due to this subsidy.

The Administration's privatization plan was contained in the Fiscal 2002 budget submission for Congress. It asked lawmakers to approve an experiment in which retail grocers would be allowed to manage commissaries at a few Army and Marine Corps bases.

Pentagon Wants To Discard 50/50 Rule

The Pentagon wants to make major changes in the law that now requires it to assign at least half of its maintenance and repair workload to public depots.

Under a proposal submitted to Congress earlier this year, the so-called 50/50 rule would be replaced

PACAF Intensifies Anti-Terror Drive in Tense Times

In response to the continuing threat of terrorist attack, the head of Pacific Air Forces on July 16 intensified PACAF's protective preparations.

Gen. William J. Begert, PACAF commander, announced a commandwide force protection awareness campaign.

Throughout the early summer a string of intelligence reports indicated a significant increase in planned terror attacks on US targets, according to officials. PACAF, as well as other US commands, has been on force protection alert.

Begert said he does not want personnel under his command to become numb to the condition and treat Force Protection Condition Alpha as "Force Protection Condition Normal."

"Just as we used to be on constant alert during the Cold War when the Soviet Union was our biggest threat, we now need to resume that posture toward the very real presence and threat of terrorist attacks," said Begert.

The new directive calls for all PACAF units to take prudent force protection measures. In addition, each base must implement a force protection training day to review evacuation plans, operations security, and computer security, among other things.

"We are now on a constant state of alert for terrorist attack," said Begert. "Each of us needs to practice what we have learned about personal and organizational security on a daily basis."

by legislation allowing defense officials to outsource repair work that is not considered core to the military mission and that would strain public depot capacity.

In presenting the amended Fiscal 2002 budget, Defense Comptroller Dov Zakheim said the proposal, which needs a Congressional waiver, "would save \$140 million immediately."

Many Pentagon officials have long chafed at what they perceive as Con-

gressional protection of big, job-producing public depots. More outsourcing would save much-needed cash, they contend—as much as \$140 million next year alone, if their current proposal is adopted.

Roche Sees Bright Depot Future

USAF's three large depots will experience a strong demand for their services in the years ahead, said Secretary of the Air Force James

Failure Is Only the First Step

Fear of failure does not exactly haunt the officials in charge of DOD's ballistic missile defense program, if the words of Deputy Defense Secretary Paul Wolfowitz are any guide.

"We expect there to be test failures," Wolfowitz told the Senate Armed Services Committee at a July 12 hearing on the Bush Administration's plans. "There is not a single major technological development in human history that did not begin with a process of trial and error, and many of our most successful weapons developments have been marked by testing failures."

As evidence, Wolfowitz cited the following examples:

- The Corona satellite program, which produced the first overhead reconnaissance satellites, suffered 11 straight test failures.
- Thor Able and Thor Agena launch programs failed four out of five times.
- Atlas Agena launches failed five out of eight times.
- Scout launches failed four out of six times.
- The Vanguard program failed 11 of its first 14 tries.
- The Polaris failed in 66 out of 123 flights.

Concluded Wolfowitz, "From these failures came some of the most effective capabilities ever fielded. Failure is how we learn. If a program never suffers test failures, it means someone is not taking enough risks and pushing the envelope."



A Thor missile explodes at launch.

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F-22 Flight Test Picks Up the Pace

USAF has greatly accelerated the F-22 flight test program, said Darleen A. Druyun, a top Air Force acquisition official.

Druyun told a July 10 Senate Armed Services Committee panel that the fighter's flight test "experienced a significant turnaround" in spring 2001, both in sorties and hours.

In March, April, May, and June, test F-22s averaged some 37 sorties and 88 flight hours per month—a marked increase over the prior year's record of about 11 sorties and 23 hours per month, as seen in Fig. 1.

Druyun attributed the change to delivery of additional test aircraft and more efficient operations. The Raptor had racked up more than 1,230 hours of flight test through June, as it neared a production decision, she said.

"At this stage in development, the F-22 is far more mature than any other aircraft weapon system program at this point in the development cycle," said Druyun. "No other fighter program has accumulated as many hours at their production decision as the F-22 program."

Fig. 2 provides a comparison of the four most recent US fighters.

Fig. 1
F-22 Flight Tests—Recent Results

Monthly Flight Hours and Sorties

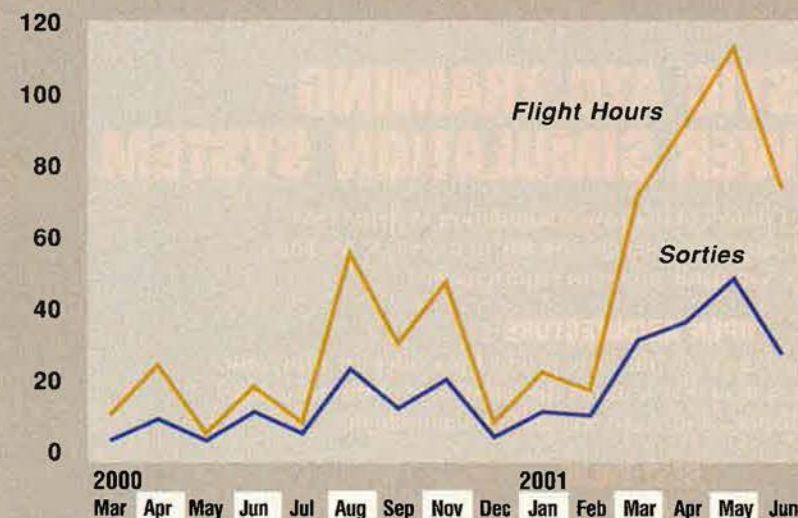
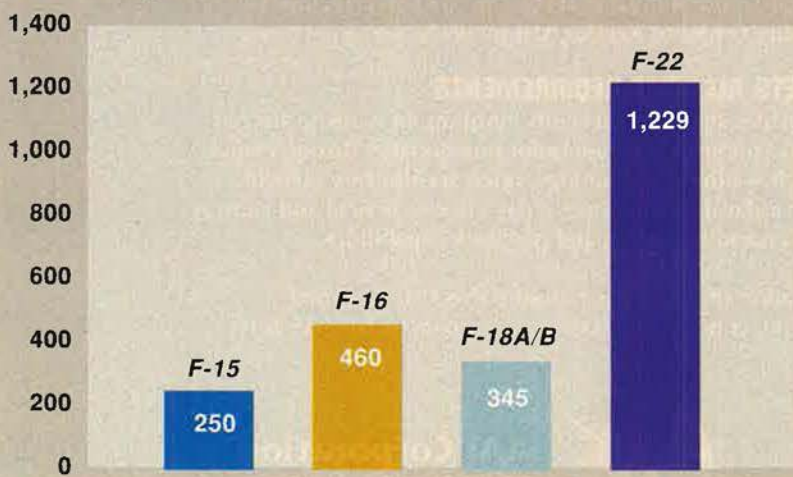


Fig. 2
F-22 Flight Test Hours at Production Decision



Roche on a July 20 visit to Tinker AFB, Okla.

The Air Force still has more installations than it needs, he added, but the Air Logistics Centers are a different matter. The three are Oklahoma City ALC, Okla., Ogden ALC, Utah, and Warner Robins ALC, Ga.

"You can't just do away with maintenance," Roche said. "I want a long-range plan for the three ALCs we have and how we should load them and how we should deal with them over time."

A long-term management plan should be in place sometime next year, he said. Among the changes he wants to encourage are more effective partnerships with private industry.

"We have older aircraft that we will be phasing out and hopefully newer aircraft coming in, and we've got to be able to allocate those well so that they're well-maintained over time," Roche told Tinker personnel.

Beale To Be First Global Hawk Base

The Air Force has picked Beale AFB, Calif., as the first Global Hawk main operating base, officials announced July 27.

A recently completed environmental assessment concluded that basing 18 of the big Unmanned Aerial Vehicles at Beale would have no significant environmental impact.

Other installations under consideration were Edwards AFB, Calif., Ellsworth AFB, S.D., Tinker AFB, Okla., and Wright-Patterson AFB, Ohio.

The Global Hawk should fit in well with Beale's 9th Reconnaissance Wing and its U-2 mission, said officials.

No Bull Fights, Please; We're American

Military commanders at Lajes Field in the Azores islands of Portugal are cautioning US service personnel against participating in the street bullfights that are popular with locals.

The Portuguese bullfights do not look as dangerous as the famous "running of the bulls" in the Spanish town of Pamplona. The animals in question are restrained by ropes.

However, the fights still cause fatalities every year, since the ropes and surrounding low stone walls do not always hold back an angry, 1,200-pound animal.

In the past, personnel coming through Lajes on temporary duty have proved particularly vulnerable to the

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DOD, Vet Groups Seek to Enhance Funerals

The Department of Defense has begun working with national veterans service groups in an effort to improve funeral ceremonies for those who wore their nation's uniform.

At a June 28 meeting at American Legion headquarters in Washington, Pentagon officials met with representatives of vet organizations to discuss their augmenting Defense Department-provided personnel at military funerals with volunteer color guards, rifle details, pallbearers, and buglers.

"We want to provide the appropriate honors to veterans who pass away," said Charles S. Abell, assistant secretary of defense for force management policy. "The veterans organizations want to help us, and we would like to have their help."

The new Authorized Provider Partnership Program was included in the Fiscal 2000 defense bill. Under the program, vet volunteers will be trained and certified by local military installation commanders. They will be eligible for reimbursement for travel costs and other expenses incurred in the course of funeral duties.

The Fiscal 2000 defense legislation also requires the Pentagon to provide at least two active, National Guard, or Reserve military members to fold and present a ceremonial flag at military funerals. If military musicians are unavailable, officials will provide a high-quality recording of "Taps" for ceremonial use.

In 2000, according to Department of Defense records, the military participated in 91,074 funerals, a 110 percent increase over the previous year.

That figure is predicted to increase in coming years. Enhancing these ceremonies is "the right thing to do," said Abell. "We asked them to put their lives on the line for the freedoms we all enjoy today. As they reach the end of their lives, the nation has a commitment to them, owes them an honor as they pass."

temptation to participate in an activity that residents know is more dangerous than it looks.

"There's no organization, virtually no safety measures, and absolutely no safety rules," said Joe Raposo, 65th Air Base Wing ground safety manager. "Everything is left up to chance."

Okinawa To Constrain US Troops?

The Okinawa City Council passed a resolution July 25 that calls for making portions of Okinawa City off-limits to US servicemen and -women, reported the *Pacific Stars and Stripes*.

In the wake of an alleged rape of an Okinawan woman by a US airman in June, local officials had previously called for curfews on the many American military personnel based nearby. US military commanders said the new

resolution—which did not list specific off-limits areas—will be taken up in the course of regular consultations.

"The anger of Okinawan people is at its peak against frequent and rampant incidents committed by service members," said the city council resolution.

News Notes

■ Boeing named former Deputy Secretary of Defense Rudy de Leon head of its Washington, D.C.-area corporate offices. De Leon served the Pentagon in various high posts throughout both terms of the Clinton Administration.

■ Anthony J. Tether has been appointed director of the Defense Advanced Research Projects Agency, Secretary of Defense Donald Rumsfeld announced June 18. Tether worked in DARPA's Strategic Technology Office from 1982 through 1986. His subsequent jobs included vice president

China and Russia, Together Again

In a move harking back to the earliest days of the Cold War, China and Russia in July shook hands over a new friendship pact.

It is not something that bothers the US all that much, says the White House.

The agreement, signed by Chinese President Jiang Zemin and Russian President Vladimir Putin in Moscow on July 16, is an informal expression of mutual interests and not a binding treaty recreating the anti-US Sino-Soviet axis of the 1950s, said US officials.

"They have a long border in the region, and it is important for them to get along," said State Department spokesman Richard Boucher, "so we don't see it as any particular threat to us or to our plans."

Washington does feel some anxiety about a recent spate of Russian arms sales to China. Beijing has bought four diesel-electric Kilo-class submarines from Russian manufacturers, as well as Su-27 and Su-30 fighter aircraft.

Bush Administration officials maintain that both Russia and China view their relationship with the US as being more important than their relationship with each other. As evidence, officials point to US trade with China, which, at \$115 billion a year, exceeds Sino-Russian commerce by a factor of more than 10.

"We have never felt that this was a zero-sum game," said Boucher. "We have felt that it is important for us to have good relations with Russia and China, and we have always felt it is important for them to have good relations with each other."

Airman's Rape Case Stirs Anti-US Sentiment in Okinawa

The case of US Air Force SSgt. Timothy Woodland, who is accused of raping a woman outside an Okinawa bar early in the morning of June 29, has reignited anti-US sentiment among local residents.

To Okinawans, the incident raises memory of the infamous 1995 rape of a 12-year-old girl by three US service personnel. Crime, noise, and pollution caused by the 23,000 American troops based on the island have long been large issues for those who live nearby.

"As long as there are US military bases here, these crimes will not stop," said a statement issued by a meeting of 500 residents of the town of Chatan, where the alleged attack took place. The statement was reported by *USA Today*.

Woodland has told authorities that anything that took place that night involved consensual activity. He was turned over to Japanese law enforcement officials July 6. A district court rejected a bail request on July 25, saying Woodland might destroy evidence.

of Science Applications International Corp. and president and chief executive officer of The Sequoia Group, a program management and strategy development company.

■ Suzanne D. Patrick assumed the job of deputy undersecretary of defense for industrial policy on July 9. A former Wall Street analyst and Navy acquisition specialist, Patrick is also a commander in the US Naval Reserve.

■ TSgt. Richard T. Lucio Jr., a military training leader from the 34th Training Group, US Air Force Academy, Colo., was recently named the 2001 United Service Organizations'



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Khobar Bombing Suspects Face Saudi—not US—Justice

Saudi Arabian officials are insisting that they—not the US—will try the Khobar Towers bombing suspects.

Nineteen US servicemen were killed and hundreds wounded in the 1996 terrorist attack, which targeted an eight-story Dhahran building used to house American military personnel. On June 21, a US federal grand jury in Alexandria, Va., indicted 13 Saudis and one Lebanese national on charges of carrying out the bombing.

Eleven of the indictees are in prison in Saudi Arabia. Saudi officials, however, say they were surprised by the US indictments and subsequent statements by then-FBI Director Louis Freeh that Khobar trials might take place in US courts.

Asked on June 30 if the suspects would be extradited to America, the *New York Times* reported that Saudi Interior Minister Prince Nayef bin Abdel Aziz said, "Impossible."

An understanding with the US that it would help Saudi officials track down and capture the remaining suspects appears to have stalled, he said. The Saudi government had been delaying any trials, pending their capture; now it is likely to forge ahead on its own.

As to whether Iran had a hand in the bombing, as the US indictments charge, the prince was unspecific.

"We can never point a finger of accusation at any side until we are sure they were involved," he said.

Spirit of Hope award winner. Lucio won the leadership honor for being a positive Air Force ambassador and mentor to some 115 Air Force cadets, said his commanding officer, Lt. Col. Michael Boera.

■ SSgt. Joseph A. Cormier, a flight engineer with the 4th Special Operations Squadron, Hurlburt Field, Fla., has been named the 2001 American Legion Spirit of Service winner. Cormier and his wife, Melissa, manage a foster home for mentally and physically handicapped adults. He has also served as bowling coach for the Okaloosa County Special Olympics Regional Games and spearheaded a

fund-raiser that netted \$20,000 for needy Hurlburt families.

■ A1C Nathaniel A. Malli, a weapons-load crew member with the 18th Fighter Squadron, Eielson AFB, Alaska, drowned June 26 in the base's Polaris Lake. Malli and a fellow member of a five-person base clean-up crew attempted to swim across the 100-yard-wide lake, but Malli became tired and disappeared.

■ A six-man crew from USAF's 33rd Rescue Squadron, Kadana AB, Japan, helped save the life of a US Marine who suffered severe head trauma as the result of a boating accident off Okinawa on June 29.

None of the 33rd's HH-60G *Pave Hawks* were on alert, as it was a no-fly day for them, but a fast response produced takeoff within 14 minutes and a completed rescue mission within 39 minutes.

■ Lt. Col. Bruce McClintock, deputy chief of the Space Operations School for the Joint National Test Facility, Schriever AFB, Colo., has been named one of 12 White House fellows. During his one-year tenure, McClintock will serve as an assistant to a senior member of the White House staff.

■ A court-martial panel of 11 officers sentenced Capt. John Buck on May 22 to a reprimand, forfeiture of \$21,000, and restriction for 60 days to base, for "willfully disobeying a lawful order by not taking the anthrax vaccine," according to a USAF release. Buck, an emergency room physician at Keesler AFB, Miss., applied for discharge but only after the presiding judge ruled that the order was lawful. Buck had previously waived nonjudicial punishment, requesting a court-martial instead.

■ Pararescuemen from the Alaska Air National Guard's 210th Rescue Squadron, Camp Denali, Alaska, hoisted four stranded boaters to safety in late June. The canoers had been floating in the Delta River, near Fairbanks, when they hit rough water and were left stranded on a rock near a waterfall.

■ The Airborne Laser program has received its first set of infrared sensors—the "eyes" that will make the initial detection of theater ballistic missiles in flight. On July 11 Lockheed Martin Missiles and Fire Control of Orlando, Fla., delivered four sensors

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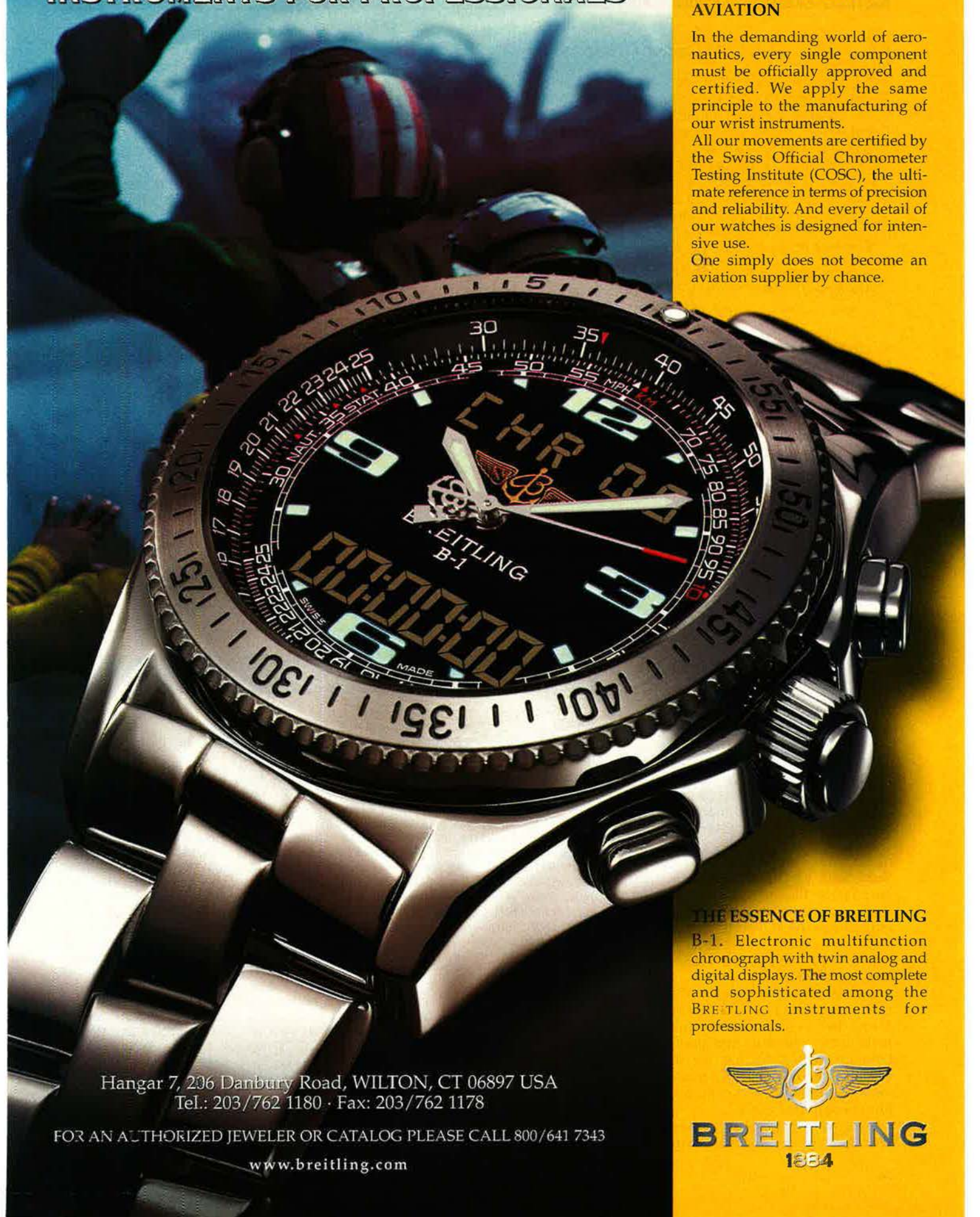
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—Navy Vice Adm. John B. Nathman, commander, Naval Air Force, US Pacific Fleet, in July 11 Christian Science Monitor.

to a Boeing facility in Wichita, Kan., for installation into ABL aircraft and two to Boeing in Seattle for testing with missile tracking software.

■ SrA. Jason A. Huchel, 721st Communications Squadron, Cheyenne Mountain, Colo., was recently found guilty of 10 drug charges at a general court-martial. Huchel was sentenced to a dishonorable discharge and five years' confinement for the use and distribution of LSD, Ecstasy, marijuana, and ketamine.

■ Capt. Phil Preen, Air Force Operational Test and Evaluation Center, Kirtland AFB, N.M., was awarded the Airman's Medal for heroism July 9. In Hawaii on temporary duty in 1999, Preen spearheaded an emergency rescue effort after a tragic Mother's Day rock slide at Hawaii's Sacred Falls State Park that killed several hikers and critically injured dozens more.

■ Air Force officials have recommended that a nuclear training bomb jettisoned off the coast of Savannah, Ga., in February 1958 not be disturbed. The training weapon contains 400 pounds of conventional explosives but no nuclear material.

■ SMSgt. Jere Garvin, a flight engineer with the 2nd Air Refueling Squadron, McGuire AFB, N.J., has surpassed the 10,000-mishap-free flying hours milestone. Garvin has logged some 2,400 sorties on C-130, C-141, E-3, and KC-10 aircraft—more flights than many fellow crew members have hours.

■ A temporary shortage of Td vaccine has impacted Air Force supplies of the two-in-one vaccine that protects against tetanus and diphtheria. Officials are deferring all routine boosters of Td vaccine for previously immunized adults and children older than seven until 2002.

■ Edward W. Freeman, a Vietnam War-era Army helicopter pilot, re-

ceived the Medal of Honor from President Bush during a July 16 White House ceremony. Freeman flew 14 rescue missions to a stranded Army battalion in the Ia Drang Valley in 1965. Originally awarded the Distinguished Flying Cross, his honor was upgraded in part due to the efforts of Sen. John McCain (R-Ariz.).

■ The Air Force selected 20,793 of 32,170 eligible senior airmen for promotion to staff sergeant for the 01E5 cycle, an overall 64.63 percent selection rate. That marks the highest promotion rate to staff sergeant in the history of the Weighted Airman Promotion System, officials said. ■

Air Force Is Force Multiplier in Strategic "Third Way"

Advances in the Air Force's "core competencies" may serve as multipliers allowing the Pentagon to stop aggression with smaller forces than in the past, according to Maj. Gen. David Deptula, head of the Air Force Quadrennial Defense Review effort. He identified the core competencies as aerospace and information superiority, agile combat support, global attack, precision engagement, and rapid global mobility.

USAF's reach may soon be such that airpower can provide a middle ground between a truncated national strategy sized to available forces or increasing the size of available forces to meet a more ambitious strategy.

Pentagon leaders should study how transformational aerospace capabilities might enhance the joint concept of operations, Deptula told a conference in Washington. The US can retain the ability to conduct multiple warfights if we fully leverage the capabilities of modern aerospace power—one of which is to "rapidly halt aggression" using precision engagement, said Deptula.

Senior Staff Changes

PROMOTIONS: To Lieutenant General: Richard E. Brown III, Lance L. Smith, Thomas C. Waskow.

CHANGES: Brig. Gen. (sel.) Kurt A. Cichowski, from Cmdr., 80th FTW, AETC, Sheppard AFB, Tex., to Vice Cmdr., 21st AF, AMC, McGuire AFB, N.J. ... Brig. Gen. Trudy H. Clark, from Dir., C⁴, STRATCOM, Offutt AFB, Neb., to Dep. Principal Dep. Asst. SECAF, Business & Info. Mgmt., Asst. SECAF, Acq., OSAF, Pentagon ... Brig. Gen. John H. Folkerts, from Principal Dir., Combating Terrorism Policy & Spt., OASD, Special Ops./Low Intensity Conflict, Pentagon, to Cmdr., 347th Rescue Wg, ACC, Moody AFB, Ga. ... Maj. Gen. (sel.) James A. Hawkins, from Cmdr., 89th AW, AMC, Andrews AFB, Md., to Vice Dir., Jt. Staff, Pentagon ... Lt. Gen. Paul V. Hester, from Cmdr., 5th AF, PACAF, Yokota AB, Japan, to Cmdr., AFSOC, Hurlburt Field, Fla. ... Brig. Gen. Richard B.H. Lewis, from Dep. Dir., CSAF's Developing Aerospace Leaders Prgm. Office, DCS, Personnel, Pentagon, to Dir., Jt. Theater Air Missile Defense Orgn., Jt. Staff, Pentagon ... Brig. Gen. John W. Rosa Jr., from Cmdr., 347th Rescue Wg., ACC, Moody AFB, Ga., to Dep. Dir., Current Ops., Jt. Staff, Pentagon ... Lt. Gen. Lance L. Smith, from Cmdr., AF Doctrine Ctr., Maxwell AFB, Ala., to Cmdr., 7th AF, PACAF, Osan AB, South Korea ... Brig. Gen. (sel.) Glenn F. Spears, from Exec. Officer to C/S, USAF, Pentagon, to Cmdr., 89th AW, AMC, Andrews AFB, Md. ... Maj. Gen. Garry R. Trexler, from Vice Dir., Jt. Staff, Pentagon, to Dir., Air & Space Ops., PACAF, Hickam AFB, Hawaii ... Lt. Gen. Thomas C. Waskow, from Dir., Air & Space Ops., PACAF, Hickam AFB, Hawaii, to Cmdr., 5th AF, PACAF, Yokota AB, Japan.

COMMAND CHIEF MASTER SERGEANT RETIREMENT: CMSgt. Marc A. Mazza.

CCMS CHANGE: CMSgt. David D. Mimms, to AFMC, Wright-Patterson AFB, Ohio.

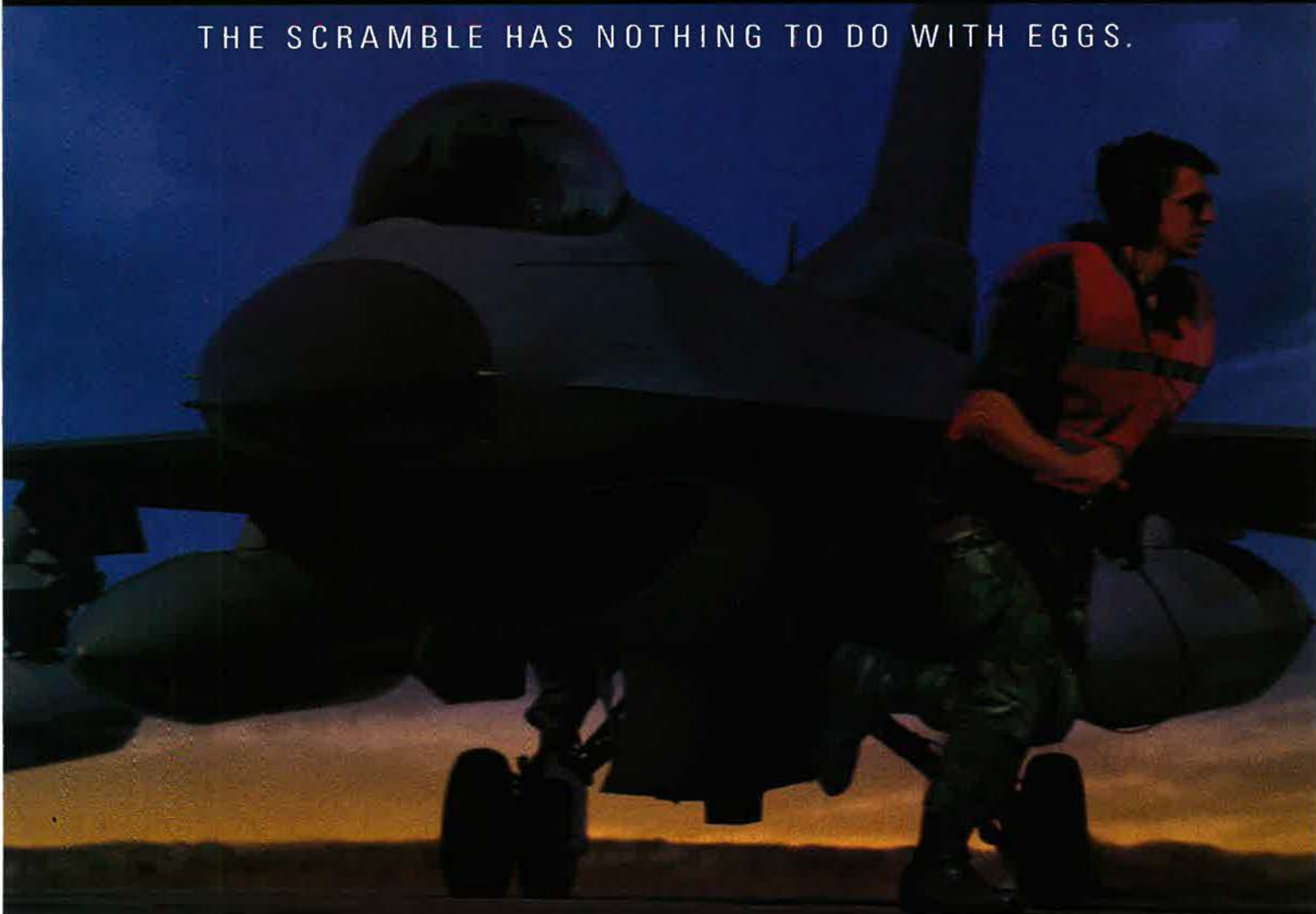
SENIOR EXECUTIVE SERVICE RETIREMENT: Tommy B. Jordan.

SES CHANGE: Milton C. Ross, to Dir., Contracting, ASC, AFMC, Wright-Patterson AFB, Ohio. ■



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Bomber

By John A. Tirpak, Senior Editor

In the era of long-range precision strike, we have only 112 operational bombers.

Questions

THE Pentagon's Quadrennial Defense Review, working toward a statutory deadline of Sept. 30, will place heavy emphasis on long-range precision strike systems to help gain quick control of a future military crisis and serve as a wedge for other forces to get into the fight. It will echo the Air Force's own proposals in this regard.

The QDR, however, is unlikely to provide a blueprint for expanding the manned bomber force. Plans called for the Defense Department to emphasize radically smaller, more-precise munitions plus greater reliability and availability of existing aircraft and not the procurement of new aircraft.

The new munitions will, in fact, multiply the capabilities of the bomber fleet. In the near future, a B-2 stealth bomber will be able to achieve on one mission the same effects that it took six missions to achieve during Operation Allied Force. And even better weapons already in development could increase each bomber's effectiveness 20-fold, enabling them to precisely strike hundreds of targets per sortie.

The enhancement of aircraft reliability, coupled with improved survival systems, will expand a bomber's maximum number of sorties, further increasing the effects bombers can achieve without the addition of new airplanes.

The Air Force, reflecting this direction, actually has proposed reducing the size of its bomber fleet, asserting that it prefers to invest the savings in munitions and improvements to the remaining bombers. This, it is said, will increase their readiness and the range of weapons they can employ.

The multiplication of capability should sharply increase the tempo of a future air campaign.

Missing Successor

However, the Air Force still has produced no plan for a successor to USAF's existing bombers, many of which are quite old and will need to be replaced sooner than previously expected. The service is sticking to its notion, voiced in the 1999 Bomber Roadmap, that it can defer work on a follow-on system until the mid-2010s—fielding replacements in the late 2030s. By then, however, the fleet will have undergone a steep decline, as airframes wear out or are lost to attrition.

Because of the impending problems facing the bomber force, some have suggested the existence of a classified program of some sort, one which could soon emerge to take over some of the long-range mission. However, there seem to be no budget placeholders for such a program.

USAF's proposed B-1B cut would shrink the fleet from 93 to only 60 aircraft. The plan hit immediate resistance. Senior members of Congress blasted the move as both militarily unsound and politically motivated. Spurred by the potential loss of jobs in their home districts, as well as concern that the Air Force would be getting rid of needed capability, the Congressmen insisted on further study before action is taken.

As a result, the B-1B drawdown is on hold, though the Air Force had intended to put it into effect on Oct. 1.

Some lawmakers focused on the argument that the Air Force should be increasing the size of the bomber force, not cutting it, and promised budgetary amendments that might oblige USAF to invest in a new global strike platform earlier than called for in service plans.

Since the Bush Administration came into office this year, long-range

airpower has been considered a rising priority in the Pentagon. The Administration's suggestion of a possible shift of military focus to Asia and the Pacific, coupled with its desire to reduce overseas deployments and act with greater speed in a military crisis, implied that the required bomber fleet, set at 190 airframes in the 1997 QDR, would be expanded.

In setting the new QDR's "Terms of Reference"—that is, ground rules and definitions for the exercise—Defense Secretary Donald Rumsfeld named 13 investment priorities. Prominent among them was precision strike.

Rumsfeld instructed the services to favor "long-range platforms that can strike rapidly ... carrying larger payloads of weapons," from the air, sea, and space. He specified that the military will increasingly demand stealthy "long-range aerial platforms capable of penetrating enemy air defenses" as adversaries develop the means to deny the US entry to overseas theaters of war.

Quickly defeating these anti-access systems—such as weapons of mass destruction, improved air defenses, and tactical ballistic missiles—may even be undertaken from "suborbital space vehicles" that may prove "valuable for conducting rapid global strikes," Rumsfeld wrote. He also directed an emphasis on developing more precise and smaller stand-off weapons, able to attack in all

weather and some able to loiter over the battlefield, striking mobile targets.

The Naturals

Bombers seemed to be a natural for these missions, given that the combination of their long range and heavy payload offered the exact capability needed to attack at globe-spanning distances. Also, they would require less aerial tanker support than would be the case with fighters, and they would also have the capability to function without forward operating bases.

The Terms of Reference guidance reflected President Bush's own pointed—though perfunctory—remarks on the shape of the future military. In a May commencement address at the US Naval Academy in Annapolis, Md., Bush said he was committed to building a force "defined less by size and more by mobility and swiftness, ... one that relies more heavily on stealth, precision weaponry, and information technologies." Such an approach, he said, would help redefine war "on our terms."

To inform his own decisions on both strategy and spending and to identify issues for the QDR to tackle, Rumsfeld launched a series of studies. He used them to examine current and future military threats, the condition and direction of the US military, and places where new funding would have the most dramatic results.

The first of these groups to publicly report its findings was the Transformation Panel chaired by retired Air Force Gen. James P. McCarthy. It pegged long-range precision attack as one of six capabilities necessary to quickly gain the upper hand in future crises. The transformation group suggested that the US military of the future should be able, within 24 hours, to "set the conditions" of a conflict anywhere in the world. After forces had accomplished this goal, follow-on forces would enter a theater of war, "establish control" of the situation within 96 hours, and achieve "decisive resolution" to the conflict within 30 days.

The discussion of gaining entry to a theater of war and defeating anti-access threats dovetailed with the Air Force's own strategic concept, Global Reconnaissance Strike, and its execution derivative, Global Strike Task Force. The two concepts call for stealthy bombers and fast stealthy fighters to quickly destroy enemy anti-access systems so that the rest of the military can flow into the theater to conduct warfare on any level deemed necessary to accomplish strategic objectives.

"Bomber-Centric" Force

Gen. Richard E. Hawley, retired former head of USAF's Air Combat Command and a principal author of the initial Global Reconnaissance Strike paper, followed up with another paper in the spring 2001 *Strategic Review*. In it, he said that the Air Force should swing "the airpower pendulum" away from fighters and back toward a more "bomber-centric" force. Bombers, he said, require fewer pilots and less investment than fighters to deliver the same number of munitions and can reduce the strain on airlift and tanker assets as well.

"A bomber-centric approach can deny an enemy his anti-access objectives, attack his key strategic infrastructure, slow or halt his forces, and beat down his defenses while the other elements of the joint force are safely built up in-theater," Hawley wrote.

The Transformation Panel did not focus on bombers to the exclusion of all other systems. Cruise missiles launched from standoff platforms were also deemed crucial in the early round of combat. With a bow to

USAF photo by MSgt. Kenneth Fidler



B-1Bs on the Block? USAF proposed cutting the B-1 fleet and investing the savings in munitions and improvements to remaining bombers. Here, a crew refuels a Kansas ANG B-1B at a French base.

jointness, the panelists called for more involvement of naval forces to help protect forces entering the theater and for insertions of a small number of ground forces.

Then came the report of the Conventional Forces Panel, headed by David C. Gompert, president of RAND Europe. This panel assessed the systems now in service or in development and attempted to determine which were most suited to the kinds of warfare anticipated in the early decades of the 21st century.

Like the McCarthy panel, Gompert's group emphasized the need for a "robust" long-range precision strike capability as a prerequisite for any future force. Upgrades to the B-2 and B-52 bombers, stealthy standoff missiles, and miniaturized munitions were among the few shooting capabilities that the panel deemed



Photos by Ted Cartson

Leading Edge. The Air Force would use the stealthy B-2 with the stealthy F-22 to quickly destroy enemy anti-access systems and clear the way for other US forces to enter the combat theater.



BUFF Factor. Though the B-52H is still frisky, the youngest model will turn 40 next year. Can upgrades and new munitions keep the B-52 bomber serviceable until 2037, as USAF contends?

most "highly compatible" with future required capabilities. The panel suggested adding funds to the bomber upgrade and munitions programs and, where possible, accelerating them.

Underpinning the other panels was a study chaired by the Pentagon's longtime director of the Office of the Net Assessment, Andrew Marshall. The Marshall study on military strategy remains highly classified but is believed to concur with the other groups on the need for fast-striking systems to nip future military crises in the bud.

Leaving aside the proposed B-1B

reduction, the Air Force's bomber fleet today comprises 208 airplanes—21 B-2s, 93 B-1s, and 94 B-52Hs. However, the figure of 208 overstates by far the service's true bomber capability. Of the 208 bombers in service, only 112 are deemed mission ready; the remainder are dedicated to either test and training functions or are considered part of the attrition reserve. This latter designation is conferred upon airplanes that receive no funding for spare parts, training hours, or crews and get only minimal maintenance attention.

The breakout is as follows:

- B-2 bombers, 21 total and 16 combat ready.
- B-1B bombers, 93 total and 52 combat ready (36 in the active force and 16 in the Air National Guard).
- B-52H bombers, 94 total and 44 combat ready (36 in the active force and eight in Air Force Reserve Command).

The proposed elimination of 33 B-1Bs would take the B-1B fleet down to just 60 airplanes, of which only 37 would be kept in combat-ready status. Thus, if USAF's reduction goes through, the overall bomber fleet will drop to 165 airplanes, of which only 89 would be ready for action.

In announcing the planned reduction, Rumsfeld said the Air Force requested it and that \$130 million a year in savings could be retained by the Air Force and be plowed back into the bomber fleet to make the remaining aircraft more capable.

\$2 Billion Gap

Air Force Secretary James G. Roche told the Senate Armed Services Committee in July that the bill to upgrade all 93 B-1Bs to a configuration deemed sufficient to keep the airplanes battle-worthy would cost \$2 billion more than the service had available for the task. He added that the new Administration wants to avoid asking for more money if there are ways to deliver the same capability within the existing Air Force means.

The annual \$130 million in sav-



Higher IQs. A weapons load crew member offloads a Mk 82 "dumb" bomb, which may become scarcer. Plans call for using smaller, "smarter," precision arms to increase each bomber's effectiveness 20-fold.

ings, even extended over a decade, still will not entirely make up the shortfall in bomber modification funding, but, the Air Force deputy assistant secretary for budget, Maj. Gen. Larry W. Northington, said, "It's a pretty good down payment to pay down the backlog." Much of the money would have to go toward improving the B-1B's defensive avionics suite and adding the ALE-50 towed decoy to all aircraft in the fleet.

In a statement, the Air Force said it could pay for all planned modifications to the 60 remaining airframes through 2007 using only the savings generated by retiring the 33 bombers. A special team has been set up to determine which airframes would be retired, since the B-1Bs are all about the same age but have been used very differently.

In explaining the reduction, Northington noted, "We have been unable to put the necessary modifications in the aircraft to continue to keep it viable in a combat situation. Offensive avionics, defensive avionics, weapon systems integration, electronics in general are things that have caused substantial cost growth and in fact degrade the aircraft's ability to perform in a combat situation."

The retired airplanes would be stripped of useful parts and sent to the boneyard. Absent a massive transfusion of money, these aircraft would never be serviceable again, Northington added. "We do not want to

maintain those airplanes. That's the whole idea," he said.

Cutting the fleet and winding up with a smaller but more capable inventory is a move the Air Force has been considering "for a couple of years," Northington said. From an operational and logistics standpoint, "this makes sense," he added.

Some of the savings will come from consolidating the bomber's five current operating locations into only two. The USAF Chief of Staff, Gen. Michael E. Ryan, told the Senate panel that, in the Cold War, wide dispersal of the bomber fleet made sense because the US needed to reduce its vulnerability to a surprise sea-launched ballistic missile attack. Now that the Cold War is but a memory, he said, it no longer makes sense to continue with the inefficiencies of a dispersed fleet.

Long-Range Strike Assets

The Air Force's long-range precision strike capability rests with bombers and a number of new munitions designed to be highly precise and/or stealthy for farther reach into enemy territory.

The B-2A, B-1B, and B-52H represent, respectively, USAF's ability to penetrate tough air defenses, to attack enemy forces when air defenses have been suppressed, and to strike the enemy with standoff munitions. Only the B-2 and the B-52 retain a nuclear mission; the B-1Bs are limited to conventional operations.

The Joint Direct Attack Munition is an all-weather, satellite-guided bomb. The 2,000-pound variant was employed by the B-2 in Operation Allied Force with great success. A 1,000-pound version is available and a 500-pound version is being readied for deployment. Both the B-1B and B-2 are configured for the 2,000-pound JDAM. The B-52 will receive the 500-pound version late this year and the B-2 will receive it in 2004.

The Joint Standoff Weapon is a stealthy, satellite-guided glide bomb that can be released 40 miles away from its target. Initial versions are submunitions dispensers; later versions have a unitary warhead. The B-2 will receive JSOW certification late this year, the B-52 in 2002, and the B-1B in 2004.

The Conventional Air Launched Cruise Missile is a satellite-guided missile converted from stocks of nuclear-armed cruise missiles. Range is given at 600 miles. A precision version is in development; only the B-52 can carry the conventional cruise missile.

The Joint Air-to-Surface Standoff Missile is a highly stealthy cruise missile with a range in excess of 150 miles. The B-52 will receive JASSM in 2003, and the B-1 and B-2 will receive it in 2004. The JASSM will also be carried on fighters and is the planned replacement for CALCM, which is only available in limited quantities.

The Wind-Corrected Munitions Dispenser is a smart guidance kit that can be applied to existing dispenser weapons, such as the tank-killing Sensor Fuzed Weapon. It allows the bomber to veer away from the target area immediately after weapon release and corrects the munitions flight path for windage automatically. The B-52 will receive WCMD this year and the B-1B in 2003.

The Small Diameter Bomb will have the precision necessary to achieve the effects of a 2,000-pound bomb with a 250-pound bomb. In-service dates are still being developed, but SDB will likely begin entering the inventory in 2007.



Balkan Star. The B-2 was lauded as the star of Allied Force. USAF has only 21; Northrop Grumman offered to build 40 more for \$29.4 billion. Here, maintainers at Whiteman AFB, Mo., prep a B-2 for Exercise Global Guardian.

It was the prospect of some bases losing the bomber mission that galvanized Congressional opposition to the plan, even though Roche and Ryan said a mitigation plan will find other tasks for the Guardsmen affected by the B-1 reduction.

Fading B-2 Prospects?

The B-1B announcement also chilled speculation that the Pentagon would restart the B-2 production line, a prospect that had seemed to gain momentum with the nomination of Roche, a Northrop Grumman executive, as Air Force Secretary.

In May, Northrop Grumman made an unsolicited offer to the Pentagon to reopen the B-2 production line and deliver 40 new stealth bombers at a total cost of \$29.4 billion. The airplanes, which would be called B-2C (the C is for conventional) would be cheaper than their elder brethren because much of the expensive equipment necessary only for the nuclear attack role—such as hardening against electromagnetic pulse—would be deleted.

In a letter to Rumsfeld, Northrop Grumman Chief Executive Officer Kent Kresa said he could reopen the B-2 line and get production under way in 2003. The B-2 would remain “essentially unchanged” aerodynamically—saving money by eliminating substantial test and development costs vs. a new-design aircraft—but would enjoy modern avionics and

software and would be cheaper to operate because its stealthy systems and surfaces would be more modern and resilient. The 40 airplanes would be delivered through 2016, at a rate of three or four a year.

There was no money for renewed B-2 production in the Bush Administration’s amendments to the Fiscal 2002 budget, however, and the move to reduce the B-1B inventory all but quashed any chance to add more stealth bombers.

“If we can’t afford to keep the bombers we already have, I don’t see how we could pay for ... new

ones,” a senior USAF official told reporters in Washington.

An advisor to Rumsfeld who participated in one of the panels said he has found no one in the Administration very high on the idea of restarting the B-2. “The money’s not there,” he said. “And even if it was ... if you were to start a new stealth bomber today, [the B-2] is not how you would do it. Stealth has evolved quite a bit over the last 20 years.” The advisor said the Bush Administration is looking for “something new” that could serve as its “signature system.”

A participant in one of the Rumsfeld panels said the members of his group nearly recommended retiring all B-1s, mostly because of their operational woes, chronic maintenance problems, and vulnerability in many phases of the mission. However, they did not want to send “the wrong message” about long-range airpower, which they felt was critical. Neither did they want to imply that the US should buy more B-2s.

In Defense of the B-1

Scott White, Boeing’s program manager for the B-1 and B-2, on which the company is a subcontractor to Northrop Grumman, said the B-1 has acquired a bad reputation for technical problems, but he argued that these are not inherent faults of the airplane itself.

“The B-1 has, over the years, been unfairly characterized and limited



SIOP Bomber. The B-2 retains a nuclear attack mission. In this photo, munitions specialists at Whiteman operate a rotary launcher erector, one of two that would contain nuclear weapons.



How Many? How Capable? The proposed scrapping of 33 B-1Bs would take the fleet down to just 60 airplanes, of which only 37 would be kept in combat-ready status.

by what it is allowed to do," he said. Under terms of the START I treaty, White noted, B-1Bs are not permitted to carry cruise missiles or external stores—they could carry 50,000 pounds of munitions on external racks—which weighs against the B-1 when competing against the B-52 for the mission of employing stand-off weapons.

White acknowledged, however, that the B-1B "can't go over Baghdad with immunity" but was "never supposed to have the survivability in the high-threat region."

The B-1 can do missions beyond the way it is now employed, "but somebody negotiated that capability away," he said. "To characterize the B-1 as not being able to do certain things is not allowing the B-1 to compete on a level playing field."

White also noted that the Air Force has chronically shortchanged the B-1 when it comes to spare parts, maintenance, and staffing, and the result is mission capable rates hovering just above 50 percent. Gen. John Michael Loh, a retired former head of Air Combat Command, said in a July 5 letter to the *Los Angeles Times* that "the Air Force demonstrated in 1993 to the satisfaction of a critical Congress that the B-1 could exceed all bomber standards for readiness and reliability if, like any other weapon system, it had its full set of people and spare parts." The 1993 evaluation cleared the B-1B for a "\$2.5 billion conventional mis-

sion upgrade" that is still under way.

Both the McCarthy and Gompert studies emphatically promoted the use of bombers in conjunction with the Small Diameter Bomb, a weapon that will be able to achieve the effects of a 2,000-pound warhead in a 250-pound munition, mainly due to sharp improvements in accuracy.

The B-2—which was lauded as the star of Operation Allied Force in the Balkans in 1999 and which typically hit 15 aim points or better on each mission with 2,000-pound Joint Direct Attack Munitions—will be able to carry more than 300 SDBs, according to the Air Force's program executive officer for weapons, Joseph G. Diamond.

Diamond reported that the SDB will go first on the F-15E and F-16 but will eventually be made available for most of the bomb-dropping aircraft in the Air Force. A "smart rack" will also be developed to carry the munitions, whose aim points can be updated after release to the point of impact.

The SDB comes into the inventory beginning in 2007, Diamond said, but a Phase 2 version of the weapon will come along just two years later, with a terminal seeker and the ability to hunt down mobile targets within a prescribed area. The unit will likely have a motor and wings for more range and employ either laser radar or millimeter-wave radar seeker technology, along with Global Positioning System and iner-

tial navigation. The projected SDB buy is 12,000 munitions and 2,000 smart racks to hold them.

A major increase in bomber capability will already be long in service by then, Diamond noted. The B-2 is scheduled to receive in 2004 the first versions of the smaller 500-pound JDAM, which will give the stealth bomber the power to hit 84 aim points on a single mission, in all weather, and with accuracy to within 10 feet of the target.

McCarthy, in an interview with *Air Force Magazine*, said the SDB is a critical part of the overall bomber concept.

"You're talking about being able to do a decisive attack, meaning precision and a large number of weapons," he said, adding that its effects would be mass combined with speed and "mass in a different definition than we've used in the past."

"Awesome" Package

At a press conference explaining the Transformation Panel's findings, McCarthy noted, "You can put 324 of the Small Diameter Bombs on each B-2. If you launch 18 of the 21 B-2s, that's 5,824 individually targeted weapons on that small force." In conjunction with Conventional Air Launched Cruise Missiles and expanded B-52 launch capability, he added, "You're talking about 8,000 to 10,000 weapons in a single strike package, which is pretty awesome."

The Transformation Panel did not have time to weigh the issues surrounding what type of system might succeed the B-2 and the rest of the bomber force, McCarthy said in the *Air Force Magazine* interview. However, he added, "We felt that there is a need for further study in this particular area, which would involve a variety of different possibilities, ranging from more B-2s to manned or unmanned new aircraft to space-based capabilities."

McCarthy said flatly that the Air Force should begin work on a follow-on system much sooner than 2017, as now called for in Air Force plans. "We think you ought to start this process right now," he asserted. "That doesn't mean you start bending metal" immediately, however. He added that the platform itself is only part of the picture and that "it's the entire infrastructure and support mechanism."

McCarthy suggested that the Air

Force should have bombers sitting on conventional alert much as they sat on nuclear alert in the Cold War years. In a crisis, they could take off and fly to a preset launch area and receive targeting information en route. Such a capability would be “a very rapid, credible response force that can go anywhere in the world, and that has a deterrent capability in itself,” McCarthy said.

The Transformation Panel also urged the Pentagon to begin work right away on long-range conventional cruise missiles, possibly a common type that could be used by bombers as well as ships and submarines.

The Big Leap

Ryan, in an interview with *Air Force Magazine*, said the service isn’t interested in buying more B-2s because it lacks the funding to buy them or support them. Even so, USAF wants to make a big leap in capability with its next strategic system, Ryan said, and the technology has not yet arrived to do that.

“We need to go to the next level of strike capability, beyond the B-2,” he asserted. “And I’m not sure what that is, but it’s long range, it’s fast, and it’s precision and survivable. Whether that’s manned, unmanned, orbital, sub-orbital, or hypersonic, I don’t know, but I think that it is not in the current fleet that’s out there right now.”

Asked what field of basic research seems to hold the most promise for a bomber follow-on, Ryan said, “I’m not sure it’s hypersonics yet, because we haven’t yet been able to mitigate the effects of drag at hypersonic ve-



USAF photo by SSgt. Mary L. Smith

Standoff Survivor. The B-52 will survive by staying away from lethal air defenses. In 2003, BUFFs will receive the Joint Air-to-Surface Standoff Missile, a highly stealthy cruise missile with a range of more than 150 miles.

locities.” Work continues on ablative surfaces “that allow us to operate at those frictional temperatures,” he added, “but we haven’t got solutions to those yet.” However, the Chief of Staff did say that a suborbital system “may be closer.” Such a system would “transit” the hypersonic realm but not persist there.

“Orbital is another area we continue to look into,” Ryan added. “There are huge policy issues about being on orbit with weapons,” but USAF will continue to examine the technology to determine its promise, he said.

Ryan acknowledged the existence of a little-known program called the common aerospace vehicle, which

he described as “more a concept than an actual article.” The system would be carried aboard a space maneuver vehicle, itself carried to orbit by a rocket or reusable launch vehicle. Once on orbit, it would remain there until called on to act, but how it might attack ground targets is not yet clear, Ryan said.

No one seriously questions that a new bomber—or something—eventually will be necessary. The youngest B-52H in the fleet will be 40 years old next year, and while the Air Force has said the venerable bomber could continue for another 40 years, service officials privately say such a plan is unrealistic. Corrosion and other unexpected problems are already playing havoc with the KC-135, which is of a similar vintage.

The B-1B was designed for about a 30-year service life and so will have to be replaced entirely beginning around 2015. Even the B-2, which is the newest bomber in the inventory, is seen as needing to retire starting around 2024. The B-52s are projected to give out around 2037. To have a replacement strike platform ready by then, USAF expects to start work on a program circa 2017.

McCarthy, at his press briefing, said the next bomber-type system could be an unmanned aircraft, a jetliner loaded with cruise missiles, or something “from space.” However, he said, work should begin right away, and the new system should be in hand “absolutely sooner than 2017.” ■

It Takes One To B-1

In the Senate, anger was running high over USAF’s decision to shut down B-1B operations in Georgia, Kansas, and Idaho. James G. Roche, Secretary of the Air Force, stepped before the Senate Armed Services Committee on July 10, where he encountered Sen. Pat Roberts of Kansas, who spoke on behalf of fellow Sens. Max Cleland and Zell Miller of Georgia, Larry Craig and Mike Crapo of Idaho, and Sam Brownback of Kansas.

Roberts: Now it’s time to move to the B-1. Secretary Roche, remember the old days when [former California Republican Rep.] Bob Dornan was known as “B-1 Bob”?

(Laughter in audience)

Roche: Yes, I’ve met the gentleman.

Roberts: Well, now you’ve got B-1 Max, B-1 Larry, B-1 Mike, B-1 Zell, B-1 Sam, and B-1 Pat.



Wesley Clark's War

The campaign was in the air, but SACEUR's mind was on the ground.

By Rebecca Grant



Clark's Reversal. Since publication of his book *Waging Modern War* in May, Wesley Clark has stopped calling attention to the role of airpower in the success of Operation Allied Force. Here, Clark talks with soldiers in Kosovo two months after the end of hostilities.

GEN. Wesley K. Clark, United States Army, led NATO's military forces to success in 1999 in Operation Allied Force. And as recently as February, the former Supreme Allied Commander Europe told a large USAF-sponsored conference, "The US Air Force saved me, and it saved NATO." Clark, however, delivered these remarks before the appearance of his book, *Waging Modern War*, in May.

Since publication, he has been singing a different tune. Clark has been unwilling to describe Allied Force as an airpower success. The now-retired SACEUR, appearing in May at National Defense University in Washington, D.C., declared to all assembled that airpower could not be expected to do much in future armed conflict. "Boots on the ground," he said, would be needed for decisive military action.

Incredibly, Clark's 479-page memoir does not even mention the Air Force B-2 stealth bomber—one of the war's most effective weapons—much less recognize the B-2's key contribution to the success of the operation. In contrast, the Army's AH-64 Apache attack helicopter (the core of Clark's boots-on-the-ground fantasy) gets extended and favorable attention—despite the fact that it did not ever engage in combat.

It was exactly this obsession with trying to put boots on the ground in the form of an invasion in Kosovo that likely cost Clark his job as SACEUR. Even in its rockiest periods, the US military Chiefs and White House officials offered steady support for the NATO air campaign. Clark, however, lobbied hard for a NATO decision to gear up for land war.

As it turned out, Clark was completely at odds with Washington and European leaders about the preferred direction of the war. His penalty was high. Just one month after the end of Allied Force, White House officials leaked the embarrassing news that Clark would retire earlier than planned and vacate the SACEUR post for another officer, USAF Gen. Joseph W. Ralston, who was then the vice chairman of the Joint Chiefs of Staff.

Clark's candid memoir gives a view of Allied Force very different from all others to date. The narrative is dominated not by details of air combat operations, as one might expect, but rather by recapitulations of lost political battles and fervent planning for a ground operation that never took place and was never really in the cards. His tale provides a disturbing inside look at a Supreme Allied Commander who was distrustful of airpower and out of step with military colleagues and political superiors in Washington.

Going to War

Waging Modern War takes note of the fact that Allied Force began on March 24, 1999, with Clark's full backing. In early March of that year, Clark told Secretary of State Madeleine Albright that NATO air strikes had to go ahead if diplomatic talks between the Serbs and the Kosovar Albanians failed. This was true, he said, because alliance credibility was on the line.

However, Clark had misgivings about airpower. He believed that the limited NATO air strikes had been effective in Bosnia in 1995 (Operation Deliberate Force), but his professional view of airpower was shaped in the 1970s, a time in which, as a student at the Army's Command and General Staff College, he researched and wrote a thesis about the "ineffectiveness" of Operation Rolling Thunder in Vietnam.

Clark's skepticism about airpower was only reinforced by what he thought he knew about Desert Storm. The general believed (incorrectly) that the Gulf War coalition's airpower hit only about 10 percent of the Iraqi forces. He also felt that the long Desert Storm air campaign preceding a "short ground operation" had wrongly convinced analysts that "precision strike" was sufficient to win wars.

After reviewing early studies of the situation in Kosovo, Clark felt no more sanguine about the use of airpower. Strategic targets were few, and they did not constitute a firm center of gravity, in Clark's view. However, Clark was encouraged when the threat of air strikes in October

1998 helped force a temporary ceasefire between Serbs and Kosovars. In early 1999, Clark began to acknowledge that airpower would have to be NATO's main weapon in any combat with Serbia. NATO Secretary General Javier Solana, according to Clark, "saw no chance of maintaining NATO cohesion if the divisive issue of ground intervention was introduced." The SACEUR conceded, "I couldn't be sure that an air campaign wouldn't work; it might."

For Allied Force, "my intent was that air strikes would be coercive in nature, following the Bosnia model, providing a strong incentive for [Yugoslav President Slobodan] Milosevic to halt operations," Clark said. Clark wanted NATO airpower to focus on halting or degrading the systematic Serb campaign of ethnic cleansing. Yet there was a major hurdle. Clark had warned Albright that the Serbs would most likely attack the civilian population in Kosovo as soon as air strikes started. Worse, NATO could do nothing to prevent it. It would be "a race" between NATO air strikes and what the Serb forces could do on the ground, and in the short term, Clark said of the Serbs: "They can win the race."

Fielded Forces

Although Clark was mirroring NATO guidance and hoping for a quick success, he had done little to prepare for a longer air campaign, should it become necessary. Clark

judged that the way to influence Milosevic was to target his army forces. From the start, he worried that NATO's airmen "hadn't worked in detail the techniques we would use to strike early against the Serb ground forces."

The actual timing of the air campaign was beyond Clark's control. NATO had already ceded the initiative to Milosevic as negotiations dragged on. More than 30,000 Serb army soldiers massed on the border of Kosovo and moved into the province. Clark correctly concluded, "If we couldn't quickly break Milosevic's will with strategic strikes, then we had to take away his capabilities to fight in Kosovo."

However, Clark had not prepared NATO to do either.

Clark launched the campaign with a short list of targets. All air strike targets went through a complex political approval process that started with Clark and wound its way on a two-week journey through US and NATO channels. During fall 1998 and winter 1998-99, air planners had briefed Clark on at least 120 targets. Clark crafted a plan for "a serious attack, with some margin left over," but he submitted just 51 of the 120 targets for final approval. He did so even though the Chairman of the Joint Chiefs of Staff, Army Gen. Henry H. Shelton, prodded him to submit more. "Wes, how soon are you going to get me your Phase II targets?" Clark quotes Shelton as saying. Clark's

decision to submit a limited number of targets at the outset doomed Allied Force to a slow start, if the strikes went beyond three days.

"Moral Necessity"

In Clark's view, however, the coercive potential of air attacks on fixed strategic targets in Serbia proper paled in comparison to the impact of striking Serbia's forces in the field in Kosovo. Clark had sound military reasons for emphasizing attacks on the Serb ground forces. As he explained it, hitting the ground forces was "a political, legal, and moral necessity." He wanted to do what he could to "relieve the direct pressure the Serbs were putting on the Kosovars."

However, Clark's strategic rationale went even deeper. "Attacking the Serbs' military machine and police in Kosovo also made excellent military sense," he said. Milosevic relied on the support of the army to keep his grip on power. The Serb leader was himself an officer in the army reserve and as such had many loyalists in key leadership positions in the armed forces. In the previous December, Milosevic had fired the top army commander and replaced him with a general who would not complain about attacking Kosovars.

Clark saw the Serb ground forces as a priority center of gravity because Milosevic "couldn't stand to have these forces seriously hurt." He criticized the "classic view of the American airpower adherents," which pictured Milosevic as an "uncaring leader" who would be "unaffected by losses among his military and police." NATO aircraft had free rein to attack Serb military forces in Kosovo once they had been identified visually or by intelligence sources. There was no two-week approval process for these targets.

Even so, Clark did not ask for more aircraft to counter the ground forces. In the end, it was early April before air planners put together a request for Clark to triple the strike aircraft in theater. NATO did not approve all of the additional forces in the package until after the alliance summit was held on April 23. Weather and lack of aircraft got the campaign off to a difficult start, and it was not until the second week of May that sortie rates increased dramatically. Half of the 38,116 total

USAF photo by TSgt. Cesar Rodriguez



Task Force Hawk. Clark insisted that the Army's Apache helicopters could lead a ground plan in Kosovo, despite their poor performance in bad weather and an Army assessment that they were too vulnerable to Serb weapons.

sorties were flown in that last month of action.

Meanwhile, Clark was doing his utmost to get Apache helicopters, Army Tactical Missile System (ATACMS) ballistic missiles, and lead elements of Army ground forces into theater to turn up the pressure on Milosevic. By mid-April, Clark had developed a very strong interest in a ground option because he wanted a backup plan to pull out in case the NATO air campaign fizzled. The potential outcome of the air attacks was “unknownable,” he said, and “without a ground force, there was no assurance that we could actually force Milosevic out of Kosovo.”

A backup plan was a prudent step, but Clark ultimately pursued the ground option with a personal determination stronger than anything else he did during Allied Force. He estimated the air campaign effectiveness would peak by July then start to diminish. However, good summer weather, support from Albania, and NATO’s firepower advantage meant that ground operations could force the Serbs out, Clark thought. Clark also felt that visible preparations for ground operations would “significantly raise the pressure on Milosevic.” By “working backward from the first snowfalls in the mountains of Albania,” he decided that he must have national decisions from the NATO allies “to begin preparation of the ground forces on May 1.”

Clark’s urge to champion a ground campaign could not have come at a worse time. He took his plan to Washington during the NATO 50th anniversary summit where there was arrayed against him a formidable lack of interest. The Macedonians refused to let NATO use their territory for offensive operations. The NATO allies, many with long experience of peacekeeping in Bosnia, were not eager to insert ground troops. Throughout Washington, the ground option was a nonstarter. Shelton warned Clark not to lobby for the ground option behind the scenes at the NATO summit. “If that option is going to be sold, it will be sold by the President, not by you,” Shelton told Clark. The Secretary of Defense, William S. Cohen, ordered Clark to say nothing about ground forces during the NATO meetings. “We have to make this air campaign work, or we’ll both be writing our résumés,” Cohen added.



USAF photo by SSGT. Ken Bergmann

Star Ignored. Clark does not even mention the Air Force B-2 stealth bomber in his 479-page book *Waging Modern War*, although it was one of the war’s most effective weapons.

In his push for ground war plans and Apache operations, Clark’s most formidable opponent was not the civilians in the Pentagon or the White House but rather the United States Army—institutionally and in the person of the Chief of Staff, Gen. Dennis J. Reimer. Clark recounts numerous occasions in which he sought support from Reimer, only to be rebuffed. The context of Clark’s book makes plain the fact that virtually everyone in the Army’s leadership thought land war in the Balkans was a bad idea. Clark’s book also discloses, albeit indirectly, another factor that may have served as a restraint on Clark’s ambitions: The institutional Army evidently didn’t hold him in high esteem. Clark’s last three assignments were as head of strategic plans on the Joint Staff; Commander in Chief of US Southern Command; and the SACEUR post. In none of the three was he the nominee of his own service.

Private War

As the NATO summit approached, Clark promised Cohen not to be “the skunk at the picnic,” but his push for ground option planning was becoming a major sore point in his deteriorating relationship with Washington. Clark’s memoir detailed his many troubles with other military and political leaders—but he employed the tell-all tactic largely at his own expense. In vignette after vignette, his tormentors came off as being more

reasonable than he. Shelton tried to deal with the CINCs’ requests in a measured way and kept communications open even when he had to relay verbatim reprimands from Cohen telling Clark to get his face off the television. Cohen was on solid ground when in 1998 he reprimanded Clark for the leak of a Bosnian Muslim paper about Kosovo, telling Clark, “And I’ve told you before, you don’t give military advice to [Richard C.] Holbrooke.” As JCS vice chairman, Ralston made the role of the hatchet man look sympathetic. In one instance, he gently cautioned Clark to consider what would happen if war broke out in Korea or with Iraq and they had 200,000 troops bogged down in Kosovo. Clark ignored Ralston’s warning and charged into the Chiefs’ “Tank” later that day with a ground option briefing. It fell flat.

The book is littered with examples of Clark’s evident inability to take a hint, even a heavy-handed hint, or to deal effectively with surprises or uncomfortable situations. The most cringe-worthy story of all concerns the moment when Clark turned up a few minutes early for a reception at the NATO summit. As Clark told it, President Clinton, Albright, Cohen, and Shelton were alone in the room forming their receiving line. Clark started to walk over to greet them, then read their body language and stopped, alone in the middle of the room, 20 feet away. In telling the story, Clark seemed to want to show

how he was unfairly shut out. Instead, the story tends to paint Clark himself as an inept player of the power game.

By April 25, the summit was over and Clark was back in Europe. "I knew that Secretary Cohen was determined to make the air campaign work and make it work in conjunction with diplomacy," said Clark. Personally, as of late April, he gave the air campaign a 70 percent chance of working. In his view, the guidance from Washington left him a loophole to start an "assessment" of a ground option. Flying over Albania, he scouted the mountainous territory, which he deemed tough but not impossible for ground operations. His staff set to work on options, including the possibility of skipping the southern approaches and invading northern Serbia from Hungary with the objective of taking Belgrade.

But the ground option planning was not coming together well. New estimates also called for almost 200,000 troops. The planners told him that if they stayed within the normal NATO planning process time lines "we would be lucky to attack on Nov. 1."

Clark was not "comfortable" with the ground plans yet, but he did realize that "we were going to have to commence preparations and deployments before we had a final approved plan." Getting that approval became a top priority for Clark. The mirage of a ground operation, with attacks on three axes, became the secret heart of Wesley Clark's war. In the lead would be the Apache helicopters.

The Apaches

Clark wanted the Apaches to rapidly target and strike Serb ground forces, and he had asked for them the day before the start of Allied Force. Although he did not receive authorization to employ them during the air campaign, the Apaches were a consuming interest.

Clark's concept of operations was for fighters and artillery—including ATACMS—to suppress the enemy. Unmanned Aerial Vehicles would find targets, and "we'd go at night" with the Apaches. He insisted the Apaches could survive flying at low altitude and that the threat of Serb SA-7s "was not borne out by analysis." In preparation for a video teleconference he was shown "a column

that went for two or three pages" listing all the weapons capable of perforating the skin of an Apache helicopter. He dismissed the data as "the influence of the reluctant Army mind-set." He mentioned in his book that the helicopters rescuing the downed F-16 pilot drew small arms and missile fire, although they were trying to *avoid* contact. He noted in the conclusion that Apaches weren't much good in bad weather but maintained that he wanted to use them.

To everyone but Clark, the concept of operations for the Apaches just wouldn't work in the Kosovo environment. Suppressive fires to lay a corridor for the Apaches would have violated the rules of engagement, rules so tight that A-10 pilots were calling the Combined Air Operations Center for permission to strike targets they positively identified in daylight. The Apaches had more than demonstrated their worth in the Gulf War, where they were a formidable weapon. However, in the Gulf, the Apaches were primarily used to protect the flanks in areas with few enemy ground forces. Some close air support missions were flown but from the friendly side of the Forward Line of Own Troops. One look at a map of Albania and Kosovo would be enough to show that by sending in the Apaches, Clark would have risked them flying at low altitude over many miles of enemy-held territory. Serbs with small arms would be eager to pick off an Apache. As it turned out, locating mobile targets was a major challenge, and elements of Task Force Hawk Apache helicopters helped that process greatly, but fixed-wing aircraft proved fast and efficient in striking targets once they were identified.

Denouement of the Ground Option

While the Apaches sat, Clark kept the ground option planners hard at work, fully aware that it would take two-and-a-half months to begin ground action "even by the most optimistic estimates." Washington was unresponsive. By late May, the Joint Staff still had not approved the initial cadre of engineer units that would have to begin their work long before the ground offensive. Indeed Cohen, giving his first interview since the war began, said publicly May 28, "There is no consensus for a ground

force. ... So the air campaign will, in fact, continue."

The only troops in contact were the irregular forces of the Kosovo Liberation Army. The KLA launched its own offensive May 26. Clark estimated that four or five battalions totaling up to 2,000 men were attacking over the top of Mount Pastrik. Clark characterized the KLA action as "light infantry against heavy forces" and by Friday, May 28, it was clear to Clark that "the Kosovars were not able to secure their objective." On Saturday, Clark observed the KLA offensive was "stalled" with the Serbs "vulnerable to our airpower." On Monday morning, May 31, "the KLA was barely hanging onto the top of Mount Pastrik." Clark commanded USAF Lt. Gen. Michael C. Short, NATO's air component commander, and Army Lt. Gen. John W. Hendrix, Task Force Hawk commander, to hold the mountain or "we'll have to pay for the top of that hill with American blood."

This was as close as he got to directing ground attacks, but at the time, Clark pictured much more. That same day, Clark's planners gave him a revised ground option plan with D-Day set for Sept. 1. Clark was delighted and determined to push the plan. "This was the culmination of my 33 years of military service," he later wrote.

Here in essence was Clark's true instinct about how to defeat Milosevic. Roads, bridges, and airfields would be improved over the summer as 175,000 to 200,000 American and European ground troops moved into position. NATO would have to work out arrangements with the KLA ("we had scrupulously avoided direct contact with them in Albania" so far, Clark said), gain access via Montenegro, block the Danube River, and ring Yugoslavia's periphery with troops, presumably in Macedonia, Bulgaria, and Hungary.

Clark presented the new ground plan to Shelton and the Chiefs via video teleconference. The Chiefs listened but gave "no indications of support." Changing tactics, he pressed to be invited to the White House for a routine meeting between the President and the service Chiefs, hoping he could brief his ground plan there. No invitation was forthcoming. The denouement at last came when Undersecretary of De-

fense for Policy Walter B. Slocombe consoled Clark by telling him that the President would not make a decision about ground forces without talking to the SACEUR. The issue died. Shelton told reporters at the time that if necessary, NATO would winterize the refugee camps and enable the air campaign "to go right on into the winter, if that is required." As Clark put it, "I had been screened off."

End of Allied Force

While Clark fumbled with his ground options, the air campaign was coming to a culmination. Strikes on Serb forces in Kosovo increased, and fresh strategic targets were approved and struck. On May 30, 1999, Clark told the *Washington Post* that "I would say the air campaign is working" although he added that there were "theoretical limits to an air campaign." After a night of heavy air strikes two days later he was quoted as saying in a closed headquarters briefing that "we're driving him [Milosevic] to a decision."

Hindsight altered his view. Two years later, in his book, the impact of the air strikes in late May and June barely caught his eye. Clark admitted that opinion in Washington leaned toward extending the air campaign and against any ground option, with the Army arguing against the ground campaign. He also wrote that around May 31 he feared that "the air campaign was in serious trouble if it persisted on its present course."

In fact, the Serbs were ready to accept NATO's terms. On June 3, Milosevic accepted key elements of Finnish President Martti Ahtisaari's plan for the Serbs to withdraw from Kosovo. In his book Clark cited the airmen's "good results in their strikes against Serb forces in Kosovo" on June 3. But he drew no special correlation between the crescendo of sorties and new progress in the negotiations. Clark related how he spent part of June 3 pushing to get the engineers in to prepare for ground operations, talking over ground war strategy with Solana, and monitoring the positions



No Boots. Clark's book emphasizes his regret at not getting "boots on the ground" and gives short shrift to one of history's most successful air campaigns. Here, Clark stands with his USN and USAF air commanders.

of the KLA. On the very day Milosevic indicated he would give in, Clark believed (according to his book) that a ground campaign would still be needed two months hence. As it turned out, an agreement was in place a week later and the air strikes stopped on June 10.

As for the impact of the air war, Clark praised it on June 5, 1999, telling the *New York Times*: "What did the trick was the accuracy of the precision weapons, the avoidance of losses, and the increasing destruction of the Serb forces." Clark's testimony to the Senate in October 1999 included praise for airmen and observations on all-weather precision weapons, airlift, intelligence, surveillance, and reconnaissance assets and other recommendations relevant to the after-action report on an air campaign. He commissioned a detailed survey of damage to critical mobile targets and went so far as to declassify its results, which validated NATO airmen's effectiveness against Serb fielded forces.

Two years later, however, Clark did not give airpower much credit for pulling out the victory in Kosovo. Of the war's end he stated: "Planning and preparations for ground

intervention were well under way by the end of the campaign, and I am convinced that this, in particular, pushed Milosevic to concede." Clark contended that the Apaches, the corps-level headquarters, and "a full Army brigade of ground combat power" in Albania were enough to offset NATO's obvious, public opposition to a ground war and convey "a powerful image of a ground threat." To Clark, this "image" outweighed the fire and steel of the air campaign.

"Any endeavor that is both successful and painful is all too apt to be forgotten, and its lessons are likely to be painful, too," said Clark near the end of the book. Clark's written account of the end of Allied Force emphasized again that this general had not come to grips with the fact that he was leading—and winning—an air war. Diplomacy and Russian leverage played critical roles in the outcome. However, Clark's insistence that the threat of a ground invasion was a factor is countered by statements of US officials at the time—and by his own, detailed explanations of his failure to get approval for the Apaches, ATACMS, or even the initial construction troops. NATO, the Joint Chiefs, the Secretary of Defense, and the White House were not yet on board. The prospect of a ground invasion existed mainly in Clark's mind. That may have been Wesley Clark's war, but it was not anyone else's. ■

Rebecca Grant is president of IRIS, a research organization in Washington, D.C., and has worked for RAND, the Secretary of the Air Force, and the Chief of Staff of the Air Force. Grant is a fellow of the Eaker Institute for Aerospace Concepts, the public policy and research arm of the Air Force Association's Aerospace Education Foundation. Her most recent article, "Deep Strife," appeared in the June 2001 issue.

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The Air Force was committed to readiness—even at the expense of modernization.

By John A. Tirpak, Senior Editor

Ryan's

AIR Force leaders knowingly held back on weapon modernization and facilities maintenance in favor of near-term readiness over the last four years, reports Gen. Michael E. Ryan, the outgoing Chief of Staff. They were forced into an unwelcome choice by tight budgets, high operating tempo, and the conviction that doing otherwise would fundamentally threaten USAF's capabilities for decades.

"For the years that I've been Chief, ... we emphasized people ... [and] readiness investment, big time, at the expense of modernization and infrastructure," Ryan said in an interview with *Air Force Magazine* at the close of his tour.

The choice was made in full knowledge—"with malice aforethought," Ryan quipped—that the Air Force's aircraft and facilities were rapidly aging and declining in serviceability. However, he felt it was crucial to retain skilled personnel and near-term capability and hope that, eventually, someone would bring funds to the rescue for the other things.

"If you lose your readiness, you lose the people," Ryan said of the thinking behind the decision. "If you lose the people, you lose it all, for a generation."

Ryan also discussed the Air Force's unflinching support of space during the lean years, the benefits of moving to the Expeditionary Aerospace Force concept, Air Force prospects in an increasingly joint environment, the movement of major service programs to the Ballistic Missile Defense Organization, the push for aerospace integration, and the need to modernize the Air Force's aging fleet.

As a result of leadership priorities, the service was able to execute a highly successful air war in Yugoslavia when called on two years ago. However, senior officers have seen the fleet

languish—with the average age of aircraft approaching 30 years—and the backlog of facilities maintenance theoretically mount into centuries.

The Slide Begins

In the early 1990s, Ryan explained, there was a misperception on the part of the senior Air Force leadership that "an excess" of spare parts was available. This thought stemmed from the rapid pace of the post-Cold War drawdown and the feeling that the inventory, which was created to support a larger fleet, would last a while.

But six months into his tour as Chief, Ryan reported, readiness indicators began "tipping over." The supposed spares surplus had quietly turned into a shortage, masked by the efforts of diligent crews and a flurry of cannibalization.

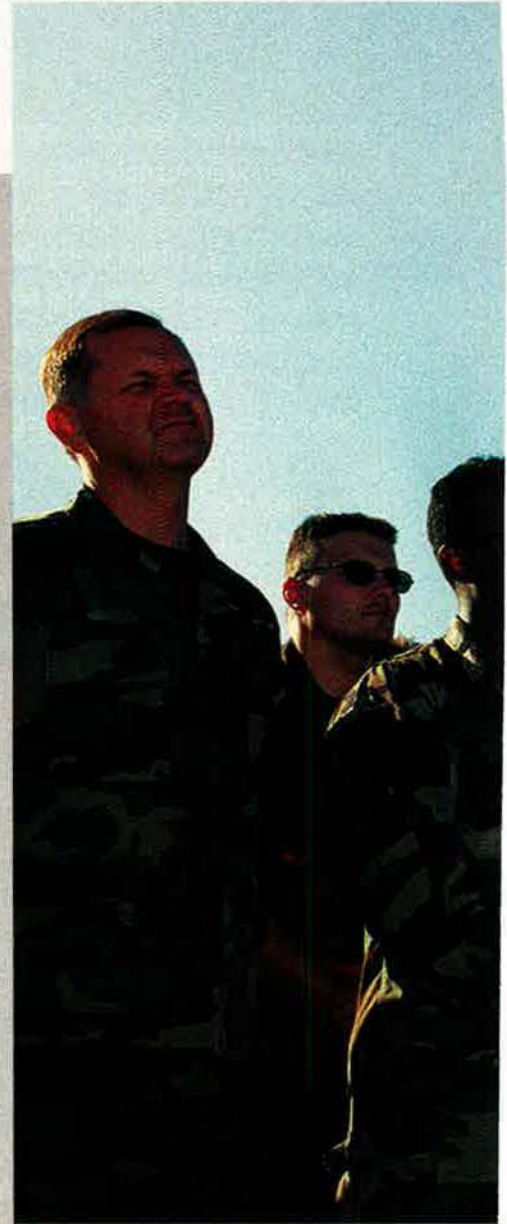
"When I got here," he observed, "we found out we were right down on the mounts, no shock absorber left."

Mission capable rates and overall readiness—affected by empty spares bins and a growing shortage of qualified crew chiefs—"took a dive from the 92 percent area to the 65 percent area, in a matter of three years," he noted. He saw no choice but to "stop the decline in readiness and turn it around."

The decline has stopped, but the mission capable rates are only slowly rising again.

Spares and personnel accounts figured heavily in the equation because Ryan felt there would be a profound exodus of skilled people if they were not given "the tools to do their job." He was already beginning to see signs of a brain drain while he was head of US Air Forces in Europe, he noted. As the economy heated up, the civilian market for skills acquired in the Air Force became voracious, making it tough for the service to compete for qualified people.

Ryan characterized the strategy as "protecting the basis of the fighting

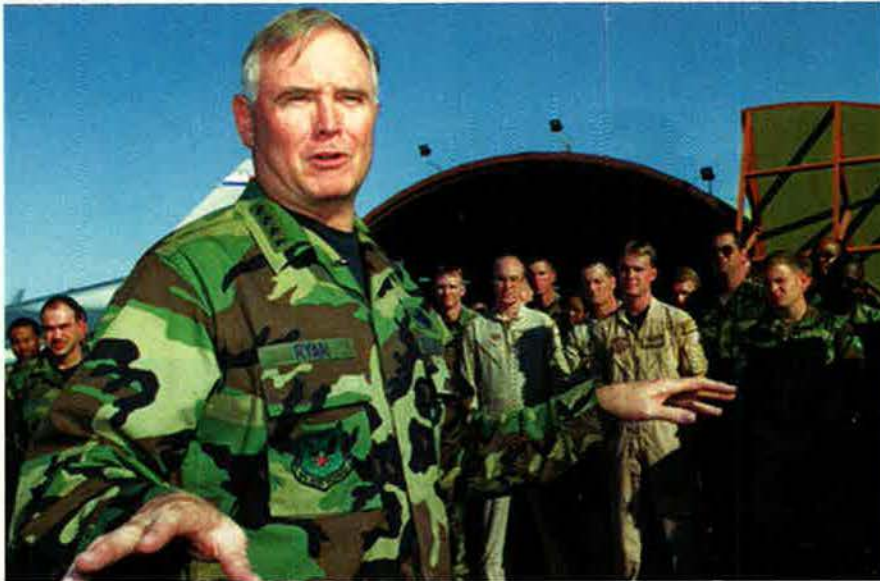


Outbrief



USAF photo by A1C Tamayo M. Harms

Outgoing Air Force Chief of Staff Gen. Michael E. Ryan says that his strategy was "protecting the basis of the fighting force—readiness and people—while waiting for help to show up." He feels that help is on the way. Here he speaks with airmen at Incirlik AB, Turkey, on Thanksgiving Day 2000.



Ryan believes that recapitalization is essential but emphasizes that sacrificing readiness for modernization is "a formula for failure." Here, Ryan visits with personnel at Incirlik.

force—readiness and people—while waiting for help to show up.”

There was reason to believe help would come, Ryan said. The economy was humming, the nation was beginning to run budget surpluses, and there were indications from both parties that it would soon be necessary to “go back and look at the fundamentals of keeping defense funded,” he said.

Echoing the Bush Administration’s campaign promise that “help is on the way” for the military, Ryan said he feels help is indeed “on the way. ... We had a real [budget] growth of nine percent in the budget for [Fiscal] ’02. That’s a pretty good whack upwards.” The figure is adjusted for inflation, and Ryan said next year’s budget should make it possible to avoid seeking a supplemental funding request for flying hours and operations.

However, he admitted that the increase will do little to cover Air Force modernization needs, which he himself has characterized as being underfunded to the tune of more than \$10 billion a year.

“Eventually, you have to step in and recapitalize,” Ryan said.

He acknowledged that “aircraft inflation”—the cost of maintaining aircraft that have reached or exceeded their planned life expectancy—runs above economic inflation. The dollars added for the next budget will probably just cover the rising cost of maintaining the aging fleet.

“The cost of operating the fleet just continues to go up every year,”

Ryan said. The aircraft are “continuing to get old, and you have to cope with that.”

The 170-Plane Solution

To keep the Air Force aircraft inventory at status quo, it would be necessary to buy 170 airplanes a year, but the service has only been acquiring “about 100” per year, Ryan noted, and for the majority of his tenure, those have been mostly trainers. During his first year as Chief, the Air Force bought no fighters, for the first time in its history.

“There are ways you can change that formula—buy more airplanes or cut the size of the force so you don’t have to buy as many airplanes,” Ryan observed. However, he added, “Nothing I’ve seen so far in this [Quadrennial Defense Review] says you ought to cut the size of the force substantially, given the demands that we see for the future.” There will be no letup in the need for the capabilities the Air Force is able to provide, though it gets harder to provide them without a substantial round of replacement.

“We are going to have to step up to the recapitalization issue in the next years,” he observed. “We can’t continue to operate a force that’s going from 22 years old to 30 years old, and that’s where we’re headed unless we change.”

Ryan does not believe, however, that the pendulum should swing back toward modernization and away from readiness.

“That is a formula for failure,” he insisted. “You can never ask people to join and then stay in a force that is less than premier, particularly when you are talking about an activity that is so unforgiving, ... operations in the aerospace domain, particularly against people who don’t want you to be there.”

The Air Force should not sacrifice readiness to buy new systems, he said, or “de-emphasize the quality of the people who work for you.”

Ryan feels that the Air Force’s performance in the Balkans was vindication of the priorities service leadership set.

“We were able to generate and deploy to 21 locations across Europe in a very ‘min’ time and execute, along with our Allies, 30,000-plus sorties. And the combat environment was intense, and we only lost two airplanes and no crews,” Ryan pointed out. “That’s pretty amazing.”

The Air Force’s new Global Strike Task Force concept—which calls for using bombers and speedy fighters to quickly gain entrance to a theater of war by knocking out anti-access enemy systems—is “just naming something we [already] do,” Ryan observed. “That’s what we did in Kosovo.”

The prominence that such concepts seem to have taken on in the Pentagon’s strategy reviews does not, however, lead Ryan to think the Air Force will get more emphasis than the other services in the future.

Kick Down the Door

“We’re a ... contributing member of the joint team,” he said. “And quite honestly, in many situations, jointness does not mean that everybody goes at once. Jointness means we capitalize on the capabilities of each of the contributors. And our contribution normally is right there in the front, going in there, kicking down the door.” It matters little whether the Air Force contribution is all that’s required, or as support to a broader effort, so long as the mission is achieved, he said.

“It isn’t the be-all and end-all,” Ryan added. “That’s just the first shots in a major conflict. There are a hell of a lot of other contributors to it, too.”

He also described Global Strike Task Force as “a natural outgrowth of how we’ve organized ourselves in the [Aerospace Expeditionary Force].”

Ryan believes he has made great strides in taking care of Air Force

people. He is particularly proud of the Expeditionary Aerospace Force concept, which was matured and implemented during his tenure. The EAF and its operational units, the Aerospace Expeditionary Forces—assemblages of roughly equal capabilities in Air Force people and equipment for overseas assignments—solved a major headache for the force, Ryan asserted. It gave personnel predictability about when they would be away and made the process of spreading the duty around fairer.

There were many other steps taken to make the Air Force more livable, Ryan asserted.

“We’ve done a lot of stuff for our folks to [enhance] the attractiveness of serving in the military for a career—not just a short stint—[to make service] as appealing to the members and their families as we could make it.”

He ticked off examples: “The infusion of money into military family housing, pay raises, medical, time off after deployments.” These, he said, were expensive but needed steps.

“That kind of challenge will remain for my successor,” he added. Making sure service personnel are well cared for is a job that’s “never completed.”

The new Administration’s increased emphasis on jointness doesn’t cause Ryan any worries that Air Force priorities will somehow lose out amidst the competing demands of the overall force.



USAF photo by SSgt. Paul Caron

Jointness comes at the operational and strategic level, says Ryan, not the combat level. Here, as 16th Air Force commander, Ryan (center) talks with Army Gen. John Shalikashvili (right), then JCS Chairman, about operations in Bosnia.

“If we raise our people correctly, it doesn’t matter what [color] uniform they wear,” he said. “We don’t find much parochialism at all among our [regional commanders in chief] or indeed in the Joint Staff. So I wouldn’t presume we’ll have that same problem as we go further into jointness ... at an operational and strategic level.”

Ryan asserted, “Jointness is not putting an F-16 on the wing of an F-18. ... Jointness is how you put together the strengths of the tactical units at an operational level to achieve a strategic objective.” The

notion of making all soldiers “purple” is misguided, he said.

“Where you ‘get joint’ is not at the combat level,” said Ryan. “Jointness is how you orchestrate the different mediums and capabilities ... to achieve the effects you want.”

Strong on Space

Despite the emphasis on readiness and personnel accounts, Ryan asserted that the Air Force did not scrimp on capitalizing space.

“We have, over the years, ... funded the space piece of the aerospace force to assure that it’s viable and doesn’t fail,” Ryan said. This, he noted, was undertaken without the status of executive agent for space among the services, a status that DOD has conferred on the Air Force as a result of this year’s Space Commission recommendations.

“I’m very proud of the fact that we’ve been great stewards of space,” Ryan asserted.

One of Ryan’s early themes was “aerospace integration,” and he dedicated a great deal of the Air Force’s intellectual power to streamlining the connections between space-based, ground-based, and airborne assets.

The Space Commission, headed by Donald Rumsfeld until shortly before he was nominated to become Secretary of Defense in the Bush Administration, highlighted these communication links but also suggested that space may evolve into a separate branch of the military, a move

USAF photo by SSgt. Angela Stafford



USAF’s performance in Allied Force demonstrated that leadership priorities of readiness and people were valid, Ryan says. Here in October 1999, he appears before a Senate Armed Services Committee to testify on readiness.

that Ryan opposed and still believes should not come for many years.

"It would be very premature," he said. However, he doesn't think the suggested spin-off will recreate the institutional barriers he worked to break down. "No one believes that separation of functional areas that are dependent upon each other is smart business," he asserted. "And it certainly isn't smart war."

There is no clash of concepts between the Space Commission suggestions and the Air Force, he said.

"How we think of ourselves in the Air Force is that we are the experts in the vertical dimension, because we do that from cradle to grave, from requirements to retirement of the system," said Ryan. "We're the only service that does that across that spectrum. And so, integration for us doesn't mean it excludes others; it just means we want to capitalize on the strengths of each of the pieces of the medium in which we operate ... and make sure that each is supported by the other. ... I don't see dueling concepts."

The Administration wants to move the Airborne Laser, Space Based Laser, and Space Based Radar, all major Air Force programs, under the control of the Ballistic Missile Defense Organization, a DOD agency. Ryan said it was not completely unexpected that it has happened, given the fact that the Administration highlighted missile defense and gave it priority in budget deliberations.

He said the Air Force has no qualms



USAF photo by SSgt. Chani Devers

The combat environment was intense, but USAF lost only two aircraft and no crews. Ryan says, "That's pretty amazing." Here, he visits with ANG members from Idaho, Michigan, and Maryland in Italy during Allied Force.

about the move, provided that Air Force-specific requirements for the systems, which may not relate to missile defense, are not lost in the shuffle.

The Airborne Laser, for example, "will have applications elsewhere," Ryan said.

"We ... are looking at the requirements to perhaps have it go after cruise missiles," or be involved in air defense, or even an "air to ground capability," Ryan said. He feels such requirements will get a fair shake because "Air Force people will still manage the program" for BMDO.

Rumsfeld's Review

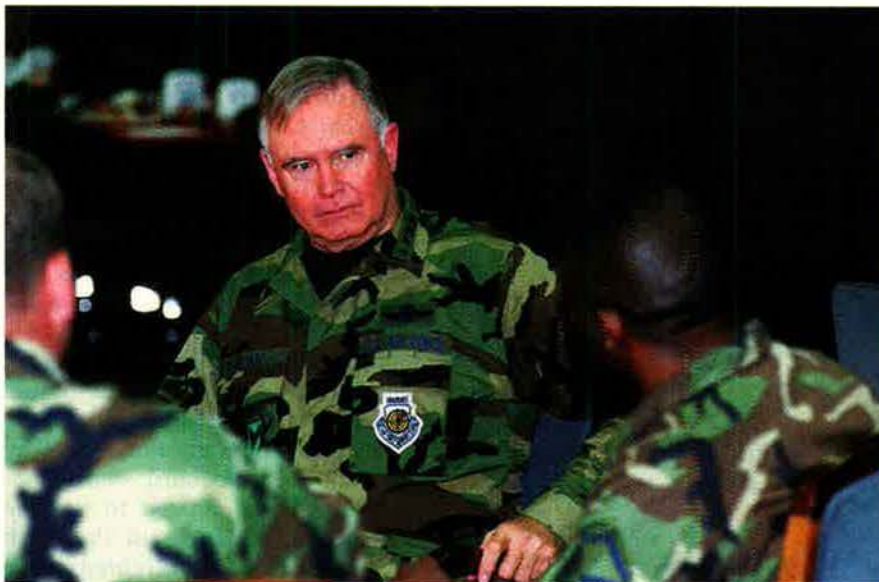
Ryan believes the Air Force is well-positioned to deal with whatever restructuring may come with completion of this year's strategy reviews and Quadrennial Defense Review.

"We are a blessed institution in that we can change ourselves very rapidly [and] ... do that pretty darn well," Ryan said. "We can mold [the service] to the needs of the future." He noted that, in the 1990s alone, the Air Force went through two major reorganizations. First came the 1992 reduction of five USAF major commands into three—Air Combat Command, Air Mobility Command, and Air Force Materiel Command—with all of the changes that went with it. The second was the creation and refinement in the late 1990s of the EAF, during his own tenure.

To fully realize the EAF, though, the Air Force will need more time, Ryan acknowledged. Service schools have already begun the process of spreading the new thinking, but it will take more time to break down organizational "stovepipes" and make USAF "a whole, organic service force that has a true understanding of what our mission is and how everyone fits into accomplishing the mission. And that's what EAF is all about."

He called it "a unifying cry" that merges expeditionary, aerospace, and force. "That's what we do." ■

USAF photo by A1C Tanaya M. Harns



Ryan knows it will take more time for USAF to break down organizational barriers but calls the EAF "a unifying cry." Here, airmen from the 39th Wing, deployed for Northern Watch, have a Thanksgiving meal with the Chief of Staff.

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The other services support—but are wary of—the leading role that has been assigned to the Air Force.

Interservice Static in Space

WHEN Secretary of Defense Donald H. Rumsfeld revamped military space management in a way that expanded the Air Force's authority, hackles quickly rose in the Army and Navy.

Rumsfeld in May designated USAF to be the Pentagon's executive agent for space, yet space is critical to all services. Space systems provide communications, intelligence, and target information—the lifeblood of modern military power. Not surprisingly, interservice tensions flared.

The Army and Navy both signed off on the changes and publicly support them, but both are watchful and warn that USAF must preserve the joint nature of the US military space enterprise and accommodate their unique needs.

"The devil is in the details," said Lt. Gen. Joseph M. Cosumano Jr., commander of Army Space and Missile Defense Command and Army

Space Command, the Army's focal point for space activities and a component of US Space Command.

Asserted Rear Adm. Richard J. Mauldin, head of Naval Space Command, "We're always concerned when another service has lead on an issue of such extreme importance to the Navy." The admiral's organization is also a component of US Space command.

Of the two services, the Army appears edgiest about the Rumsfeld reformation. One key change entails setting up a special DOD budget line for space systems and activities. Cosumano was frank to say that, as that process unfolds, the Army will be watching the Air Force like a hawk.

He maintained that the Defense Department must guarantee that Army requirements and capabilities are addressed but ensure that "all the services' requirements are properly



By Ann Roosevelt

acknowledged, adjudicated, and given a fair opportunity to compete for resources in the joint context.”

The Army Space and Missile Defense Command is not only the Army proponent for space but also integrator for missile defense, which is linked to space assets and capabilities, particularly new early warning satellites and space based radar.

Col. Glen C. Collins Jr., director of the Force Development and Integration Center at SMDC, was asked his view of the effect of Rumsfeld’s changes.

“Irrevocable Harm”

Collins told *Defense Week*, “Although the NRO [National Reconnaissance Office] and Air Force have the largest investments in space, the capabilities provided and the integration of those capabilities are equally important to all the services. Any actions or decisions that do not

protect the joint nature of our space forces ... would cause irrevocable harm to the services’ warfighting capabilities.”

Collins’s job is to help develop the Army’s space programs, including ground-based efforts to defend US satellites and target the spacecraft of adversaries. His comments are not consistent with someone who fully trusts the Air Force.

He said, “The increased responsibility and authority given to the Air Force ... must be balanced by increased oversight from the commander in chief of US Space Command, the Joint Chiefs of Staff, and [the Office of the Secretary of Defense]. Without this oversight, there is potential that space could become focused on support to a single service, its style of warfighting, and to its priorities. This would be contrary to the best interests of the Army.”

(There are signs that the Army and its supporters aren’t totally synchronized on the issue of space. At a time when senior Army officials were working to protect Army interests in space, high-profile Army retirees tacked in the opposite direction. The prime case in point: Retired Gen. Gordon R. Sullivan, a former Army Chief of Staff and now president of the Association of the US Army in Washington, D.C. Sullivan warned in a May 10 speech that “countless billions” might be spent on military space activities. “Look up at the sky and see how much money you want to pour into *that* rat hole,” Sullivan remarked.)

As the commander of Naval Space Command tells it, he also keeps a close watch on the Air Force as the space reorganization unfolds.

Space is vital to the Navy, which routinely operates large force elements for long periods in widely separated parts of the globe, said Mauldin. And the Bush Administration’s examination of Navy systems for a possible role in national missile defense could also strengthen the Navy’s interest in space operations and capabilities.

Even so, the Navy concedes that the Rumsfeld reforms are logical. “The truth is that the Air Force has been the lead service for space for years, with the bulk of the dollars, people, and programs in space,” Mauldin acknowledged.

He quickly adds, however, that

the Navy also has a large investment in space. The admiral points to successful space efforts such as the latest satellite communications program, the Ultra High Frequency Follow-On. This Navy program was designed to meet Navy and joint requirements. The service used a single multiyear turnkey contract to put 10 satellites on orbit via commercial launch. (Nine UFOs are successfully on orbit; a March 1993 launch left one in the wrong orbit. The Navy has contracted for an 11th satellite, scheduled for launch in 2003.)

Such systems are vital to the Navy. Service officials explain that, at the outbreak of the Persian Gulf War in 1991, an average American living room with cable TV had access to more bandwidth than did a Navy aircraft carrier. Navy officials are determined not to be caught in that situation again.

Assurance and Reassurance

The Air Force (and its Pentagon allies) has been at pains to reassure the other services that their interests are secure. Rumsfeld addressed the issue head-on, declaring that operational control of satellites is “not going to change, to my knowledge, with these organizational recommendations, at all.”

Brig. Gen. Michael A. Hamel, USAF’s director of space operations and integration, said planning teams have been formed to address organizational and budget issues. Other services were invited to participate, and they did so.

While Rumsfeld’s initiatives didn’t address operational requirement definition and validation, Hamel said, “We [the Air Force] believe that’s going to continue as it has in the past.”

By that, Hamel means that any service or command that believes it has a need for space capabilities will take the usual path of writing a mission needs statement and defining its own operational requirements, which will then be vetted by the Joint Requirements Oversight Council.

Lt. Gen. Robert H. Foglesong, USAF’s deputy chief of staff for air and space operations, re-emphasized that point in a recent briefing for the press.

“Each service will have its own unique requirements for space,” said

Foglesong. "That process remains the same. If the Navy has a unique requirement, it comes into the Joint Staff, the JROC. ... [It] is a joint requirements committee that looks at validating requirements. That all happens the same way it always did. Each service will still retain its authority to come in and identify service-unique requirements."

Gen. Ralph E. Eberhart, the USAF officer who commands the multi-service US Space Command, notes that the new system has a built-in safeguard. "There's always a court of higher appeal," Eberhart told the Senate Armed Services strategic subcommittee on July 11. "That court of higher appeal will be the deputy secretary of defense and the Secretary of Defense. ... The Air Force [leaders] must be good stewards here. They must be objective. They must be fair across the board, and if they're not, people will cry foul, [and] it'll go to the Secretary of Defense."

Hamel pointed out that the preponderance of space capabilities today really are joint in nature. Example: satellite communications, all of which support joint warfighting.

The space initiatives are meant to put a sharper focus on space and promote a stronger advocacy by giving the Air Force DOD-wide responsibility for planning, programming, and budgeting.

"We will continue to see other services and agencies acquire systems that can exploit space information and communications and the like," Hamel said, "but we would imagine we would be responsible for ... pulling together the integrated plans and developing the overall programs and roadmaps across the DOD, and so we've had to be talking with the other services."

Mauldin pointed out, however, the services operate in different mediums and with different platforms, and so there will always be some differences in priorities.

"We will all continue to rely on established organizations and procedures to accomplish fair and equitable treatment of space," Mauldin said. The Navy space commander added that the key is to "get your facts straight" and then make a credible case for your service's needs.

Rumsfeld's new plan makes the undersecretary of the Air Force the acquisition authority for space pro-

grams DOD-wide. This official's power is far from absolute. The Office of the Secretary of Defense still maintains the ultimate authority over all of the military space enterprise. The Joint Staff and JROC are still the authority on requirements. The commander in chief of US Space Command remains the authority on space operations.

Space Control

Of the issues now before the armed services, space control rates high in priority. Space control means having the ability to assure access to space for the United States while denying access to an enemy. Space control comprises surveillance, protection, negation, and prevention.

The Air Force dominates in this area. However, while little discussed, the Army and Navy have both done substantial work in the field of space control.

The Army has long experimented with space-control weapon programs such as the Kinetic Energy-Anti-Satellite (or KE-ASAT) system. One concept calls for building a kill vehicle with a fly swatter-type sail that could come close to a targeted satellite and bat it into a never-ending journey into deep space. This would deny the use of its capabilities to an adversary while not destroying it and creating more space debris that could endanger a US satellite.

This fly-swatter system has been tested. Plans call for building three vehicles that will be put on the shelf for later use as test vehicles.

Army KE-ASAT program officials are working toward a future test in space, though the date is not yet set. Sen. Bob Smith (R-N.H.), a proponent of KE-ASAT, told Army Secretary-nominee Thomas White at his nomination hearing that the service needs to start showing stronger support for the program. If not, said Smith, "then maybe it's time to move it out of the Army and put it in the Air Force, where somebody might believe in the program."

Another Army space-control effort was the Data Collection Experiment, which used the Army's Mid-Infrared Chemical Laser (or Miracl) to send out a concentrated beam of light that "dazzled" an aging US satellite orbiting over White Sands Missile Range, N.M. The laser beam

temporarily blinded the satellite without destroying it.

The Army has set up a space electronic warfare detachment and taken operational control of the Big Crow system, two wide-body aircraft crammed with classified electronic equipment. The system serves as a test platform and is a possible space-control asset of the future.

The Army is examining other similar ideas and is creating several operational requirement documents, which is the first step in developing any program.

On the soldier side, the Army has activated its first space-support battalion, a dedicated space-control unit. Educationally, the Army has begun what it calls "Functional Area 40," a cadre of officers whose career designation will be space operations.

"We're looking at standing up a space division as part of the Army Staff so the Army Staff can be structured to provide support," Cosumano said.

The bulk of Naval Space Command work is in space control, leaning heavily on surveillance, Mauldin said. The Navy needs to warn seagoing commanders when a hostile reconnaissance system passes overhead.

Legacy of Sputnik

Navy involvement traces back to the shock of the Soviet Sputnik launch in 1957. The Defense Advanced Research Projects Agency initiated its Dark Satellite program, which became the Navy's space surveillance system, familiarly known as the "fence." It detects anything that overflies the continental United States, as do ocean-sweeping reconnaissance satellites. It is now undergoing a service-life extension program.

Even after 40 years of service, the fence system still constitutes a critical sensor within US Space Command. As Mauldin notes, every proposed future joint space surveillance architecture includes the fence.

The Navy is evaluating its continued role in space control and how it should evolve. Future improvements are still in the talking and planning stages.

"Too early to say where it will go," Mauldin observed, "but the interest is definitely there."

The Navy is reviewing its space-technology programs and expects to

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Continued from p. 60

continue research and development programs that may lead to advanced oceanographic sensors, a unique requirement for the service.

Naval Space Command also stands "space watch" around the clock, tracking surveillance satellites, running communications satellites, and providing tactical downlink, multi-spectral imagery, and space support to deployed sailors and Marines.

It also runs the Alternate Space-Control Center for US Space Command's primary center at Cheyenne Mountain AFB, Colo.

"We are not expecting to lose any programs or operations" in the reorganization, Mauldin said. "What I expect to gain is an increased synergy and cooperation among the services with better coordination between the various facets of space programs."

For sailors, education and training are also under the microscope. Recently, the service formed a new training and space education division within Naval Space Command. This has ties to the Naval Postgraduate School. Currently the Navy has a space subspecialty but not a clear career path in space.

"There's little doubt in my mind that they [Navy students] can use space knowledge throughout their careers, something that we are seriously beginning to address," Mauldin said.

Army and Navy officials also are taking a close look at the larger picture. The Navy is taking on the issues of space community management and how it fits within the larger space and information warfare command-and-control community. Plans called for the Army Chief of Staff, Gen. Eric K. Shinseki, to receive a formal Army force management analysis examining how to use its space systems and shape its programs. Which programs live or die will be determined by the outcome of the Quadrennial Defense Review, budget deliberations for the Fiscal 2003 budget, and Rumsfeld's military reviews.

The Air Force for many decades has provided the great bulk of US military space funding, perhaps as much as 85 percent of the DOD total, according to some analysts. At times, Army and Navy officials engage in behind the scenes grousing

at the fact that USAF overshadows their contribution and therefore enjoys most of the political and decision-making clout.

Until the advent of the new Administration's management changes, overall space budgets had not been as visible as they could have been.

Rumsfeld's initiatives addressed the perceived need to elevate space on the national security agenda, but the funds for space programs did not see a surge in either the \$5.6 billion Fiscal 2001 supplemental request or in the amended \$328.9 billion Fiscal 2002 defense budget released in late June. Both spending plans focus on quality-of-life measures for service personnel and service combat readiness.

New Conflicts?

However, the Fiscal 2002 DOD budget does request some increased funding in the areas of space-control exercises as well as for the initial program definition for an operational space based radar, Hamel said. Rapid, sustained spending growth in the military space arena could reignite serious service conflicts.

Army Space and Missile Defense Command will continue to run the operational Army Space Command, manage the Army astronaut program, oversee research and development in its space battle lab, and develop requirements and concepts for new communications satellites and other space products that soldiers need to conduct operations, from peacekeeping through high intensity warfare.

"We see that there's potential ... to allow some of those products that were not necessarily accessible to the warfighter to be more accessible," Cosumano said. "That's very, very important. When you have a lighter, more agile force it's important to be able to see first, understand first, and act first."

Those are the qualities the Army emphasizes for its future force, and space capabilities are critical to the power of future Army platforms. With space assets, the Army could use fewer, smarter platforms and better protect its soldiers.

"Over the next two years," said Cosumano, "I'd like to be able to normalize space. ... We really want to make it a part of our everyday [combat plans]."

In fact, a recent wargame played at the Army War College, Carlisle

Barracks, Pa., examined the use and protection of space assets as part of a larger simulation examining concepts of fighting wars with the Army of tomorrow. SMDC's Collins said the game reinforced the Army's belief that space is a vital component in future Army command and control.

The Army would also like to have, at some point in the future, the capabilities provided by a space based radar with a ground moving target indicator ability, Collins said. The Army is working with the Air Force and the NRO in this area. Last year, Congress killed a similar program, Discoverer II, but it remains popular in the armed services. The space based radar "would have a bigger footprint than the [E-8] J-STARS aircraft," said Collins. "And what happens if J-STARS can't fly because of weather or some other reason?"

Plans call for the Air Force's internal realignment to be finished by Oct. 1, Hamel said. The military commanders and their leaders received the official documents during the summer. The largest action calls for the organizational movement of Space and Missile Systems Center, currently under Air Force Materiel Command, into Air Force Space Command.

As for the Army and Navy, the watchword is cooperation, mixed with a large dose of caution.

"Space is bigger than any of us," said Mauldin. "I suspect the real answer is that none of us really want to go it alone. With a focused effort, the real winner will be the warfighter. That is my goal."

Eberhart, the head of US Space Command, believes the Air Force will meet the test. "In terms of being good stewards [as] executive agent, I personally believe the Air Force will step up and do exactly that. ... We'll be much smarter about this in a couple of years as we look back and talk to other services and hear from them that their interests have been represented properly." ■

Ann Roosevelt is executive editor of Space and Missile Defense Report and a reporter with Defense Week, a defense-related publication based in Washington, D.C. This is her first article for Air Force Magazine.

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JSF

A fifth of the Air Force's Instructor Pilots now come from the Guard and Reserve.

IPs from the Total Force

By Bruce D. Callander

SOMEWHERE between the first ride in a primary trainer and checkout in an advanced fighter aircraft, many of today's student pilots encounter a once unheard of situation: The Instructor Pilot is not an active duty Air Force officer.

More and more, the veteran pilot in the cockpit—although wearing the same uniform as the student pilot—is a full-time employee of an airline or some other civilian organization. The typical trainee probably does not even know that his or her instructor is a reservist.

In a new use of its air reserve components, the Air Force has tapped hundreds of Air National Guard and Air Force Reserve Command pilots to become flight instructors with Air Education and Training Command. These IPs now are working at a dozen bases and make up roughly one-fifth of USAF's total IP force. They are involved in activities of all types, ranging from Specialized Undergraduate Pilot Training to graduate flying courses and training of other Instructor Pilots.

Much of the new effort—known as the Instructor Pilot Associate Program—is centered in the 340th Flying Training Group (AFRC) at Ran-



Using Air National Guard and Air Force Reserve Command members as Instructor Pilots is helping USAF keep more active duty pilots in operational rather than training cockpits. Here, Lt. Col. Bruce Patch, an F-16 IP with the 162nd Fighter Wing (ANG) in Tucson, Ariz., goes over some details in a preflight briefing with a Belgian student pilot.

USAF photo by Master Sergeant Meneguini

dolph AFB, Tex., which also is the location of AETC headquarters. The 340th oversees six subordinate training squadrons associated with active duty flight training at Randolph as well as at Moody AFB, Ga., Columbus AFB, Miss., Vance AFB, Okla., and Laughlin and Sheppard AFBs, Tex.

Guard and Reserve IPs also work in Formal Training Units associated with operational C-130H units at Dobbins ARB, Ga., and F-16 units at Luke AFB, Ariz. FTUs train graduate pilots in the aircraft used by combat and support forces.

Regarding the Air National Guard, all of the instructors that it supplies are assigned to these kinds of FTUs. They help to train graduate pilots in the C-130 at Little Rock AFB, Ark., and the F-15 fighter at Kingsley Field, Ore. They also work with F-16 FTUs at Springfield, Ohio, and Tucson, Ariz. Another Guard unit trains F-16 pilots at Kelly Field Annex, Tex.

In both the Guard and Reserve programs, the majority of IPs work as airline pilots.

Schedule Alignment

"It works out well for people with irregular schedules," said Col. John O'Connor, AFRC advisor to the commander of AETC. "The traditional Guardsman or Reservist usually participates on the weekends, but in the training world, we need them to participate Monday through Friday, because that's when the pilot training and the graduate training is occurring.

"So, it turns out the young airline pilot usually has the worst civilian schedule. He or she has to fly on the weekends and holidays. They are more frequently available on the weekdays, which fits right in with where we need them. So, it is turning out to be a fairly synergistic relationship."

Just having time to spare is not, in itself, sufficient reason for a Guard or Reserve pilot to win a coveted flying slot in the training units. They must be highly qualified.

IPs assigned to fly in the T-37, T-6, or T-1 aircraft, said O'Connor, must have had a major weapons system designator and have been at least an aircraft commander in that aircraft. In the T-38 and the AT-38 program, they need a fighter pilot



Photo by Erik Hildebrandt

Kingsley Field, Ore., the home for these ANG F-15s, is the site of a Formal Training Unit—run by Guardsmen—which provides the first actual combat aircraft training for future F-15 fighter pilots.

background with a minimum of 350 hours.

A few exceptions apply: About 10 to 15 percent of the T-38's reserve instructors are pilots with experience in bombers, primarily the B-1. It is an aircraft that requires what O'Connor calls "the fast-mover type of skills."

The decision to move the Guard and Reserve pilots into AETC flying units preceded but generally accords with an Air Force initiative called "Future Total Force," which was launched in the late 1990s and headed up by the Air Force Directorate of Strategic Planning. Under the Future Total Force umbrella, USAF is examining numerous ideas and concepts that promise to produce better integration of the Guard and Reserve with the active duty forces. The goal: help the Air Force operate more efficiently and with more capability, for less cost.

"On the [AFRC] side we have 507 Instructor Pilots now supporting the six pilot training bases," said O'Connor, "and 81 percent are prior AETC instructors."

Of those 507 AFRC Instructor Pilots, just 85 are Active Guard Reservists, the colonel said. They are called to active duty status for specific periods. The other IPs are "traditional" reservists, who work full time in civilian jobs and part time with the training squadrons.

"AGR is full-time active duty sta-

tus," explained Col. John C. Chase, ANG advisor to the AETC commander. "The part-time guys are, in effect, training for their wartime mission, which is to be Instructor Pilots. That's how the mission statements are written for both the Guard and the Reserve."

There is a third category of reserve members known as "technicians." They hold full-time jobs with Guard and Reserve units in civilian status and dual status as reserve members of their units. While technicians may play training roles with their own units, the colonel said, they are barred by law from training active duty members.

Dual Status

Once in the program, the reserve pilots have a dual status. "In the [Specialized Undergraduate Pilot Training] world," said O'Connor, "Air Force Reserve Command has administrative control over the Reserve IPs, but when they are flying with students in the active duty airplanes on a day-to-day basis, they are under the operational control of the active duty force."

It works like this: When an AFRC captain shows up to work as an Instructor Pilot, his AFRC unit cuts his orders and makes sure that his pay and flight status make it legal for him to fly the airplane. But he takes direction from the active duty unit when it comes to what flight he is going to fly with, what mission he



A wrinkle in the reservist IP effort is movement of some training from Columbus AFB, Miss., and Randolph AFB, Tex. (shown here), to Moody AFB, Ga. The changes make for long commutes. "We're probably going to lose some [IPs]."

is going to perform, and all other operational control issues.

For the part-time reservists, AETC has worked out what amounts to a job-sharing plan. In effect, it takes three part-time reservists to equal one full-time instructor. Officials admit that the arrangement poses some scheduling problems.

"In the interview process," said O'Connor, "we tell the reservist candidates that we are looking for people who will fly with us six to eight days a month. That's the time on station. If it takes him a day to travel out to a place like Laughlin or Columbus, he needs to add a day on the back and on the front. What most of the part-time reservists will do is break that into two visits a month and we'll see them for three days twice a month."

That is the typical procedure, but if a person is between jobs or is not fully employed elsewhere, AETC has enough flying opportunities to keep the pilot working Monday through Friday in every week that the Air Force flies.

Most reservists instruct at bases close to their homes, but like active duty members, they can't count on staying in place indefinitely. A mission change currently under way, for example, calls for concentrating all of AETC's Introduction to Fighter Fundamentals course work at Moody. IFF training has been phased out at Columbus and will stop at Randolph by the end of the year.

"All of the IP positions [at Colum-

bus and Randolph] will move to Moody," said O'Connor, "and those who are in those positions will be expected to move."

That, O'Connor quickly explained, doesn't necessarily mean that all will move physically, in the sense of taking families to the local area. However, they will be expected to participate at Moody. Of the AFRC IPs at Columbus, all but one are now participating at the Georgia installation.

Reality Bites

"We expect that when the reality of the long commute sets in, we're probably going to lose some of them," said O'Connor. "We may lose a few more in the Randolph transition. Many of the AFRC AT-38 Instructor Pilots here live in the San Antonio area, and the commute to Moody from San Antonio is going to be a little more cumbersome, so we're expecting more attrition among the 16 IPs who currently fly AT-38s at Randolph."

O'Connor believes that some may opt out of the flying program altogether. If Air Force needs permit it, others may be allowed to cross-train into a different trainer aircraft. They could teach in the T-6 or the T-37 for as long as AETC flies it, said O'Connor.

In the case of the traditional part-time reservists, the Air Force has no legal power to force changes of location.

"In the Guard and Reserve," said

O'Connor, "we have the ultimate volunteer program. Active duty members have service commitments, but the way the laws are currently written, even if a Guardsman or a Reservist goes to a formal training school, we don't have the same legal hold on him or her to continue to participate for a requisite number of years. We look deep into their eyes and press the issue—that, if we are sending them to school, we expect three years of participation, but we do not have something enforceable in court if they don't show up."

Nor do the reserves have all the incentives the active force uses to entice pilots to stay in service longer.

"There is a bonus system for reservists," said O'Connor, but only for the full-time reservists. "We're working hard to get a bonus program for the part-time traditional Reservists and traditional Guardsmen as well but we don't have it yet."

Popular Duty

Among the jobs the reserve components have taken on in recent years, IP duties may be the most popular. O'Connor said, "With the Guard and Reserve doing far more with the operational Air Force, the AETC mission is pretty attractive. We don't deploy to the desert, we don't wear gas masks, and for the moment anyway, we don't have to take anthrax shots. We offer a pretty attractive lifestyle to the Reservist and Guardsman who might be a little tired of his or her third deployment to air refueling tracks over the Red Sea."

Like the use of Guard and Reserve members to augment combat units, this active duty-reserve training partnership is designed to help the Air Force overcome or at least ease the effects of a shortage of active duty pilots. It also is another of the Air Force's efforts to recapture the skills and abilities of the pilots that USAF could not hold for full careers.

The helping hand never has been needed as much as it is today. During its recent drawdown, the Air Force cut its pilot training and diverted many new graduates into ground jobs until it could deplete temporary rated overages. Over the same period, it suffered poor retention among experienced pilots as the smaller force strained to meet new commitments.

In the late 1990s, USAF moved to

rebuild its rated force, but it was haunted by the effects of the draw-down actions and was plagued by continued poor retention. Pilot over-ages swiftly disappeared and the service suddenly faced shortages.

To counter the trend, USAF increased undergraduate pilot production from a low of about 350 students per year in 1993 to today's annual rate of 1,100. The higher production rate presented a new set of problems, however. It required even larger numbers of flight instructors. With pilot losses still running high, the service was hard pressed to spare more fliers from operational units to man training units. In addition, many of the Instructor Pilots already available were leaving after their initial commitments.

In 1997, AETC officials came up with a plan which they believed would provide at least a partial solution. They proposed tapping the reserve components for Instructor Pilots to serve in the undergraduate training program. While the active force was suffering a hemorrhage of experienced pilots, the reserve forces were enjoying a surge of applications (from the same people who were leaving active duty). Moreover, the experience level of these reserve fliers was higher.

USAF leaders approved a test of the idea, and not long afterward, 40 Reserve pilots reported to Columbus and Vance to join active duty training squadrons flying T-38s.



Staff photos by Guy Acello

Some IPs AFRC officials expect to lose in the shift from Texas to Georgia currently train students in AT-38s, like this one, at Randolph. A few may leave flying altogether, but USAF may be able to take some into other training aircraft.

The initial program was funded by AETC and Air Force Reserve Command, but USAF soon gave it top-level support. A broader and formalized program came into being with the activation of the 340th FTG at Randolph.

As the active-reserve partnership spread to other AETC schools, the Air Force's four-star Corona conference approved extending the concept to graduate pilot programs. Guard as well as Reserve units were being linked with their active duty counterparts at bases such as Little Rock AFB, Ark., Tinker AFB, Okla.,

and Tyndall AFB, Fla. Similar arrangements have moved reserve IPs into AETC's training courses for Instructor Pilots and for foreign students.

Major Changes

Until fairly recently, the reserve IPs working for AETC would have been limited to undergraduate training schools, but the training world itself also has undergone major changes.

"AETC's mission used to stop when it graduated a new pilot and sent him or her off to an operating command," said O'Connor. "The operating commands ran their own training programs. Over the last six years, however, AETC has been given the task of all the flight training including the graduate course in Introduction to Fighter Fundamentals and most of the FTUs."

In IFF, AETC keeps the "baby" fighter pilots in the airplanes with which they are familiar, and since they just came out of the T-38, they stay in that.

"Now," said O'Connor, "we have to teach new concepts. IFF is brain training for these young people on how to maneuver the aircraft more aggressively than they did in [Specialized Undergraduate Pilot Training], how to use the altitude regime and energy management schemes in order to build a foundation of skills so that when we do introduce them to the new airplane with the more



Unlike their active duty counterparts, reservists can't be forced to move. So, one option for USAF and AFRC is to allow those AFRC IPs at Randolph soon to be out of AT-38 jobs to cross-train into the new T-6 trainer, also used at the Texas base.



Even the supply of reservists for IP duty has its limits. Like other ANG and AFRC assistance to the active force, the nagging question has to be: How much further can the reserve components be stretched?

advanced avionics the fighter fundamentals will have become something they don't have to think about any more."

Handpicked

The pilots go from there to the Formal Training Units, which have taken the place of the old Replacement Training Units in the operational world. AETC now runs FTU training for pilots flying any aircraft other than the B-1, B-52, and F-117. Training in those three aircraft is specialized, and IPs are handpicked from among pilots with previous experience. The B-1, B-52, and F-117 FTUs are still run by Air Combat Command.

"When they go into [the FTU] world, there also is Reserve and Guard augmentation," said O'Connor. "We call that the 'gray jet world,' as opposed to the undergraduate training's 'white jet world,' holdover from the days when all AETC planes were painted white. In the gray jet world, we have air reserve technicians who support the C-130 training program and the KC-135 training program, and the Guard has technicians in the F-15 and F-16 world."

AETC has not only taken on more of the graduate training load but has overhauled its undergraduate curriculum as well. Through much of its history, the air arm sent all pilots through essentially the same training course, dividing them only between single- and twin-engine aircraft in the advanced phase. A few

years ago, however, AETC adopted the "track" system under which undergraduates specialize in fighter/bomber or airlift/tanker aircraft. Specialized Undergraduate Pilot Training was phased in over a period of years and now is standard.

If all goes well, the increased pilot production should relieve the rated shortage and provide the Air Force with more active duty Instructor Pilots. Will the Guard and Reserve IPs then be relieved of the duty?

O'Connor doesn't think so.

"We in the Guard and Reserve are treating this as a career program," he said. "We have the ability to bring people in as captains and grow them all the way up to the O-5 [lieutenant colonel] level out in the field, and we can let them compete for full colonel positions here at the headquarters. So, we're not thinking of the program as a part-time filler."

He added that the active force views the program as "a tremendous resource" for the service.

"Here we have people who have combat experience and several thousand flying hours," said O'Connor. "Although they are leaving the active duty force, the Guard and Reserve program offers a safety net, where we can catch a few of them

and keep them as participants. That high degree of experience is transferred not just to the new student pilots but to the new pilots who are going into IP duty as their first assignments. Often, these young active duty IPs will turn to the Reserve and Guard instructors for advice."

The Air Force believes that the use of reserves also is cost-effective. Although there have been some program start-up costs, said O'Connor, picking up a pilot who already is trained is cheaper than growing a new one. Chase added that the reserve IPs are likely to remain in place for years, whereas active duty pilots must be replaced periodically.

How Much Further?

A more critical question may be how much further the reserves can go in helping the active force in its training and other missions. Like the active force, the Guard and Reserve are carrying heavy loads in their operational forces, and although they have been doing well at picking up pilots when they exit active duty, that supply is not inexhaustible.

"I think we are pretty close to the line," said O'Connor. "When we first ramped up the IP program, we had a lot more applicants. Now, the number of active duty people getting off active duty is diminishing."

That is happening because in 1992-93 the Air Force was producing only 300 to 350 pilots a year. The commitments of those people are now ending. Even if all 350 of those pilots were to come into the Guard and Reserve, the service still couldn't fill all of the Instructor Pilot needs right now.

"Therefore, we see a lot more of what we call 'initial entries,'" said O'Connor. "We're taking more second lieutenants directly into the Guard and Reserve and putting them into pilot training. The experienced prior-service pilots are getting harder and harder to come by. I think we're close to pressing the limits of Reserve and Guard assistance to the active duty mission."

For now, however, the active-reserve partnership is a going concern. And just at the right time. ■

Bruce D. Callander, a regular contributor to Air Force Magazine, served tours of active duty during World War II and the Korean War. In 1952, he joined Air Force Times, serving as editor from 1972 to 1986. His most recent story for Air Force Magazine, "The Return of Kelly Field," appeared in the July 2001 issue.



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US Joint Forces Command keeps looking for it, with mixed results so far.

the Quest for Jointness

By Otto Kreisher

THE 1983 Grenada rescue mission went into the books as a success, but there was no denying that major problems had plagued its hastily assembled US Air Force, Army, Navy, and Marine Corps units. Their radios and tactics and even their maps were incompatible. At times, near-confusion reigned.

The 1991 Persian Gulf War was carefully prepared, but even there, mismatched computers and differing operational concepts weakened the air campaign. In Operation Allied Force in 1999, the Army was unable to integrate its Apache attack helicopters into the joint force Balkan air campaign.

These are examples of the kinds of disconnects that are said to hamper US power, prolong conflicts, and cause unnecessary casualties, despite repeated efforts to blend service capabilities into a unified force. Congress and the Department of Defense hate such disconnects. For decades,

they have pursued the ideal of "jointness," and while they haven't fully succeeded, they show no signs of giving up.

Far from it. US Joint Forces Command, a multiservice organization whose creation was pushed by Congress, is working harder than ever to close gaps between individual service procedures, systems, and doctrine that are said to be blocking the path to the attainment of true jointness. And the services themselves appear determined to do their part.

The bedrock of the unification effort is the work performed by the command's Joint Experimentation Directorate, which directs tests and experiments to develop and demonstrate new concepts, tactics, and hardware needed to integrate service operations. It is an urgent task, contends David Ozolek, who is deputy director of the directorate's Joint Futures Laboratory.



talk to the Army troops or the Air Force AC-130 gunships with whom they had to coordinate.

■ **The Gulf War.** The Navy had stationed six huge aircraft carriers in nearby waters. However, the communications systems on the carriers were not equipped to handle USAF's computer-generated air tasking order, the blueprint that was supposed to guide all coalition combat air operations in the theater. As a result, Navy warplanes at times didn't participate. Elsewhere, Marine officers shifted their airplanes from the combined air war to the support of their own ground forces, which Marines view as the main purpose of their organic airpower.

■ **Allied Force.** The Army's Task Force Hawk in Albania, equipped with AH-64 Apache attack aircraft, demonstrated problems with how the Army operates in a joint environment, said a recent General Accounting Office report. The Army had no established procedure for integrating the Apaches into the USAF-led NATO air campaign plan. In the end, concern about their effectiveness and vulnerability kept the Apaches on the ground, anyway.

Though DOD formally established USJFCOM in 1999, Congress had actually launched the new jointness push years before. In 1993, DOD handed US Atlantic Command the mission of developing joint capabilities for the US military, changing its acronym from LANTCOM to USACOM. In 1998, the Pentagon made USACOM the executive agent for joint warfighting experimentation. It was renamed US Joint Forces Command on Oct. 7, 1999.

The first USJFCOM Commander in Chief (and last for USACOM), Adm. Harold W. Gehman Jr., jumped into the effort with exceptional combativeness. He vowed to "duke it out" with the service chiefs in Washington, if necessary, and "capture" major service exercises "for our own use" in instilling jointness.

Picking Winners and Losers

Gehman claimed, for example, that his standing as the leader of joint experimentation would allow him to select which service warfighting concepts would or would not be approved—a statement tailor-made to infuriate service leaders. It seemed to be a deliberate provocation.

"I've received nothing but prom-

ises of cooperation from the services," said Gehman. "However, I have not progressed far enough where I've bumped up against anybody yet. So, stay tuned. Wait until next year—until I take somebody on or lay some marker down. ... When it starts costing money or starts bumping up against the service doctrine or something like that, or if we start picking winners and losers, which we will eventually have to do, then I can anticipate loud, sucking noises through front teeth."

Duking It Out

He went on, "When it finally gets down to it, this is going to be a choice of resources and doctrinal issues. ... I will come to town, equally armed as a service chief. Now, people are starting to get nervous. And we will start to duke it out."

Two years later, near the end of his tenure, Gehman struck a more collegial pose, making this statement in April 2000 to a group of defense reporters: "[Duking it out] has not happened. I am gratified at that. It probably has not happened mostly because we've become smarter at what we do. ... I don't have any authority. I am not a czar. My job is to go out and find the right answer and to advocate the joint interoperable approach. ... I am the advocate of interoperability."

Even so, Gehman asserted that, in about half a dozen areas, joint requirements should supersede service requirements.

Last year, command of USJFCOM was taken by Army Gen. William F. Kernan, a move that broke a decades-long naval stranglehold on the Norfolk, Va.-based headquarters. (All of its commanders had been US Navy or US Marine Corps officers.)

Vice Adm. Martin J. Mayer, USJFCOM deputy Commander in Chief, said the command's efforts are focused on C⁴ISR (Command, Control, Communications, and Computers plus Intelligence, Surveillance, and Reconnaissance). The goal is to enable future commanders "to shorten our decision time," said the admiral.

Other areas of experimentation are: combat identification, theater air and missile defense, attack operations against critical mobile targets, deep strike and battlefield interdiction,

"In the past, we really haven't fought a joint campaign," said Ozolek, a retired Army colonel. "What we've fought are air, maritime, and land campaigns that were unified by a joint commander's vision and intent." In Ozolek's view, "The joint forces commander was in the role of—at worst—deconflicting those service capabilities and—at best—trying to synchronize them and get them to work on common objectives."

As jointness advocates tell it, one need only examine recent operations to see the kinds of problems USJFCOM is trying to fix.

■ **Grenada.** It was an operation to rescue US students caught in the chaos of a bloody power struggle on that Caribbean island. However, the lead Army commander could not make contact with Navy warships just offshore. He had to fly out to the flagship to communicate with the admiral in overall command. Marines who had come ashore could not

joint deployment, joint simulation, and battlefield awareness. The joint experimentation directorate already is working on a joint interoperable planning process that would "create an environment for collaborative planning and decision making," Ozolek said. It is, in short, a standing joint service headquarters.

He went on, "Today, when we form a joint headquarters, we typically grab a service command ... [and] designate it a joint task force, then try to fuse some joint capability into that. That has not always been as successful as we'd like."

According to a USJFCOM statement: "The current joint task force is an ad hoc organization. It is widely acknowledged that a standing joint force headquarters will greatly improve our response to world situations."

Ozolek explained that USJFCOM proposes to develop and hand over to the regional CINCs "some inherently joint capability" to be on the scene "before they form the joint headquarters." Then, they can "feed the service connections" into the core group. That should give the CINCs' staff the power to begin planning for a contingency much earlier than is usually the case.

Army Lt. Col. Kevin Woods, who served as the director of USJFCOM's latest major experiment, said the concept of the "joint standing headquarters" would replace the current "ad hoc method" of creating a staff for contingency operations. One would be based in the geographic area of each CINC.

Even with service augmentation, Woods said, the forward based staff should be kept small in number. It should have reachback capability—that is, the ability through telecommunications to communicate instantaneously with experts in the Pentagon, State Department, and other security institutions.

Army Col. Chris Shepherd, another leader of the experimentation unit, said the advantage of having a full-time "core" joint staff element located in a theater is that its members would be familiar with their duties and the region and not have to catch up with events, as is true with the current system.

Officials at USJFCOM emphasize that much initial work is focused on ways to quickly combine different

capabilities of the services, which mainly means generating improvements in communications.

Ozolek explained that the experimenters seek to develop a means for creating a "common relevant air picture" by linking all the US military sensors, blending their data, and distributing the picture rapidly throughout the forces in action.

"I'm a big fan of standing joint task force headquarters," Kernan said July 17 in Washington. "The power of a standing joint task force [head-

**RDO:
A concept to
achieve rapid
victory by
attacking the
coherence of
an enemy's
ability to fight
[by using]
effects-based
operations.**

quarters] is that you get people assigned for three or four years, they develop their staff procedures, they get to know one another, there's a personal relationship that enables them to [do] things fairly quickly."

Rapid Decisive Operations

The command also has gone to work refining the concept of Rapid Decisive Operations. USJFCOM's official definition: "A concept to achieve rapid victory by attacking the coherence of an enemy's ability to fight. It is the synchronous application of the full range of our national capabilities in timely and direct effects-based operations. It employs our asymmetric advantages

in the knowledge, precision, and mobility of the joint force against his critical functions to create maximum shock, defeating his ability and will to fight."

RDO is at the center of a USJFCOM plan to conduct a series of experiments in future years. The two-phase joint experiments will have the phases occurring in successive years. The first step of the current pair, conducted in May, was called Unified Vision 2001. It used computer simulation with opposing teams of active and retired senior officers to test an RDO in a realistic multiservice operation projected as occurring later in this decade. It was a high-end, small-scale contingency that had the potential to escalate to a major theater war.

In describing the experiment, the participants used a number of terms and concepts with a clear Air Force pedigree.

The experiment employed effects-based warfare to attack the coherence of an enemy. "Instead of attacking his warfighting capabilities, we attack his war-making capabilities," Ozolek said, using terms commonly used by Maj. Gen. David A. Deptula, now in charge of USAF's input to the Quadrennial Defense Review.

Retired Marine Gen. Charles E. Wilhelm, former Commander in Chief of US Southern Command, was the joint forces commander for the three-week test. He said the first week involved studying and refining the operational net assessment, the second week shifted into effects-based planning, and the final week saw the conduct of effects-based operations in the RDO context.

A key part of RDO is the operational net assessment, which can enable a commander "to assess an adversary as a system of systems" and attack him as such, Wilhelm said.

Following in the wake of Unified Vision 2001 will be Millennium Challenge 2002. That experiment is to use essentially the same conditions, scenario, and force structure seen in Unified Vision 2001, only with the employment of thousands of real forces operating on land and sea and in the air over much of the southwestern United States, Ozolek said.

In the future, USJFCOM will re-

Continued on p. 76.

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Continued from p. 74.

peat the cycle to perfect concepts and equipment tested earlier and to work on new ideas and gear.

Service Support

Surprisingly, perhaps, the services appear eager to get USJFCOM's help in improving joint operations, Ozolek said. A survey of the services' own experimentation verified the claim.

Lt. Col. Daniel Bryan, deputy director of assessments for the Air Force Experimentation Office at Langley AFB, Va., said it merged its Expeditionary Force Experiment with Millennium Challenge 2000. It will do the same with the 2002 experiments.

"We're pretty excited and pleased with the way it lines up with Millennium Challenge '02," he said of USAF's experiment.

Rear Adm. Robert Sprigg, commander of the Naval Warfare Development Command at Newport, R.I., said the Navy adjusted the schedule for its fleet battle experiments to tie them in with USJFCOM's trials. "We think the insights we gain early in a joint environment will give all our services the information they need to avoid some of the pitfalls that we've seen in the past, when some of our systems were less than interoperable," Sprigg said.

The Army and Marines have done the same with their previously independent experiments. The Army intends to test the capabilities of its emerging "objective force" in the Millennium Challenge 2002 experiments.

While many regard USJFCOM's steps as necessary and overdue, the view is not unanimous. The rise of jointness at least implies some decline in the power of the individual services. Some officers express concern that USJFCOM will try to dictate terms on weapons and other types of equipment, areas traditionally in the domain of the service chiefs and senior generals and admirals.

"I believe we all can work together on this," observes Gen. James L. Jones, Commandant of the Marine Corps. He added, however, that there could be clashes between the services' Title 10 duty to organize, train, and equip their forces and USJFCOM's duties to seek jointness. "That's something we're working on," said Jones

"I don't know how that's going to

fall out," Bryan said about the procurement process. Although he expected USJFCOM to make recommendations based on its experiments, he felt confident it would not interfere with the services' choice of weapons.

To a man, USJFCOM officials vowed they will not try to direct the services' own transformation processes or weapon development. Mayer emphasized, "Hardware is the services' prerogative. We don't do that." For example, he said, "We will not tell the Navy how to build a ship."

**Hardware
is a service
prerogative, say
USJFCOM
officials. How-
ever, they plan
to establish
"joint
intent" prior
to weapon
development.**

Ozolek contended, "I don't see the joint experimentation program as a threat to the services' force development role. I see it as a tool they can use to assist their own force development. [The services] still retain primacy within their core competencies. We're not going to tell them how to fight a ... battle or how to build the systems required to do that."

Joint Intent

However, USJFCOM does plan to establish what it calls the "joint intent" at the start of each service's weapon development process. If the joint intent precedes the services' development of forces or operational concepts, explains Ozolek, "it will

allow us to take jointness down to the lowest common level." It would allow a future unified combat leader to "move from deconflicting to synchronizing" his forces, he said.

The new push for jointness has the support of the Bush Administration. It added \$15 million for joint experimentation in its supplemental defense appropriation request for Fiscal 2001 and then doubled—to \$100 million—the annual funding for joint experiments in the 2002 budget.

Experimentation got a political boost recently. Two studies commissioned by Defense Secretary Donald Rumsfeld emphasized, on the one hand, the need for more joint experimentation and, on the other hand, the need for formation of intrinsically joint headquarters and even fighting forces.

The so-called Conventional Forces Study concluded that the greatest untapped potential for US forces is "truly integrated jointness." Its highest investment priorities were joint Command-and-Control systems, which the study chairman, David C. Gompert, called "absolutely essential." Most C² systems are not built for integrated operations, said Gompert, adding, "If we're serious about taking jointness to the next level, there has to be a significant investment to replace non-interoperable joint Command-and-Control systems with interoperable ones."

The Conventional Forces report also recommended formation of joint response forces, which it described as "operationally joint capabilities" provided by the services to be integrated and used by a theater CINC.

Retired Air Force Gen. James McCarthy, who led Rumsfeld's Transformation Study, reported that the "integration and synergy that true jointness brings is the most powerful transformation concept." McCarthy said service transformation should focus on forming "Global Joint Response Forces," which could provide in 24 hours a fully integrated, long-range, multiservice strike force able to set the stage for larger intervention. ■

Otto Kreisher is a Washington, D.C.-based military affairs reporter for Copley News Service and a regular contributor to Air Force Magazine. His most recent article, "Flying the Unfriendly Skies of America," appeared in the June 2000 issue.

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The Chart Page

By Tamar A. Mehuron, Associate Editor

The Defense Budget at a Glance

In June, President Bush presented his amended defense budget for Fiscal 2002. The document requests \$328.9 billion in budget authority and \$312.9 billion in outlays for the direct program (DOD activities only). The budget request for the total national defense program (DOD activities and defense activities in the Department of Energy and other federal agencies) is \$344.6 billion in budget authority and \$328.6 billion in outlays.

Funding levels can be expressed in several ways. Totals are most frequently stated in **budget authority**, which is the

value of new obligations that the government is authorized to incur. These include some obligations to be met in later years. Figures can also be expressed in **outlays** (actual expenditures, some of which are covered by amounts that were authorized in previous years).

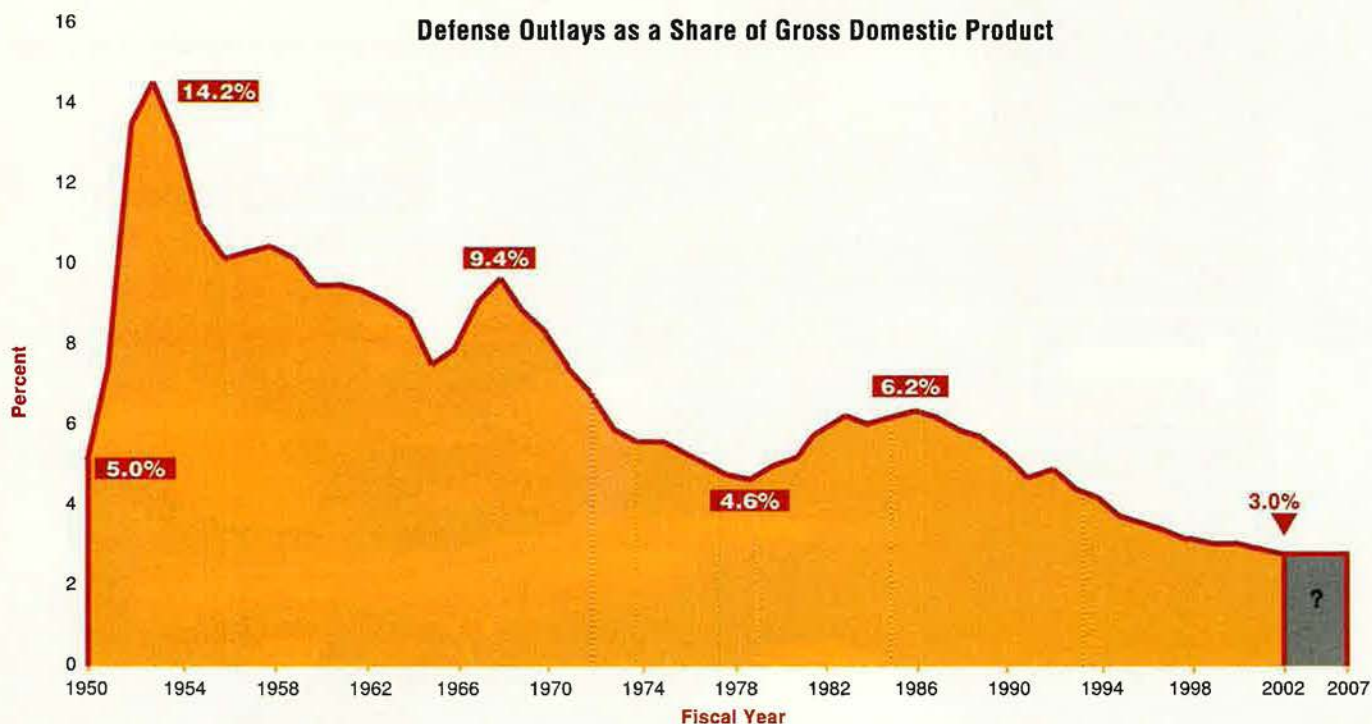
Another difference concerns the value of money. When funding is in **current or then-year dollars**, no adjustment for inflation has taken place. This is the actual amount of dollars that has been or is to be spent, budgeted, or forecast. When funding is expressed in **constant dollars**, or **real**

dollars, the effect of inflation has been factored out to make direct comparisons between budget years possible. A specific year, often the present one, is chosen as a baseline for constant dollars.

The following charts address only the Defense Department program. In some instances, numbers on the charts in this section may not sum to totals shown because of rounding. Years indicated are Fiscal Years. Civilian manpower figures are now measured in terms of Full Time Equivalents.

	1999	2000	2001	2002	
DOD Budget Topline (\$ billions)	Budget authority				
	(current)	\$278.4	\$287.3	\$296.3	\$328.9
	(constant FY 2002)	\$300.7	\$303.4	\$304.8	\$328.9
	Outlays				
(current)	\$261.4	\$281.2	\$283.9	\$312.9	
(constant FY 2002)	\$282.5	\$297.0	\$292.0	\$312.9	

President Bush's Fiscal 2002 budget is the first installment of a new six-year Future Years Defense Program. However, he did not present any figures for the outyears 2003-07.



Source: US Department of Defense.

Service Shares

(Budget authority in constant \$ billions)

FY 2002 \$ billions	1999	2000	2001	2002
Air Force	88.5	87.8	88.3	95.0
Army	73.9	77.1	75.3	79.5
Navy/Marine Corps	90.5	93.5	95.7	98.1
Defense agencies	47.9	45.2	45.7	56.2
Total	300.7	303.4	304.8	328.8
Percentages				
Air Force	29.4%	28.9%	29.0%	28.9%
Army	24.6%	25.4%	24.7%	24.2%
Navy	30.1%	30.8%	31.4%	29.8%
Defense agencies	15.9%	14.9%	15.0%	17.1%

President Bush's Fiscal 2002 budget is the first installment of a new six-year Future Years Defense Program. However, he did not present any figures for the outyears 2003-07.

Force Structure Changes

	Cold War Base 1990	Base Force	BUR Plan	1997 QDR Goal	Plan 2002
Air Force					
Active fighter wings	24	15.3	13	12+	12+
AFRC/ANG fighter wings	12	11.3	7	8	7+
Army					
Active divisions	18	12	10	10	10 ^b
Army National Guard/Reserve	10	8 ^a	8	8	8 ^c
Navy					
Aircraft carriers					
Active	15	12	11	11	12
Reserve	1	1	1	1	0
Carrier air wings					
Active	13	11	10	10	10
Reserve	2	2	1	1	1
Marine Corps					
Active Marine Expeditionary Forces	3	3	3	3	3
Reserve Marine Expeditionary Force	1	1	1	1	1

^a Comprising 34 brigades.

^b Plus two armored cavalry regiments.

^c Plus 18 separate brigades (15 of which are at enhanced readiness levels).

Operational Training Rates

	1990	1998	1999	2000	2001	2002
Air Force						
Flying hours per crew per month, fighter/attack aircraft	19.5	17.0	17.7	17.2	17.1	17.1
Army						
Flying hours per tactical crew per month	14.2	11.4	11.8	12.7	14.5	14.0
Annual tank miles ^a	800	600	601	669	800	730
Navy						
Flying hours per tactical crew per month	23.9	20.2	21.5	20.9	17.8	22.6
Ship steaming days per quarter						
Deployed fleet	54.2	50.5	50.5	50.5	50.5	50.5
Nondeployed fleet	28.1	26.8	26.1	28.0	28.0	28.0

^a Excludes National Training Center miles.

Major USAF Programs RDT&E

(Current \$ millions)

Program	2000	2001	2002
B-1B bomber	155.7	156.7	194.5
B-2 bomber	286.4	129.1	155.0
C-5 transport	55.9	91.7	166.5
C-17 transport	153.3	174.8	110.6
C-130J transport	8.6	59.9	80.5
CV-22 transport	0.0	0.0	10.0
E-3 AWACS	43.4	35.3	39.8
E-8 Joint STARS	135.6	147.8	147.9
F-15 fighter	120.9	68.2	101.4
F-16 fighter	106.6	122.8	110.8
F-22 fighter	0.0	0.0	16.1
F-24 fighter (JSF)	249.1	351.2	769.5
T-6 JPATS	0.0	0.0	0.0
AIM-120 AMRAAM	49.6	53.2	57.7
JDAM	11.3	11.1	28.0
JASSM	154.4	115.2	79.2
AEHF satellite	89.8	244.1	549.7
DSP satellite	7.7	9.4	6.4
GPS satellite	145.9	325.0	317.9
Milstar satellite	345.6	235.2	232.1
SBIRS-High satellite	400.3	564.0	405.2
SBIRS-Low satellite	218.1	238.8	0.0
Airborne Laser	311.4	231.5	0.0
Space Based Laser	68.9	72.5	0.0
Space Based Radar	0.0	0.0	0.1
Titan IV booster	30.8	25.6	21.3
EELV booster	322.0	329.9	320.3
Minuteman III ICBM	0.0	0.0	0.0

Major USAF Programs Procurement

(Current \$ millions)

Program	2000	2001	2002
B-1B bomber	113.7	48.3	95.5
B-2 bomber	17.2	24.5	11.9
C-5 transport	75.3	94.5	103.2
C-17 transport	2,774.5	2,673.6	3,015.1
C-130J transport	136.0	295.3	221.8
CV-22 transport	21.5	332.5	95.1
E-3 AWACS	114.5	87.8	92.5
E-8 Joint STARS	209.3	281.4	366.2
F-15 fighter	574.4	715.5	212.2
F-16 fighter	509.1	426.9	232.0
F-22 fighter	288.5	2,130.4	2,658.2
F-24 fighter (JSF)	0.0	0.0	0.0
T-6 JPATS	107.4	131.5	228.4
AIM-120 AMRAAM	83.6	97.8	104.7
JDAM	189.2	214.9	187.3
JASSM	0.0	0.0	45.0
AEHF satellite	0.0	0.0	0.0
DSP satellite	100.5	105.4	112.5
GPS satellite	107.5	155.7	177.7
Milstar satellite	0.0	0.0	0.0
SBIRS-High satellite	0.0	0.0	93.8
SBIRS-Low satellite	0.0	0.0	0.0
Airborne Laser	0.0	0.0	0.0
Space Based Laser	0.0	0.0	0.0
Space Based Radar	0.0	0.0	0.0
Titan IV booster	399.4	406.0	385.3
EELV booster	68.1	280.4	98.0
Minuteman III ICBM	269.6	371.7	552.7

Cutting the Pie: Who Gets What

(Budget authority in constant FY 2002 \$ billions)

	1999	2000	2001	2002
Military personnel	76.4	77.9	77.6	82.3
O&M	113.4	114.1	111.0	125.7
Procurement	55.0	58.1	63.9	61.6
RDT&E	41.4	40.9	42.0	47.4
Military construction	5.8	5.4	5.5	5.9
Family housing	3.9	3.7	3.7	4.1
Other	5.0	3.3	1.9	1.9
Total	300.7	303.4	304.8	328.9

Manpower

(End strength in thousands)

	1990	1999	2000	2001	2002	Change 1990- 2002	1997 QDR Goal
Total active duty	2,065	1,390	1,382	1,382	1,388	-677	1,360
Air Force	535	366	358	357	359	-176	339
Army	751	480	480	480	480	-271	480
Navy	582	372	372	372	376	-206	369
Marine Corps	197	172	173	173	173	-24	172
Selected reserves	1,128	877	864	866	?	?	835
Civilians (FTE)	997	724	699	683	?	?	640

Acronyms

AEHF	Advanced Extremely High Frequency
AFRC	Air Force Reserve Command
AMRAAM	Advanced Medium-Range Air-to-Air Missile
ANG	Air National Guard
AWACS	Airborne Warning and Control System
BUR	Bottom-Up Review
DSP	Defense Support Program
EELV	Evolved Expendable Launch Vehicle
FTE	Full Time Equivalent
GPS	Global Positioning System
JASSM	Joint Air-to-Surface Standoff Missile
JDAM	Joint Direct Attack Munition
JPATS	Joint Primary Aircraft Training System
JSF	Joint Strike Fighter
O&M	Operations and Maintenance
QDR	Quadrennial Defense Review
RDT&E	Research, Development, Test, and Evaluation
SBIRS	Space Based Infrared System
STARS	Surveillance Target Attack Radar System



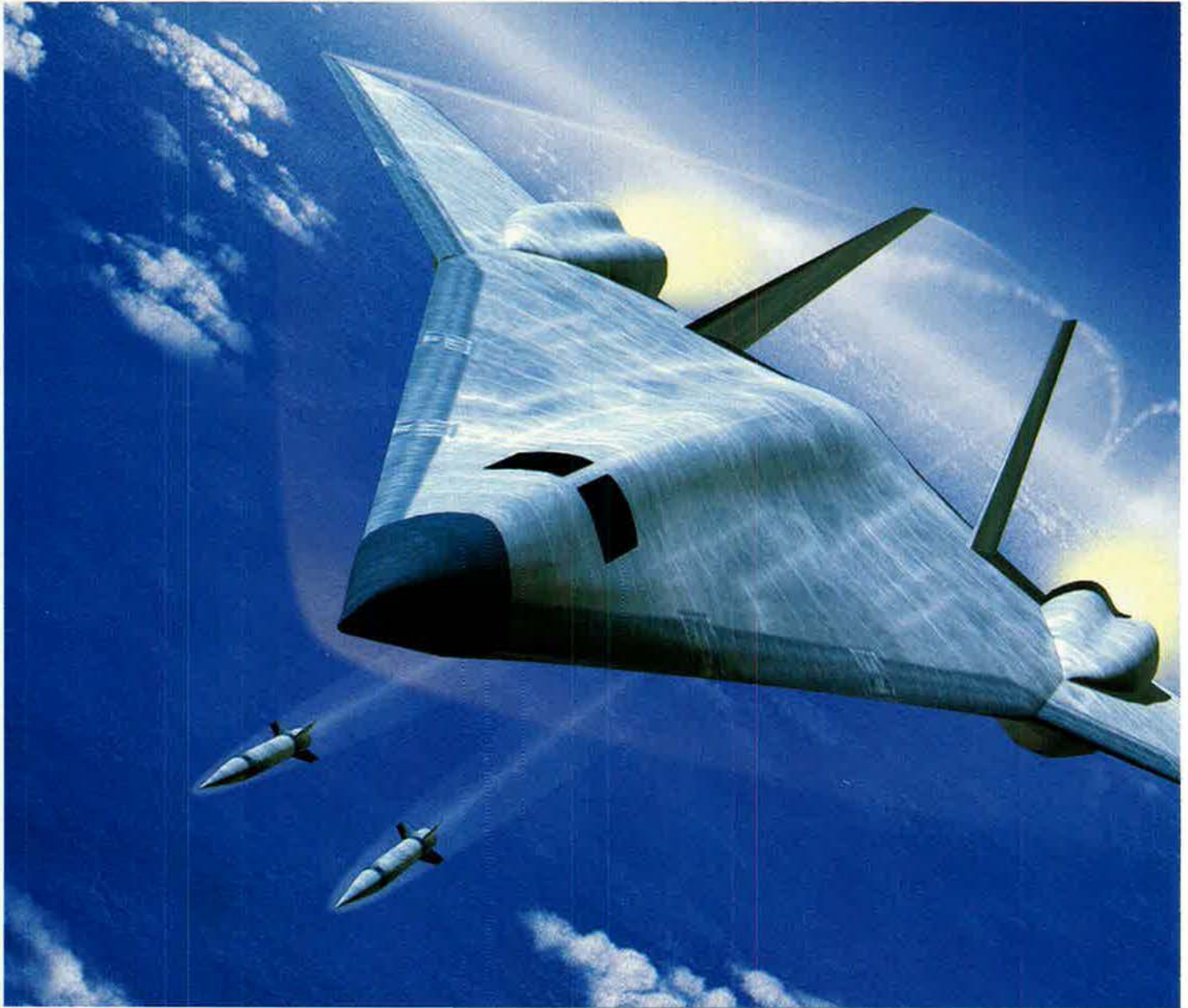
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WINGS TO

On these pages are some of the new and serious concepts being pursued by the Pentagon, NASA, and the aerospace industry to meet emerging requirements and take advantage of the state of the art in materials, propulsion, and aerodynamic research.

At left is Northrop Grumman's design for a possible Future Strike Aircraft. The company is working on a one-year Defense Advanced Research Projects Agency contract, worth up to \$2.5 million, to develop a supersonic cruising attack airplane that produces a sonic boom less intense than that of today's aircraft. The research has application to future airliners as well as to military aircraft. Current plans call for USAF to begin work on a next-generation bomber within 15 years.



Photo illustration by Erik Simonsen

Lockheed Martin has proposed a research aircraft (above) based on the F-22, to be called the X-44. It would have no flaps, ailerons, rudder, or other control surfaces. Instead, the aircraft's flight path would be controlled purely by the movement of two multi-axis thrust-vectoring exhaust nozzles.

COME

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

NASA is exploring the possibilities of a large blended-wing airplane. With a span of well over 200 feet, the aircraft would have prodigious internal volume for carrying cargo or fuel for aerial tanking purposes. The large wing surface would give the airplane tremendous ability to lift payloads and carry them long distances with increased fuel economy. However, the design would crowd other airplanes on the ramp and thus would require large airfields. At far right, the blended wing in a NASA wind tunnel; at right, as it might appear in Air Mobility Command service.



Photo illustration by Erik Simonson

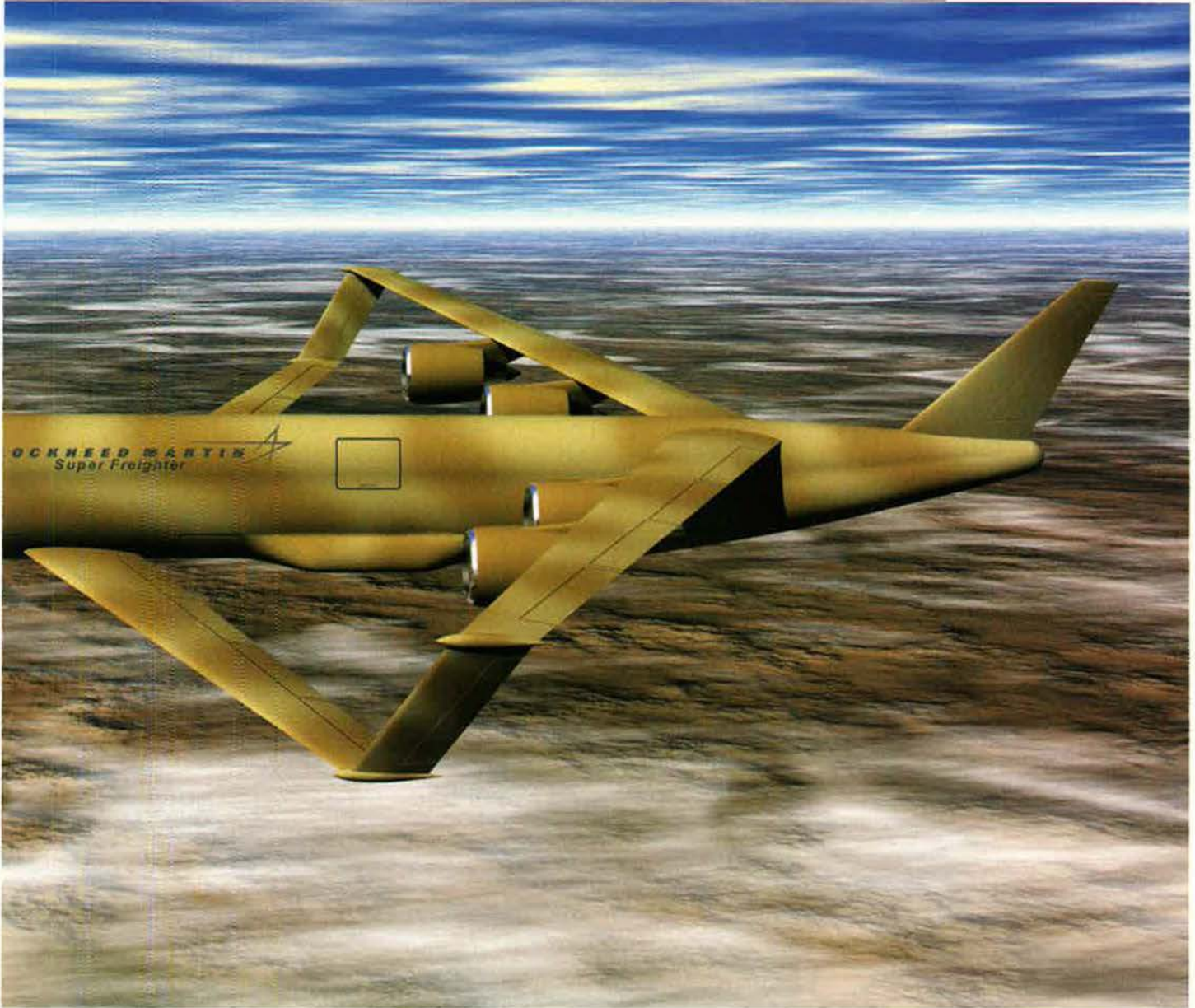
Lockheed Martin photo by John Rossino



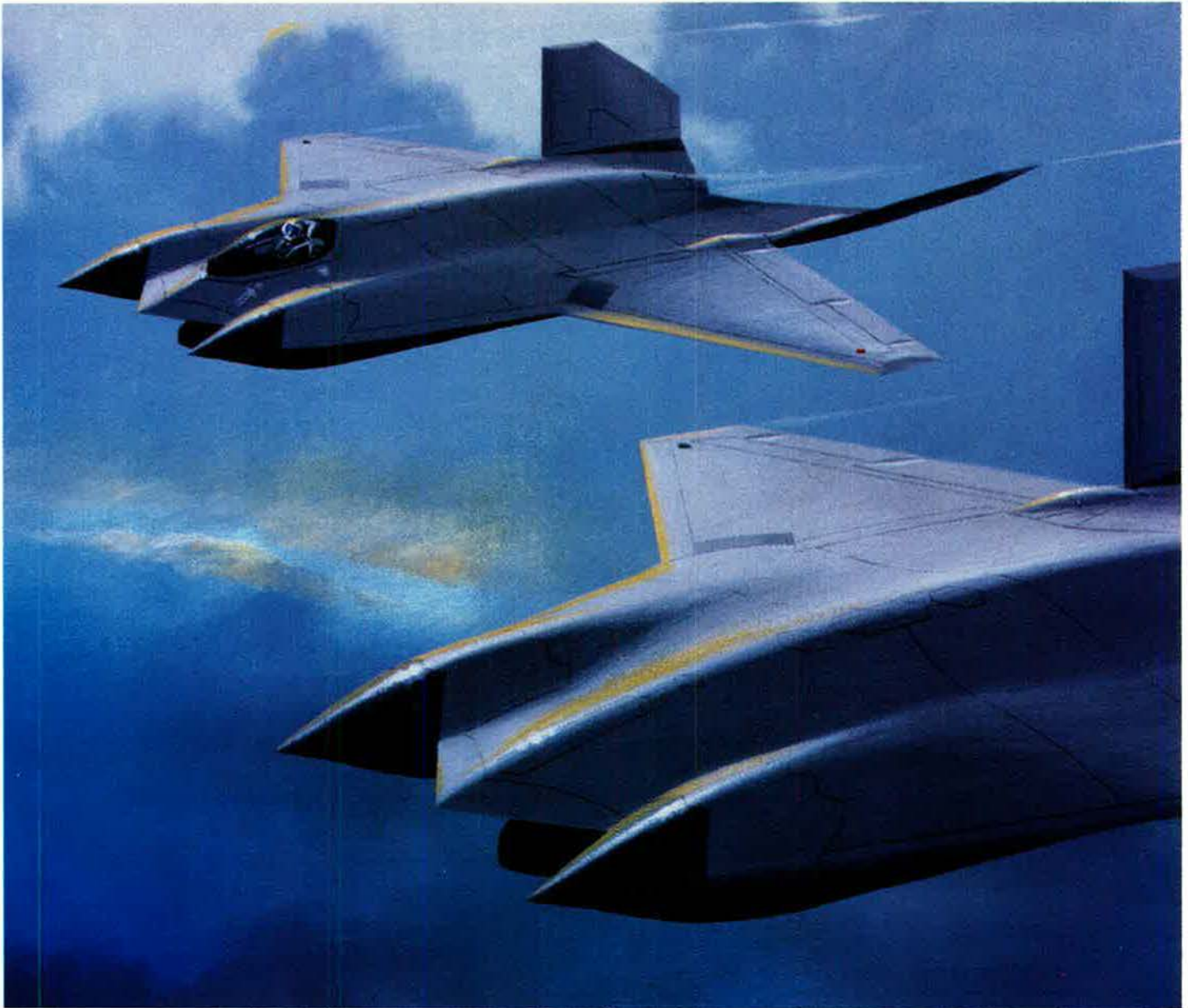
Lockheed Martin would solve the ramp space problem by making a future tanker a biplane. The joined-wing, or box-wing, concept would allow for shorter wingspan with greater lift capability. Above, a radio-controlled model demonstrates that it will fly; at right, an artist's concept of the biplane freighter in service.



NASA photo



Lockheed Martin artist's concept



The US currently enjoys a monopoly on fielded stealth aircraft, but other nations are looking at stealth for their next generation of combat airplanes. At right is a BAE Systems concept employing a cranked-delta wing. Outside the US, the UK is considered to have the most capability in stealth design.





Lockheed Martin has developed a future fighter concept (left) in which the pilot would be optional. One version would be an Unmanned Combat Air Vehicle for especially dangerous missions, while another variant would have a cockpit that would be used only when there was need for a pilot. A common assembly line would reduce overall costs for the fighter-size aircraft.



NASA photo by Patrick Wright

Scaled Composites is developing the Proteus aircraft (above) for a variety of missions, one of which might be to serve as a regional relay platform for communications, substituting for a satellite. The aircraft will cruise between 59,000 and 65,000 feet for a maximum duration of 18 hours. Other missions might include atmospheric research, reconnaissance, and launch of small satellites. The Proteus has a wingspan of more than 77 feet, expandable to 92 feet, and a length of more than 56 feet, but weighs only as much as a midsize car.



NASA's unmanned Pathfinder Plus flying wing (above) is the basis for another possible aerial signals relay platform. The aircraft is powered by the solar panels on its wings and is designed to stay aloft for weeks at a time, at extremely high altitude. Designed by Aero-Vironment, it set a propeller-driven-aircraft altitude record of 80,285 feet in 1998. Plans call for later versions to fly at sustained altitudes in excess of 100,000 feet.

The Air Force has a near-term need for a Space Maneuver Vehicle that can be rapidly launched, perform tasks in orbit, return to Earth autonomously, and turn quickly for another mission. The X-40A (below) is a subscale prototype that has accomplished several low-altitude free-flight tests. The larger X-37 version will be lofted into space on a Delta rocket or on the space shuttle and will demonstrate return from orbit. The Space Operating Vehicle is the bus that would take the SMV and small satellites to orbit (right). Reusability and speed of turnaround are the hallmarks of the effort.





Photo illustration by Erik Simonsen

Dell Helicopter/Textron artist's concept



Bell is investigating a possible expanded version of its V-22 Osprey tilt-rotor. Dubbed V-44, the quad tilt-rotor (at left) would have the same fuselage size as a C-130 transport but would be able to take off and land vertically, eliminating the need for a runway. The concept has appeal for special operations forces needing transport to unimproved airfields or remote locations. ■

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Missile defense should be in
addition to—not instead of—deterrent capabilities.

The Changing World of Nuclear Deterrence

Adm. Richard W. Mies is the commander in chief of United States Strategic Command. On July 11, he gave extensive testimony on US strategic policy and forces to the Senate Armed Services Committee's strategic subcommittee. What follows are excerpts from his statement.

New World, New Strategy

"The post-Cold War world is a more chaotic place. Strategic deterrence, which worked well in the bipolar framework of the Cold War, may not work as well in a multipolar world of unpredictable, asymmetric threats, and in some cases, it may fail. How do you deter a threat that has no return address? How do you dissuade a threat that is faceless?"

"In recognition of this reality and as part of a comprehensive strategy to adapt our policies and forces to these emerging threats, the President and Secretary of Defense have articulated a need to move beyond classical, bipolar Cold War deterrence—the almost exclusive reliance on mutual vulnerability and assured response—to a more comprehensive framework that integrates other complementary elements of military strategy—elements including dissuasion, defense, and denial.

"We need an updated approach to deterrence that includes both offenses and defenses. Missile defense would not be a replacement for an assured response but rather an added dimension."

Don't Chuck the ICBMs

"Intercontinental ballistic missiles continue to provide a reliable, low cost, prompt response capability with a high readiness rate. They also promote stability by ensuring that a potential adversary takes their geographically dispersed capabilities into account if contemplating a disarming first strike. Without a capable ICBM force, the prospect of destroying a significant percentage of America's strategic infrastructure with a handful of weapons might be tempting to a potential adversary in a crisis."

No Risky Launch Strategies

"Our strategic plans provide a wide range of deliberative, preplanned options and adaptive planning capabilities to ensure our nation can respond appropriately to any provocation rather than an 'all-or-nothing' response. Additionally, our forces are postured such that we have the capability to respond promptly to any attack, while at the same time, not relying upon 'launch on warning' or 'launch under attack.'"

Down on De-Alerting

"With the end of the Cold War, we have dramatically transformed our strategic force posture. ... We must be cautious, however, as we consider further changes in our force posture. Reducing the alert status of our forces, in isolation, can diminish their credibility and survivability. Many 'de-alerting' proposals jeopardize the existing stability against a pre-emptive first strike because they increase our vulnerability and create a premium for attacking first. As Albert Wohlstetter wrote many years ago: 'Relaxation of tension, which everyone thinks is good, is not easily distinguished from relaxing one's guard, which almost everyone thinks is bad.' Most de-alerting proposals create an incentive to be the first to rearm."

No "Hair-Trigger" Situation

"I would also like to challenge the perception that our forces are on 'hair-trigger' alert—a characterization routinely used to justify de-alerting proposals. Multiple, stringent procedural and technical safeguards have been in place, and will remain in place, to guard against accidental or inadvertent launch. Rigorous safeguards exist to ensure the highest levels of nuclear weapon safety, security, reliability, and command and control.

"Additionally, the policy of the United States is not to rely on 'launch on warning.' As I stated earlier, our forces are postured such that while we have the capability to respond promptly to any attack, we will never need to rely upon launch on warning. The diversity, flexibility, and survivability of our strategic forces and our command-and-control networks are designed to ensure we are never faced with a 'use them or lose them' dilemma and we are always capable of an assured response. ... Our trigger is built so we can always wait—the hair-trigger characterization is inaccurate."

Cuts for the Sake of Cuts

"Strategic force reductions must be viewed as means to an end—national security—not as an end in itself. ... Deterrence ultimately depends not on our capability to strike first but on the assurance that we always have a capability to strike second. ...

"We need to focus more on capabilities rather than numbers. There is a naive and mistaken belief that the 'nuclear danger' is directly proportional to the number of nuclear weapons and, accordingly, lower is inevitably better. As we reduce our strategic forces to lower levels, numerical parity or numbers alone become less and less important—issues such as transparency, irreversibility, production capacity, aggregate warhead inventories, and verifiability become more and more significant.

"It is ultimately the character and the posture of our strategic forces—characteristics like assured command and control, survivability, and reliability—more than their numbers alone that make the strategic environment stable or unstable. Additionally, there is a tyranny in very deep numerical reductions that inhibits flexibility and induces instability in certain situations."

The Diagnosis

"Strategic deterrence will be a fundamental pillar of our national security for the foreseeable future. Short of universal brain surgery, the design of nuclear weapons cannot be disinvented or erased from memory."

Strategic Force Reductions

Mies listed the changes in strategic forces since the fall of the Berlin Wall in November 1989. The United States has:

- Curtailed production of most modern bomber (B-2) and ICBM (Peacekeeper)
- Stopped development of land-based mobile missiles—Peacekeeper rail-garrison and small ICBM road-mobile programs
- Capped production of sea-launched ballistic missile warheads (W-88)
- Removed all sea-launched nuclear cruise missiles from ships and submarines
- Removed all bombers from day-to-day alert
- Reduced the number of command-and-control aircraft from 59 to 20
- Terminated the Ground Wave Emergency Network
- Converted the B-1 bomber to conventional-only use
- Eliminated the Minuteman II ICBM force
- Eliminated all nuclear short-range attack missiles from the bomber force
- Eliminated all ground-launched intermediate- and short-range nuclear weapons
- Halted underground nuclear testing
- Closed major portions of the nuclear weapons production complex. ■

Photochart of USAF Leadership (As of Sept. 1, 2001)

An *Air Force Magazine* Directory
 Compiled by Chequita Wood, Editorial Associate

Office of the Secretary of the Air Force



Secretary of the Air Force
 James G. Roche



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 Lawrence J. Delaney



Asst. Secretary of the Air Force (Financial Management & Comptroller)
 Michael Montelongo



Asst. Secretary of the Air Force (Installations & Environment)
 Nelson F. Gibbs



Asst. Secretary of the Air Force (Manpower & Reserve Affairs)
 Michael L. Dominguez



Asst. Secretary of the Air Force (Space) and Director, NRO
 Keith R. Hall



Deputy Undersecretary for International Affairs
 Willard H. Mitchell



Auditor General
 Vacant



General Counsel
 John P. Janecek (acting)



Undersecretary of the Air Force
 Lawrence J. Delaney (acting)



Inspector General
 Lt. Gen. Raymond P. Fuot



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 Maj. Gen. T. Michael Moseley*



Director, Marketing
 Brig. Gen. Arthur F. Diehl III



Director, Public Affairs
 Brig. Gen. Ronald T. Rand



Director, Small & Disadvantaged Business Utilization
 Dale McNabb (acting)



Administrative Asst. to the Secretary of the Air Force
 William A. Davidson



Military Asst. to the Secretary of the Air Force
 Col. Phil Breedlove

*Nominated as Commander, 9th Air Force, Shaw AFB, S.C.

The United States Air Force Air Staff



Chief of Staff
Gen. John P. Jumper
(confirmed 8/3/01)



Asst. Vice Chief of Staff
Lt. Gen. Lance W. Lord



Chief Master Sergeant of the Air Force
CMSAF Frederick J. Finch



Air Force Historian
Richard P. Hallion



Judge Advocate General
Maj. Gen. William A. Moorman



Surgeon General
Lt. Gen. Paul K. Carlton Jr.



Chair, Scientific Advisory Board
Robert W. Selden



Vice Chief of Staff
Gen. John W. Handy
(nominated to be Commander in Chief, TRANSCOM)



Chief of Chaplain Service
Maj. Gen. Lorraine K. Potter



Chief of Safety
Maj. Gen. Timothy A. Peppe



Chief Scientist
Alexander Levis



Chief of Air Force Reserve
Lt. Gen. James E. Sherrard III



Director, Air National Guard
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(nominated to be USAF Vice
Chief of Staff)



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Director, Intelligence, Surveillance, & Reconnaissance
Maj. Gen. Glen D. Shaffer



Director, Joint Matters
Maj. Gen. (sel.) Tommy F. Crawford



Director, Nuclear & Counterproliferation
Maj. Gen. Franklin J. Blaisdell



Director, Operational Plans
Maj. Gen. (sel.) Jeffrey B. Kohler



Director, Operational Requirements
Maj. Gen. (sel.) Daniel P. Leaf



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Maj. Gen. (sel.) Michael A. Hamel



Director, Weather
Brig. Gen. David L. Johnson

**Deputy Chief of Staff,
Communications & Information**
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Director, Architecture & Interoperability
Col. William P. Nelson



Director, DCS Action Group
Col. Don Greiman



Director, IT Enterprise Operations
Col. Michael Basla



Director, Plans, Policy, & Resources
Col. Lou G. Jakowatz III

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Installations & Logistics**
Lt. Gen. Michael E. Zettler



Civil Engineer
Maj. Gen. Earnest O. Robbins II



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Brig. Gen. Terry L. Gabreski



Director, Plans & Integration
Susan A. O'Neal



Director, Services
Arthur J. Myers



Director, Supply
Brig. Gen. Robert E. Mansfield Jr.



Director, Transportation
Brig. Gen. Teresa M. Peterson

Deputy Chiefs of Staff (continued)

Deputy Chief of Staff,
Personnel
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Development
Elizabeth T. Corliss



Director, Personnel Force
Management
Maj. Gen. Michael C. McMahan



Director, Personnel
Resources
Brig. Gen. Toreaser A. Steele

Deputy Chief of Staff,
Plans & Programs
Lt. Gen. Joseph H.
Wehrle Jr.



Director, Manpower, Organization,
& Quality
Brig. Gen. Joseph P. Stein



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Maj. Gen. Duncan J. McNabb



Director,
Strategic Planning
Maj. Gen. John L. Barry

Air Force Acquisition System

Asst. Secretary of the Air
Force for Acquisition
Lawrence J. Delaney



Principal Deputy Asst.
Secretary of the Air Force
for Acquisition
Lt. Gen. Stephen B. Plummer

Principal Deputy Asst.
Secretary for Acquisition &
Management
Darleen A. Druyun

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Simulation
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Brig. Gen. Jeffrey R. Riemer

Fighter & Bomber Programs
Maj. Gen. Michael C. Mushala

Space Programs
Brig. Gen. Craig R. Cooning

Weapons
Joseph G. Diamond

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Maj. Gen. (sel.) John D.W. Corley

Global Reach
Maj. Gen. Paul W. Essex

Information Dominance
Brig. Gen. Henry A. Obering III

Space & Nuclear Deterrence
Maj. Gen. (sel.) Joseph B. Sovey

Major Commands

Air Combat Command

Hq. Langley AFB, Va.



Commander
Gen. John P. Jumper^a



Vice Commander
Lt. Gen. Donald G.
Cook

1st Air Force (ANG)
Maj. Gen. Larry K. Arnold
Tyndall AFB, Fla.

8th Air Force
Lt. Gen. Thomas J. Keck
Barksdale AFB, La.

9th Air Force
Lt. Gen. Charles F. Wald^b
Shaw AFB, S.C.

12th Air Force
Lt. Gen. William T. Hobbins
Davis-Monthan AFB, Ariz.

Aerospace Command & Control &
Intelligence, Surveillance, & Reconnaissance
Center
Maj. Gen. Gerald F. Perryman Jr.
Langley AFB, Va.

Aerospace Expeditionary Force Center
Brig. Gen. Allen G. Peck
Langley AFB, Va.

Air Warfare Center
Maj. Gen. Lawrence D. Johnston
Nellis AFB, Nev.

^aConfirmed as Chief of Staff; replacement not yet named.

^bNominated to be DCS, Air & Space Operations, USAF, Pentagon.



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Vice Commander
Lt. Gen. John D. Hopper Jr.

2nd Air Force
Maj. Gen. John F. Regni
Keesler AFB, Miss.

19th Air Force
Maj. Gen. Steven R. Polk
Randolph AFB, Tex.

Air Force Recruiting Service
Brig. Gen. Duane W. Deal
Randolph AFB, Tex.

Air University
Lt. Gen. Donald A.
Lamontagne
Maxwell AFB, Ala.

**Willford Hall USAF Medical Center
(59th Medical Wing)**
Maj. Gen. Lee P. Rodgers
Lackland AFB, Tex.

Air Force Materiel Command

Hq. Wright-Patterson AFB, Ohio



Commander
Gen. Lester L. Lyles



Vice Commander
Lt. Gen. Charles H.
Coolidge Jr.

Aeronautical Systems Center
Lt. Gen. Richard V. Reynolds
Wright-Patterson AFB, Ohio

**Aerospace Maintenance &
Regeneration Center**
Col. Kenneth M. Lewandowski
Davis-Monthan AFB, Ariz.

Air Armament Center
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Eglin AFB, Fla.

Air Force Flight Test Center
Maj. Gen. Wilbert D. Pearson Jr.
Edwards AFB, Calif.

**Air Force Office of Scientific
Research**
Lyle H. Schwartz
Arlington, Va.

**Air Force Research
Laboratory**
Maj. Gen. Paul D. Nielsen
Wright-Patterson AFB, Ohio

**Air Force Security Assistance
Center**
Maj. Gen. Claude M. Bolton Jr.
Wright-Patterson AFB, Ohio

**Arnold Engineering
Development Center**
Col. David J. Eichhorn
Arnold AFB, Tenn.

Electronic Systems Center
Lt. Gen. Leslie F. Kenne
Hanscom AFB, Mass.

**Ogden Air Logistics
Center**
Maj. Gen. Scott C. Bergren
Hill AFB, Utah

**Oklahoma City Air
Logistics Center**
Maj. Gen. Charles L.
Johnson II
Tinker AFB, Okla.

**Space & Missile Systems
Center***
Lt. Gen. Brian A. Arnold
Los Angeles AFB, Calif.

**Warner Robins Air
Logistics Center**
Maj. Gen. Dennis G.
Haines
Robins AFB, Ga.

US Air Force Museum
Charles D. Metcalf
Wright-Patterson
AFB, Ohio

*Space & Missile Systems Center realigns under Air Force Space Command in October 2001.

Air Force Reserve Command

Hq. Robins AFB, Ga.



Commander
Lt. Gen. James E. Sherrard
III



Vice Commander
Maj. Gen. David R.
Smith

4th Air Force
Brig. Gen. James P. Czekanski
March ARB, Calif.

10th Air Force
Maj. Gen. John A. Bradley
NAS Fort Worth JRB, Carswell
Field, Tex.

22nd Air Force
Maj. Gen. James D. Bankers
Dobbins ARB, Ga.

Air Force Space Command

Hq. Peterson AFB, Colo.



Commander
Gen. Ralph E. Eberhart



Vice Commander
Lt. Gen. Roger G.
DeKok

14th Air Force
Maj. Gen. William R. Looney III
Vandenberg AFB, Calif.

20th Air Force
Maj. Gen. Timothy J.
McMahon
F.E. Warren AFB, Wyo.

Space Warfare Center
Maj. Gen. Thomas B. Goslin
Jr.
Schriever AFB, Colo.

Air Force Special Operations Command

Hq. Hurlburt Field, Fla.



Commander
Lt. Gen. Paul V. Hester
(confirmed 8/3/01)



Vice Commander
Brig. Gen. Richard L.
Comer

16th Special Operations Wing
Brig. Gen. (sel.) David J. Scott
Hurlburt Field, Fla.

352nd Special Operations Group
Col. Jeff Walls
RAF Mildenhall, UK

353rd Special Operations Group
Col. Douglas Salmon
Kadena AB, Japan

720th Special Tactics Group
Col. Robert Holmes
Hurlburt Field, Fla.

USAF Special Operations School
Col. Jim Oeser
Hurlburt Field, Fla.

Air Mobility Command

Hq. Scott AFB, Ill.



Commander
Gen. Charles T. Robertson Jr.*



Vice Commander
Lt. Gen. Ronald C.
Marcotte

15th Air Force
Maj. Gen. John D. Becker
Travis AFB, Calif.

21st Air Force
Maj. Gen. George N. Williams
McGuire AFB, N.J.

Air Mobility Warfare Center
Maj. Gen. Robert J. Boots
Ft. Dix, N.J.

Tanker Airlift Control Center
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Lt. Gen. Lansford E. Trapp Jr.

5th Air Force
Lt. Gen. Thomas C. Waskow
(confirmed 8/3/01)
Yokota AB, Japan

7th Air Force
Lt. Gen. Lance L. Smith
(confirmed 7/27/01)
Osan AB, South Korea

11th Air Force
Lt. Gen. Norton A. Schwartz
Elmendorf AFB, Alaska

13th Air Force
Maj. Gen. Theodore W. Lay II
Andersen AFB, Guam

United States Air Forces in Europe

Hq. Ramstein AB, Germany



Commander
Gen. Gregory S. Martin



Vice Commander
Lt. Gen. Glen W. Moorhead III

3rd Air Force
Maj. Gen. Kenneth W. Hess
RAF Mildenhall, UK

16th Air Force
Lt. Gen. Ronald E. Keys
Aviano AB, Italy

Command Chief Master Sergeants



CMSgt. Daniel M. Keane
Air Combat Command
Langley AFB, Va.



CMSgt. William A. Milligan
Air Education and
Training Command
Randolph AFB, Tex.



CMSgt. David D. Mimms
Air Force
Materiel Command
Wright-Patterson AFB, Ohio



CMSgt. Cheryl D. Adams
Air Force
Reserve Command
Robins AFB, Ga.



CMSgt. Kevin D. Estrem
Air Force Space Command
Peterson AFB, Colo.



CMSgt. Robert V. Martens
Air Force Special
Operations Command
Hurlburt Field, Fla.



**CMSgt. Kenneth F. Van
Holbeck**
Air Mobility Command
Scott AFB, Ill.



CMSgt. Gerald R. Murray
Pacific Air Forces
Hickam AFB, Hawaii



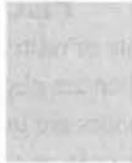
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United States Air Forces
in Europe
Ramstein AB, Germany



CMSgt. Valerie D. Benton
Air National Guard
Andrews AFB, Md.



CMSgt. Raymond G. Carter
Air Force Office of Special
Investigations
Andrews AFB, Md.



CMSgt. John E. Ensor
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CMSgt. Larry D. Palmer
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Washington



Auditor General
Vacant

Air Force Base Conversion Agency

Arlington, Va.



Director
Albert F. Lowas Jr.

Air Force Center for Environmental Excellence

Brooks AFB, Tex.



Director
Gary M. Erickson

Air Force Civil Engineer Support Agency

Tyndall AFB, Fla.



Commander
Col. Bruce R. Barthold

Air Force Communications Agency

Scott AFB, Ill.



Commander
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Air Force Cost Analysis Agency

Arlington, Va.



Executive Director
Joseph T. Kammerer

Air Force Flight Standards Agency

Andrews AFB, Md.



Commander
Col. Scott Grunwald

Air Force Frequency Management Agency

Alexandria, Va.



Commander
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Air Force Historical Research Agency

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Commander
Frederick Shaw (acting)

Air Force History Support Office

Washington



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Kirtland AFB, N.M.



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Air Force Legal Services Agency

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Commander
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Commander
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Brig. Gen. Gary H. Murray

Air Force Medical Support Agency

Brooks AFB, Tex.



Commander
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Air Force News Agency

Kelly AFB, Tex.



Commander
Col. Anthony J. Epifano

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Commander
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Air Force Personnel Operations Agency Washington



Commander
Brig. Gen. Toreaser A. Steele

Air Force Program Executive Office Washington



Air Force Acquisition Executive
Lawrence J. Delaney

Air Force Real Estate Agency Bolling AFB, D.C.



Director
William E. Edwards

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Director
Joe G. Lineberger

Air Force Safety Center Kirtland AFB, N.M.



Commander
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Air Force Security Forces Center Lackland AFB, Tex.



Commander
Brig. Gen. James M. Shames

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Commander
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Air Force Technical Applications Center Patrick AFB, Fla.



Commander
Col. Roy E. Horton III

Air Force Weather Agency Offutt AFB, Neb.



Commander
Col. Robert H. Allen

Air National Guard Readiness Center Andrews AFB, Md.



Commander
Col. Naomi D. Manadier
(acting)

Direct Reporting Units

Air Force Doctrine Center Maxwell AFB, Ala.



Commander
Maj. Gen. David F. MacGhee
Jr.*

Air Force Operational Test & Evaluation Center Kirtland AFB, N.M.



Commander
Maj. Gen. William A. Peck Jr.

Air Force Studies & Analyses Agency Washington



Commander
Jacqueline R. Henningsen

United States Air Force Academy Colorado Springs, Colo.



Superintendent
Lt. Gen. John R. Dallager

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Chairman, DOD Commissary Operating Board

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Maj. Gen. Leonard M. Randolph Jr.
Deputy Executive Director, Tricare Management Activity, USD, Personnel & Readiness

Maj. Gen. Herbert M. Ward
Director, Special Programs, USD, AT&L

Brig. Gen. John H. Folkerts
Principal Director, Combating Terrorism Policy & Support, USD, Policy

Brig. Gen. (sel.) Ronald D. Yaggi
Sr. Military Asst., PDUUSD for Policy

Department of Defense

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Director, National Security Agency
Ft. Meade, Md.

Lt. Gen. Ronald T. Kadish
Director, Ballistic Missile Defense Organization

Lt. Gen. Harry D. Roduege Jr.
Director, Defense Information Systems Agency
Arlington, Va.

Lt. Gen. Tome H. Walters Jr.
Director, Defense Security Cooperation Agency
Arlington, Va.

Maj. Gen. Robert P. Bongiovi
Deputy Director, Defense Threat Reduction Agency
Dulles, Va.

Maj. Gen. Robert J. Courter Jr.
Director, Defense Commissary Agency
Ft. Lee, Va.

Maj. Gen. Tili Kera
Deputy Chief, Central Security Service, NSA
Ft. Meade, Md.

Maj. Gen. Michael S. Kudlacz
Director, On-Site Inspection, DTRA
Dulles, Va.

Maj. Gen. Lee P. Rodgers
Lead Agent, Health Services Region 6
Lackland AFB, Tex.

Maj. Gen. Mary L. Saunders
Commander, Defense Supply Center Columbus
Defense Logistics Agency
Columbus, Ohio

Brig. Gen. Joseph E. Kelley
Lead Agent, Health Services Region 5
Wright-Patterson AFB, Ohio

Brig. Gen. Frank G. Klotz
Director, Nuclear Policy & Arms Control, National Security Council
Washington

Brig. Gen. Dan L. Locker
Lead Agent, Health Services Region 4
Keasler AFB, Miss.

Brig. Gen. Bernard K. Skoch
Principal Director, Network Services
Defense Information Systems Agency
Arlington, Va.

Brig. Gen. Michael G. Lee
Deputy Director, Plans & Customer Operations
National Imagery & Mapping Agency
Reston, Va.

Brig. Gen. Robert P. Summers
Director, Combat, DTRA
Alexandria, Va.

Joint Chiefs of Staff

Gen. Richard B. Myers
Vice Chairman, Joint Chiefs of Staff

Gen. John P. Jumper
(confirmed 8/3/01)
Chief of Staff, United States Air Force

Lt. Gen. Bruce A. Carlson
Director, Force Structure, Resources, & Assessment

Lt. Gen. Joseph H. Wehrle Jr.
USAF Member, Permanent Joint Board on Defense, Canada-US

Maj. Gen. Kevin P. Chilton
Deputy Director, Politico-Military Affairs (Asia, Pacific, & Middle East)

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Vice Director, C² Systems

Maj. Gen. Michael M. Dunn
Vice Director, Strategic Plans & Policy

Maj. Gen. (sel.) James A. Hawkins
Vice Director, Joint Staff

Brig. Gen. William M. Fraser III
Deputy Director, Operations (Natl. Systems Support)

Brig. Gen. Jonathan S. Gratton
Deputy Director, Operations (Information Operations)

Brig. Gen. Paul J. Lebras
Vice Director, Intelligence

Brig. Gen. Richard B.H. Lewis
Director, Joint Theater Air Missile Defense Organization

Brig. Gen. John W. Raza Jr.
Deputy Director, Current Operations

Brig. Gen. Norman R. Seip
Deputy Director, Operations, National Military Command Center

Brig. Gen. Robert L. Smolen
Director, Manpower & Personnel

National Guard Bureau

Lt. Gen. Russell C. Davis
Chief, National Guard Bureau

Joint Service Schools

Maj. Gen. Edward L. LaFontaine
Commandant, Joint Forces Staff College
National Defense University
Norfolk, Va.

US Central Command

Lt. Gen. Charles F. Wald
(nominated to be DCS, Air & Space Operations, USAF)
Commander, US Central Command Air Forces
Shaw AFB, S.C.

Maj. Gen. T. Michael Moseley
(nominated to be Commander, CENTCOM Air Forces)
Shaw AFB, S.C.

Maj. Gen. Gary R. Dylewski
Commander, Joint Task Force-Southwest Asia
Riyadh, Saudi Arabia

Maj. Gen. Victor E. Renuart Jr.
Director, Operations
MacDill AFB, Fla.

Brig. Gen. (sel.) William L. Holland
Deputy Director, Engagement

US European Command

Gen. Joseph W. Ralston
Commander in Chief, US European Command
Mons, Belgium

Gen. Gregory S. Martin
Commander, Air Force Component
Ramstein AB, Germany

Maj. Gen. Craig P. Rasmussen
Chief, Office of Defense Cooperation Turkey
Ankara, Turkey

Maj. Gen. Charles N. Simpson
Director, Plans & Policy
Stuttgart-Vaihingen, Germany

Brig. Gen. Edward R. Ellis
Commanding General, Combined Task Force-Operation Northern Watch
Incirlik AB, Turkey

Brig. Gen. Elizabeth A. Harrell
Director, Logistics & Security Assistance
Stuttgart-Vaihingen, Germany

Brig. Gen. Neal T. Robinson
Director, Intelligence
Stuttgart-Vaihingen, Germany

Brig. Gen. Gary L. Salisbury
Director, C² Systems
Stuttgart-Vaihingen, Germany

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Director, Strategy, Requirements, & Integration
Norfolk, Va.

Brig. Gen. Anthony W. Bell Jr.
Director, C² Systems
Norfolk, Va.

Brig. Gen. James B. Smith
Deputy Commander, Joint Wartighting Center
Suffolk, Va.

US Pacific Command

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Commander, Air Component
Hickam AFB, Hawaii

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Deputy CINC, Chief of Staff
Camp H.M. Smith, Hawaii

Lt. Gen. Norton A. Schwartz
Commander, Alaskan Command
Elmendorf AFB, Alaska

Lt. Gen. Thomas C. Waskow
(confirmed 8/3/01)
Commander, US Forces Japan
Yokota AB, Japan

Brig. Gen. Raymond E. Johns Jr.
Deputy Director, Strategic Planning & Policy
Camp H.M. Smith, Hawaii

Brig. Gen. Steven J. Redmann
Commander, Joint Task Force-Full Accounting
Camp H.M. Smith, Hawaii

Brig. Gen. Donald C. Wurster
Commander, Special Operations Command, Pacific
Camp H.M. Smith, Hawaii

US Southern Command

Lt. Gen. Paul V. Hester
(confirmed 8/3/01)
Commander, Air Force Component-Special Operations
Hurlburt Field, Fla.

Lt. Gen. William T. Hobbins
Commander, US Southern Command Air Forces
Davis-Monthan AFB, Ariz.

Brig. Gen. Barry W. Barksdale
Vice Commander, SOUTHCOM Air Forces
Davis-Monthan AFB, Ariz.

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Director, Strategy, Policy, & Plans
Miami, Fla.

Brig. Gen. Richard L. Comer
Vice Commander, Air Force Component
Camp H.M. Smith, Hawaii

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CINC and DDD Manager for Manned Spaceflight Support Operations
Peterson AFB, Colo.

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Commander, Air Force Component-Space Operations
Vandenberg AFB, Calif.

Maj. Gen. Bruce A. Wright
Commander, Joint Information Operations Center
Lackland AFB, Tex.

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Peterson AFB, Colo.

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Deputy Director, Operations
Peterson AFB, Colo.

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CINC
MacDill AFB, Fla.

Lt. Gen. Paul V. Hester
(confirmed 8/3/01)
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Hurlburt Field, Fla.

Brig. Gen. Richard L. Comer
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Hurlburt Field, Fla.

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Offutt AFB, Neb.

Lt. Gen. Thomas J. Keck
Commander, Air Force Component—Bombers
Barksdale AFB, La.

Lt. Gen. William T. Hobbins
Commander, Air Force Component—Reconnaissance
Davis–Monthan AFB, Ariz.

Maj. Gen. John D. Becker
Commander, Air Force Component—Tankers
Travis AFB, Calif.

Maj. Gen. Timothy J. McMahon
Commander, Air Force Component—ICBMs
F.E. Warren AFB, Wyo.

Brig. Gen. Barry W. Barksdale
Vice Commander, Air Force Component—Reconnaissance
Davis–Monthan AFB, Ariz.

Brig. Gen. (sel.) Roger W. Burg
Deputy Director, Operations & Logistics
Offutt AFB, Neb.

Brig. Gen. Trudy H. Clark
Director, C⁴ Systems
Offutt AFB, Neb.

Brig. Gen. Kelvin R. Coppock
Director, Intelligence
Offutt AFB, Neb.

Maj. Gen. Robert R. Dierker
Asst. Chief of Staff, Operations, SHAPE
Mons, Belgium

Maj. Gen. Maurice L. McFann Jr.
Deputy Commander, Joint Subregional Command (JSRC) North
Stavanger, Norway

Maj. Gen. (sel.) Gary A. Winterberger
Commander, NATO Airborne Early Warning & Control Force—E-3A
Component
Geilenkirchen AB, Germany

Brig. Gen. Marion E. Callender Jr.
Deputy US Military Representative, NATO Military Committee
Brussels, Belgium

Brig. Gen. Felix Dupre
Executive Officer, SACEUR
Mons, Belgium

Brig. Gen. Robert J. Elder Jr.
Deputy Director, Allied Command Europe (ACE) Reaction Force Air Staff
Kalkar, Germany

Brig. Gen. Robin E. Scott
Deputy Commander, Combined Air Operations Center 7, Regional
Command South (RC SOUTH)
Larissa, Greece

Brig. Gen. Frederick D. Van Valkenburg Jr.
Director, Balkans Combined Air Operations Center
Vicenza, Italy

Brig. Gen. (sel.) Roy M. Worden
Deputy Commander, Combined Air Operations Center 6, AIRSOUTH
Eskisehir, Turkey

US Transportation Command

Gen. Charles T. Robertson Jr.
(slated to retire)
Commander in Chief
Scott AFB, Ill.

Gen. John W. Handy
(nominated to be CINC)
Scott AFB, Ill.

Maj. Gen. William Welser III
Director, Operations & Logistics
Scott AFB, Ill.

Brig. Gen. Charles B. Green
Command Surgeon
Scott AFB, Ill.

Brig. Gen. Gilbert R. Hawk
Director, C⁴ Systems
Scott AFB, Ill.

Brig. Gen. (sel.) David R. Leforge
Executive Officer to CINC
Scott AFB, Ill.

Brig. Gen. James W. Swanson
Chief Counsel
Scott AFB, Ill.

Brig. Gen. (sel.) Winfield W. Scott III
Inspector General
Scott AFB, Ill.

North Atlantic Treaty Organization

Gen. Joseph W. Ralston
Supreme Allied Commander Europe (SACEUR)
Supreme Headquarters Allied Powers Europe (SHAPE)
Mons, Belgium

Gen. Gregory S. Martin
Commander, Allied Air Forces North Europe (AIRNORTH)
Ramstein AB, Germany

Lt. Gen. Ronald E. Keys
Commander, Allied Air Forces South Europe (AIRSOUTH)
Naples, Italy

Lt. Gen. Timothy A. Kinnan
US Military Representative, NATO Military Committee
Brussels, Belgium

Maj. Gen. Thomas L. Baptiste
Assistant Chief of Staff, Operations, AIRSOUTH
Naples, Italy

North American Aerospace Defense Command

Gen. Ralph E. Eberhart
CINC
Peterson AFB, Colo.

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Commander, Alaskan NORAD Region
Elmendorf AFB, Alaska

Maj. Gen. Larry K. Arnold
Commander, CONUS Region
Tyndall AFB, Fla.

Maj. Gen. Dale W. Meyerrose
Director, Command Control Systems
Peterson AFB, Colo.

Brig. Gen. (sel.) Mark G. Beesley
Director, Plans
Peterson AFB, Colo.

Brig. Gen. Kenneth M. DeCuir
Deputy Commander, Canadian NORAD Region
Winnipeg, Canada

Brig. Gen. Michael C. Gould
Commander, Cheyenne Mountain Operations Center
Cheyenne Mountain AS, Colo.

United Nations Command

Lt. Gen. Lance L. Smith
(confirmed 7/27/01)
Deputy CINC; Deputy Commander, US Forces Korea; and Commander, Air
Component Command, ROK/US Combined Forces Command

Maj. Gen. Dennis R. Larsen
Chief of Staff, Air Component Command, ROK/US Combined Forces
Command

Maj. Gen. James N. Soligan
Deputy Chief of Staff, United Nations Command and US Forces Korea

Central Intelligence Agency

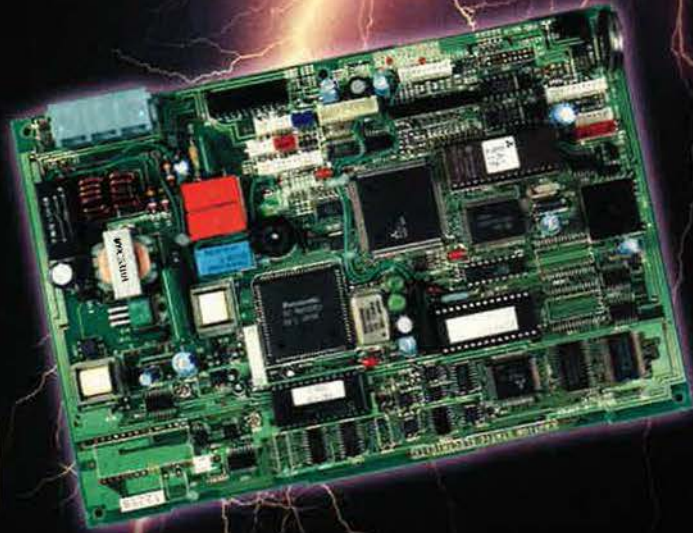
Lt. Gen. John H. Campbell
Associate Director of Central Intelligence for Military Support

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Dowty Aerospace	Litton Advanced Systems		
Dynamic Concepts, Inc.			
DynCorp			
EADS CASA			
Eastman Kodak Co., C&GS			
ECC International Corp.			



AFA/AEF Almanac

Compiled by Frances McKenney, Assistant Managing Editor

Chapters of the Year

YEAR	RECIPIENT(S)
1953	San Francisco Chapter
1954	Santa Monica (Calif.) Area Chapter
1955	San Fernando Valley (Calif.) Chapter
1956	Utah State AFA
1957	H.H. Arnold Chapter (N.Y.)
1958	San Diego Chapter
1959	Cleveland Chapter
1960	San Diego Chapter
1961	Chico (Calif.) Chapter
1962	Fort Worth (Tex.) Chapter
1963	Colin P. Kelly Chapter (N.Y.)
1964	Utah State AFA
1965	Idaho State AFA
1966	New York State AFA
1967	Utah State AFA
1968	Utah State AFA
1969	(no presentation)
1970	Georgia State AFA
1971	Middle Georgia Chapter
1972	Utah State AFA
1973	Langley (Va.) Chapter
1974	Texas State AFA
1975	Alamo Chapter (Tex.) and San Bernardino (Calif.) Area Chapter
1976	Scott Memorial Chapter (Ill.)
1977	Thomas B. McGuire Jr. Chapter (N.J.)
1978	Thomas B. McGuire Jr. Chapter (N.J.)
1979	Brig. Gen. Robert F. Travis Chapter (Calif.)
1980	Central Oklahoma (Gerrity) Chapter
1981	Alamo Chapter (Tex.)
1982	Chicagoland-O'Hare Chapter (Ill.)
1983	Charles A. Lindbergh Chapter (Conn.)
1984	Scott Memorial Chapter (Ill.) and Colorado Springs/Lance Sijan Chapter (Colo.)
1985	Cape Canaveral Chapter (Fla.)
1986	Charles A. Lindbergh Chapter (Conn.)
1987	Carl Vinson Memorial Chapter (Ga.)
1988	Gen. David C. Jones Chapter (N.D.)
1989	Thomas B. McGuire Jr. Chapter (N.J.)
1990	Gen. E.W. Rawlings Chapter (Minn.)
1991	Paul Revere Chapter (Mass.)
1992	Central Florida Chapter and Langley (Va.) Chapter
1993	Green Valley Chapter (Ariz.)
1994	Langley (Va.) Chapter
1995	Baton Rouge (La.) Chapter
1996	Montgomery (Va.) Chapter
1997	Central Florida Chapter
1998	Ark-La-Tex Chapter (La.)
1999	Hurlburt Chapter (Fla.)
2000	Wright Memorial Chapter (Ohio)
2001	Lance P. Sijan (Colo.)

Profiles of AFA Membership

As of June 2001 (Total 143,407)

59%	One-year members	Of AFA's service members (who account for about 10 percent of USAF total strength):
11%	Three-year members	63% are officers
30%	Life Members	37% are enlisted
20%	Active duty military	
48%	Retired military	Of AFA's retired military members:
16%	Former service	73% are retired officers
6%	Guard and Reserve	27% are retired enlisted
6%	Patron	
2%	Cadet	
2%	Spouse/widow(er)	

AFA "Member of the Year" Award Recipients

State names refer to winner's home state at the time of the award.

YEAR	RECIPIENT(S)	YEAR	RECIPIENT(S)
1953	Julian B. Rosenthal (N.Y.)	1977	Edward A. Stearn (Calif.)
1954	George A. Anderl (Ill.)	1978	William J. Demas (N.J.)
1955	Arthur C. Storz (Neb.)	1979	Alexander C. Field Jr. (Ill.)
1956	Thos. F. Stack (Calif.)	1980	David C. Noerr (Calif.)
1957	George D. Hardy (Md.)	1981	Daniel F. Callahan (Fla.)
1958	Jack B. Gross (Pa.)	1982	Thomas W. Anthony (Md.)
1959	Carl J. Long (Pa.)	1983	Richard H. Becker (Ill.)
1960	O. Donald Olson (Colo.)	1984	Earl D. Clark Jr. (Kan.)
1961	Robert P. Stewart (Utah)	1985	George H. Chabbott (Del.) and Hugh L. Enyart (Ill.)
1962	(no presentation)	1986	John P.E. Kruse (N.J.)
1963	N.W. DeBerardinis (La.) and Joe L. Shosid (Tex.)	1987	Jack K. Westbrook (Tenn.)
1964	Maxwell A. Kriendler (N.Y.)	1988	Charles G. Durazo (Va.)
1965	Milton Caniff (N.Y.)	1989	O.R. Crawford (Tex.)
1966	William W. Spruance (Del.)	1990	Cecil H. Hopper (Ohio)
1967	Sam E. Keith Jr. (Tex.)	1991	George M. Douglas (Colo.)
1968	Marjorie O. Hunt (Mich.)	1992	Jack C. Price (Utah)
1969	(no presentation)	1993	Lt. Col. James G. Clark (D.C.)
1970	Lester C. Curl (Fla.)	1994	William A. Lafferty (Ariz.)
1971	Paul W. Gaillard (Neb.)	1995	William N. Webb (Okla.)
1972	J. Raymond Bell (N.Y.) and Martin H. Harris (Fla.)	1996	Tommy G. Harrison (Fla.)
1973	Joe Higgins (Calif.)	1997	James M. McCoy (Neb.)
1974	Howard T. Markey (D.C.)	1998	Ivan L. McKinney (La.)
1975	Martin M. Ostrow (Calif.)	1999	Jack H. Steed (Ga.)
1976	Victor R. Kregel (Tex.)	2000	Mary Anne Thompson (Va.)
		2001	Charles H. Church Jr. (Kan.)

Air Force Association National Chairmen of the Board



Edward P. Curtis
1946-47



Jimmy Doolittle
1947-49



C.R. Smith
1949-50



Carl A. Spaatz
1950-51



Thomas G. Lanphier Jr.
1951-52



Harold C. Stuart
1952-53



Arthur F. Kelly
1953-54



George C. Kenney
1954-55



John R. Alison
1955-56



Gill Robb Wilson
1956-57



John P. Henebry
1957-58



James M. Trail
1958-59



Julian B. Rosenthal
1959-60



Howard T. Markey
1960-61



Thos. F. Stack
1961-62



Joe Foss
1962-63



Jack B. Gross
1963-64



W. Randolph Lovelace II
1964-65



George D. Hardy
1966-67



Jess Larson
1967-71



George D. Hardy
1971-72



Joe L. Shosid
1972-73



Martin M. Ostrow
1973-75



Joe L. Shosid
1975-76



Gerald V. Hasler
1976-77



George M. Douglas
1977-79



Daniel F. Callahan
1979-81



Victor R. Kregel
1981-82



John G. Brosky
1982-84



David L. Blankenship
1984-85



Edward A. Stearn
1985-86



Martin H. Harris
1986-88



Sam E. Keith Jr.
1988-90



Jack C. Price
1990-92



O.R. Crawford
1992-94



James M. McCoy
1994-96



Gene Smith
1996-98

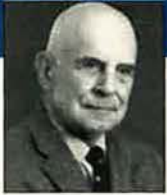


Doyle E. Larson
1998-2000



Thomas J. McKee
2000-

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Jimmy Doolittle
1946-47



Thomas G. Lanphier Jr.
1947-48



C.R. Smith
1948-49



Robert S. Johnson
1949-51



Harold C. Stuart
1951-52



Arthur F. Kelly
1952-53



George C. Kenney
1953-54



John R. Alison
1954-55



Gill Robb Wilson
1955-56



John P. Henebry
1956-57



Peter J. Schenk
1957-59



Howard T. Markey
1959-60



Thos. F. Stack
1960-61



Joe Foss
1961-62



John B. Montgomery
1962-63



W. Randolph Lovelace II
1963-64



Jess Larson
1964-67



Robert W. Smart
1967-69



George D. Hardy
1969-71



Martin M. Ostrow
1971-73



Joe L. Shosid
1973-75



George M. Douglas
1975-77



Gerald V. Hasler
1977-79



Victor R. Kregel
1979-81



John G. Brosky
1981-82



David L. Blankenship
1982-84



Martin H. Harris
1984-86



Sam E. Keith Jr.
1986-88



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1988-90



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1992-94



Gene Smith
1994-96



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1996-98



Thomas J. McKee
1998-2000



John J. Politi
2000-

AFA's Regions, States, and Chapters

These figures indicate the number of affiliated members as of June 30, 2001. Listed below the name of each region is the region president.

<p>CENTRAL EAST REGION 13,252 Thomas G. Shepherd</p> <p>Delaware 768 Delaware Galaxy 570 Diamond State 198</p> <p>District of Columbia 811 Nation's Capital 811</p> <p>Maryland 2,844 Baltimore* 833 Central Maryland 413 College Park Airport 147 Thomas W. Anthony 1,451</p> <p>Virginia 8,459 Danville 59 Donald W. Steele Sr. Memorial 3,539 Gen. Charles A. Gabriel 1,238 Langley 1,777 Leigh Wade 153 Northern Shenandoah Valley 213 Richmond 547 Roanoke 319 Tidewater 383 William A. Jones III 231</p> <p>West Virginia 370 Brig. Gen. Pete Everest 88 Chuck Yeager 282</p> <p>FAR WEST REGION 15,707 Rich Taubinger</p> <p>California 14,666 Antelope Valley 523 Bakersfield 110 Bob Hope 1,124 Brig. Gen. Robert F. Travis 1,180 C. Farinha Gold Rush 1,825 David J. Price/Beale 592 Fresno* 388 Gen. B.A. Schriever Los Angeles 754 General Doolittle Los Angeles Area* 1,689 Golden Gate* 836 High Desert 270 Maj. Gen. Charles I. Bennett Jr. 354 Monterey Bay Area 293 Orange County/Gen. Curtis E. LeMay 983 Palm Springs 521 Pasadena Area 400 Robert H. Goddard 933 San Diego 1,085 Tennessee Ernie Ford 806</p> <p>Hawaii 1,041 Hawaii* 1,001 Maui 40</p>	<p>FLORIDA REGION 11,908 David R. Cummock</p> <p>Florida 11,908 Brig. Gen. James R. McCarthy 421 Cape Canaveral 1,323 Central Florida 1,599 Col. H.M. "Bud" West 286 Col. Loren D. Evenson 657 Eglin 1,770 Falcon 452 Florida Highlands 362 Gainesville 316 Gen. Nathan F. Twining 527 Gold Coast 472 Hurlburt 588 Jerry Waterman 1,345 John C. Meyer 338 John W. DeMilly Jr. 359 Miami 387 Pensacola 151 Treasure Coast 173 West Palm Beach 382</p> <p>GREAT LAKES REGION 9,716 W. Ron Goerges</p> <p>Indiana 1,736 Central Indiana 456 Columbus-Bakalar 104 Fort Wayne 264 Grissom Memorial 169 Gus Grissom 145 Lawrence D. Bell Museum 285 Lester W. Johnston 41 Southern Indiana 181 Terre Haute-Wabash Valley 91</p> <p>Kentucky 793 Gen. Russell E. Dougherty 512 Lexington 281</p> <p>Michigan 2,284 Battle Creek 214 Huron 103 James H. Straubel 858 Kalamazoo 304 Lake Superior Northland 170 Lloyd R. Leavitt Jr. 138 Mid-Michigan 87 Mount Clemens 312 PE-TO-SE-GA 98</p> <p>Ohio 4,903 Capt. Eddie Rickenbacker Memorial* 763 Frank P. Lahm 561 Greater Cincinnati 237 North Coast* 389 Steel Valley 249 Wright Memorial* 2,704</p> <p>MIDWEST REGION 9,470 W. Graham Burnley</p> <p>Illinois 3,529 Chicagoland-O'Hare 1,382 Heart of Illinois 40 Land of Lincoln 382</p>	<p>Richard W. Asbury 238 Scott Memorial 1,487</p> <p>Iowa 681 Gen. Charles A. Horner 250 Lancer 158 Northeast Iowa 100 Richard D. Kisling 173</p> <p>Kansas 990 Contrails 72 Lt. Erwin R. Bleckley 647 Maj. Gen. Edward R. Fry 271</p> <p>Missouri 2,198 Earl D. Clark Jr. 425 Harry S. Truman 626 Ozark 258 Spirit of St. Louis 889</p> <p>Nebraska 2,072 Ak-Sar-Ben 1,767 Lincoln 305</p> <p>NEW ENGLAND REGION 4,796 Eugene M. D'Andrea</p> <p>Connecticut 915 Flying Yankees 145 Gen. Bennie L. Davis 190 Gen. George C. Kenney 72 Lindbergh/Sikorsky 204 Northern Connecticut 132 Sgt. Charlton Heston 172</p> <p>Maine 346 Eastern Maine 212 Maj. Charles J. Loring Jr. 78 Southern Maine 56</p> <p>Massachusetts 2,221 Boston 143 Laurence G. Hanscom 144 Maj. John S. Southrey* 187 Minuteman 311 Otis 181 Paul Revere 719 Pioneer Valley 175 Taunton 170 Worcester* 191</p> <p>New Hampshire 834 Brig. Gen. Harrison R. Thyng 412 Pease 422</p> <p>Rhode Island 252 Metro Rhode Island 216 Newport Blue & Gold 36</p> <p>Vermont 228 Burlington 228</p> <p>NORTH CENTRAL REGION 4,420 Gary H. Olson</p> <p>Minnesota 1,306 Gen. E.W. Rawlings 1,049 Richard I. Bong 257</p> <p>Montana 498 Big Sky 382 Treasure State 116</p> <p>North Dakota 653 Gen. David C. Jones 298 Happy Hooligan 141 Red River Valley 214</p> <p>South Dakota 583 Dacotah 250 Rushmore 333</p> <p>Wisconsin 1,380 Billy Mitchell 580 Capt. William J. Henderson 470 Madison 330</p> <p>NORTHEAST REGION 9,146 Raymond "Bud" Hamman</p> <p>New Jersey 2,562 Adm. Charles E. Rosendahl 129 Aerospace Founders 63 Brig. Gen. E. Wade Hampton 182 Brig. Gen. Frederick W. Castle 172 Hangar One 130 Highpoint 91 Hudson* 71 John Currie Memorial 28 Mercer County 229 Passaic-Bergen* 198 Saf Capriglione 90 Teterboro-Bendix 26 Thomas B. McGuire Jr. 843 Tri-County 51 Union Morris 259</p> <p>New York 3,538 Albany-Hudson Valley* 426 Chautauqua 71 Colin P. Kelly 250 Forrest L. Vosler 239 Francis S. Gabreski 314 Gen. Carl A. "Tooney" Spaatz 246 Gen. Daniel "Chappie" James Jr. Memorial 135 Genesee Valley 251 Iron Gate 198 L.D. Bell-Niagara Frontier 425 Lloyd Schloen-Empire 160 Nassau Mitchel 380 Queens 247 Thomas Watson Sr. Memorial 196</p> <p>Pennsylvania 3,046 Altoona 64 Brandywine 173 Eagle 62 Greater Pittsburgh* 436 Joe Walker-Mon Valley 129 Lehigh Valley 253 Liberty Bell 660 Lt. Col. B.D. "Buzz" Wagner 127 Mifflin County* 113 Olmsted 368 Pocono Northeast 215 Total Force 170 York-Lancaster 276</p>
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*These chapters were chartered prior to Dec. 31, 1948, and are considered original charter chapters; the Maj. John S. Southrey Chapter of Massachusetts was formerly the Chicopee Chapter; the North Coast Chapter of Ohio was formerly the Cleveland Chapter.

NORTHWEST REGION 5,996
Steven R. Lundgren

Alaska	1,026
Anchorage	763
Fairbanks Midnight Sun	263
Idaho	359
Magic Valley	107
Snake River Valley	252

Oregon	1,203
Bill Harris	149
Portland*	758
Willamette Valley	296

Washington	3,408
Greater Seattle	1,183
Inland Empire	791
McChord	1,434

ROCKY MOUNTAIN REGION 7,284
Boyd Anderson

Colorado	5,235
Gen. Robert E. Huyser	153
Lance P. Sijan	2,953
Long's Peak	280
Mel Harmon	176
Mile High	1,673

Utah	1,594
Northern Utah	659
Salt Lake	443
Ute-Rocky Mountain	492

Wyoming	455
Cheyenne Cowboy	455

SOUTH CENTRAL REGION 8,417
Billy M. Boyd

Alabama	2,478
Birmingham	423
Mobile	272
Montgomery	1,407
Tennessee Valley	376

Arkansas	1,299
David D. Terry Jr.	913
Ouachita	133
Razorback	253

Louisiana	1,463
Ark-La-Tex	1,006
Maj. Gen. Oris B. Johnson	457

Mississippi	1,206
Golden Triangle	351
Jackson	199
John C. Stennis	656

Tennessee	1,971
Chattanooga	145
Everett R. Cook	468
Gen. Bruce K. Holloway	632
H.H. Arnold Memorial	193
Maj. Gen. Dan F. Callahan	533

SOUTHEAST REGION 9,634
Zack E. Osborne

Georgia	4,265
Carl Vinson Memorial	1,862
Dobbins	1,731
Lt. Col. Philip Colman	52
Savannah	316
South Georgia	304

North Carolina	3,028
Blue Ridge	382
Cape Fear	221
Kitty Hawk	77
Piedmont	493
Pope	658
Scott Berkeley	582
Tarheel	615

South Carolina	2,341
Charleston	678
Columbia Palmetto	432
Ladewig-Shine Memorial	222
Strom Thurmond	398
Swamp Fox	611

SOUTHWEST REGION 8,598
Scotty Wetzel

Arizona	4,530
Barry Goldwater	190
Cochise	109
Frank Luke	1,139
Phoenix Sky Harbor	1,232
Prescott	177
Richard S. Reid	157
Tucson	1,526

Nevada	2,044
Dale O. Smith	456
Thunderbird	1,588

New Mexico	2,024
Albuquerque	1,323
Fran Parker	432
Llano Estacado	269

TEXOMA REGION 16,537
M.N. "Dan" Heth

Oklahoma	3,096
Altus	452
Central Oklahoma (Gerrity)	1,581
Enid	571
Tulsa	492

Texas	13,441
Abilene	498
AggieLand	216
Alamo	4,406
Austin	1,297
Concho	362
Dallas	1,050
Del Rio	171
Denton	385
Fort Worth	2,102
Gen. Charles L. Donnelly Jr.	496
Ghost Squadron	144
Heart of the Hills	173
Northeast Texas	462
Panhandle AFA	315
Permian Basin	115
San Jacinto	1,249

AFA's Overseas Chapters

CHAPTER	LOCATION
United States Air Forces In Europe (USAFE)	
Charlemagne	Geilenkirchen, Germany
Dolomiti	Aviano AB, Italy
Lutbery-Campbell ..	Ramstein AB, Germany
Spangdahlem	Spangdahlem AB, Germany
United Kingdom	Lakenheath, UK
Pacific Air Forces (PACAF)	
Keystone	Kadena AB, Japan
Miss Veedol	Misawa AB, Japan
Tokyo	Tokyo, Japan
Supreme Headquarters Allied Powers Europe (SHAPE)	
Gen. Lauris G. Norstad	Mons, Belgium

AFA's First National Officers and Board of Directors

This panel of officers and directors acted temporarily until a representative group was democratically elected by membership at the first National Convention, in September 1947.

OFFICERS

- President** Jimmy Doolittle
- First Vice President** Edward P. Curtis
- Second Vice President** Meryll Frost
- Third Vice President** Thomas G. Lanphier Jr.
- Secretary** Sol A. Rosenblatt
- Assistant Secretary** Julian B. Rosenthal
- Treasurer** W. Deering Howe
- Executive Director** Willis S. Fitch

BOARD OF DIRECTORS

John S. Allard	Rufus Rand
H.M. Baldridge	Earl Sneed
William H. Carter	James M. Stewart
Everett R. Cook	Forrest Vosler
Burton E. Donaghy	Benjamin F. Warner
James H. Douglas Jr.	Lowell P. Weicker
G. Stuart Kenney	Cornelius Vanderbilt Whitney
Reiland Quinn	John Hay Whitney

The Twelve Founders

- John S. Allard**, Bronxville, N.Y.
- Everett R. Cook**, Memphis, Tenn.
- Edward P. Curtis**, Rochester, N.Y.
- Jimmy Doolittle**, Los Angeles
- W. Deering Howe**, New York
- Rufus Rand**, Sarasota, Fla.
- Sol A. Rosenblatt**, New York
- Julian B. Rosenthal**, New York
- James M. Stewart**, Beverly Hills, Calif.
- Lowell P. Weicker**, New York
- Cornelius Vanderbilt Whitney**, New York
- John Hay Whitney**, New York

H.H. Arnold Award Recipients

Until 1986, AFA's highest Aerospace Award was the H.H. Arnold Award. Named for the World War II leader of the Army Air Forces, it was presented annually in recognition of the most outstanding contributions in the field of aerospace activity. In 1986, the Arnold Award was redesignated AFA's highest honor to a member of the armed forces in the field of National Security. It continues to be presented annually.

YEAR	RECIPIENT(S)
1948	W. Stuart Symington, Secretary of the Air Force
1949	Maj. Gen. William H. Tunner and the men of the Berlin Airlift
1950	Airmen of the United Nations in the Far East
1951	Gen. Curtis E. LeMay and the personnel of Strategic Air Command
1952	Sens. Lyndon B. Johnson and Joseph C. O'Mahoney
1953	Gen. Hoyt S. Vandenberg, former Chief of Staff, USAF
1954	John Foster Dulles, secretary of state
1955	Gen. Nathan F. Twining, Chief of Staff, USAF
1956	Sen. W. Stuart Symington
1957	Edward P. Curtis, special assistant to the President
1958	Maj. Gen. Bernard A. Schriever, commander, Ballistic Missile Division, ARDC
1959	Gen. Thomas S. Power, commander in chief, Strategic Air Command
1960	Gen. Thomas D. White, Chief of Staff, USAF
1961	Lyle S. Garlock, assistant secretary of the Air Force
1962	A.C. Dickieson and John R. Pierce, Bell Telephone Laboratories
1963	The 363rd Tactical Reconnaissance Wing, TAC, and the 4080th Strategic Wing, SAC
1964	Gen. Curtis E. LeMay, Chief of Staff, USAF
1965	The 2nd Air Division, PACAF
1966	The 8th, 12th, 355th, 366th, and 388th Tactical Fighter Wings and the 432nd and 460th Tactical Reconnaissance Wings
1967	Gen. William W. Momyer, commander, 7th Air Force, PACAF
1968	Col. Frank Borman, USAF; Capt. James Lovell, USN; and Lt. Col. William Anders, USAF, Apollo 8 crew
1969	(No presentation)
1970	Apollo 11 team (J.L. Atwood; Lt. Gen. Samuel C. Phillips, USAF; and astronauts Neil Armstrong, Col. Edwin E. Aldrin Jr., USAF, and Col. Michael Collins, USAF)
1971	John S. Foster Jr., director of defense research and engineering
1972	Air units of the Allied Forces in Southeast Asia (Air Force, Navy, Army, Marine Corps, and the Vietnamese Air Force)
1973	Gen. John D. Ryan, USAF (Ret.), former Chief of Staff, USAF
1974	Gen. George S. Brown, USAF, Chairman, Joint Chiefs of Staff
1975	James R. Schlesinger, Secretary of Defense
1976	Sen. Barry M. Goldwater
1977	Sen. Howard W. Cannon
1978	Gen. Alexander M. Haig Jr., USA, Supreme Allied Commander, Europe
1979	Sen. John C. Stennis
1980	Gen. Richard H. Ellis, USAF, commander in chief, Strategic Air Command
1981	Gen. David C. Jones, USAF, Chairman, Joint Chiefs of Staff
1982	Gen. Lew Allen Jr., USAF (Ret.), former Chief of Staff, USAF
1983	Ronald W. Reagan, President of the United States
1984	The President's Commission on Strategic Forces (the Scowcroft Commission)
1985	Gen. Bernard W. Rogers, USA, Supreme Allied Commander, Europe
1986	Gen. Charles A. Gabriel, USAF (Ret.), former Chief of Staff, USAF
1987	Adm. William J. Crowe Jr., USN, Chairman, Joint Chiefs of Staff
1988	Men and women of the Ground-Launched Cruise Missile team
1989	Gen. Larry D. Welch, Chief of Staff, USAF
1990	Gen. John T. Chain, commander in chief, Strategic Air Command
1991	Lt. Gen. Charles A. Horner, commander, US Central Command Air Forces and 9th Air Force
1992	Gen. Colin L. Powell, USA, Chairman, Joint Chiefs of Staff
1993	Gen. Merrill A. McPeak, Chief of Staff, USAF
1994	Gen. John Michael Loh, commander, Air Combat Command
1995	World War II Army Air Forces veterans
1996	Gen. Ronald R. Fogleman, Chief of Staff, USAF
1997	Men and women of the United States Air Force
1998	Gen. Richard E. Hawley, commander, Air Combat Command
1999	Lt. Gen. Michael C. Short, commander, Allied Air Forces Southern Europe
2000	Gen. Michael E. Ryan, Chief of Staff, USAF
2001	Gen. Joseph W. Ralston, commander in chief, US European Command

John R. Alison Award Recipients

Established in 1992, the John R. Alison Award is AFA's highest honor for industrial leadership.

1992	Norman R. Augustine, chairman, Martin Marietta Corp.
1993	Daniel M. Tellep, chairman and chief executive officer, Lockheed Corp.
1994	Kent Kresa, chief executive officer, Northrop Grumman Corp.
1995	C. Michael Armstrong, chairman and chief executive officer, Hughes Aircraft
1996	Harry Stonecipher, president and chief executive officer, McDonnell Douglas Corp.
1997	Dennis J. Picard, chairman and chief executive officer, Raytheon Co.
1998	Philip M. Condit, chairman and chief executive officer, Boeing Co.
1999	Sam B. Williams, chairman and chief executive officer, Williams International Co., LLC
2000	Simon Ramo and Dean E. Wooldridge, missile pioneers
2001	George David, chairman and chief executive officer, United Technologies Corp.

W. Stuart Symington Award Recipients

Since 1986, AFA's highest honor to a civilian in the field of National Security has been the W. Stuart Symington Award. The award, presented annually, is named for the first Secretary of the Air Force.

YEAR	RECIPIENT
1986	Caspar W. Weinberger, Secretary of Defense
1987	Edward C. Aldridge Jr., Secretary of the Air Force
1988	George P. Schultz, secretary of state
1989	Ronald W. Reagan, former President of the United States
1990	John J. Welch, assistant secretary of the Air Force (acquisition)
1991	George Bush, President of the United States
1992	Donald B. Rice, Secretary of the Air Force
1993	Sen. John McCain (R-Ariz.)
1994	Rep. Ike Skelton (D-Mo.)
1995	Sheila E. Widnall, Secretary of the Air Force
1996	Sen. Ted Stevens (R-Alaska)
1997	William Perry, former Secretary of Defense
1998	Rep. Saxby Chambliss (R-Ga.) and Rep. Norman D. Dicks (D-Wash.)
1999	F. Whittan Peters, Secretary of the Air Force
2000	Rep. Floyd Spence (R-S.C.)
2001	Sen. Michael Enzi (R-Wyo.) and Rep. Cliff Stearns (R-Fla.)

Gold Life Member Card Recipients

Awarded to members whose AFA record, production, and accomplishment on a national level have been outstanding over a period of years.

Name	Year	Card No.
Gill Robb Wilson	1957	1
Jimmy Doolittle	1959	2
Arthur C. Storz Sr.	1961	3
Julian B. Rosenthal	1962	4
Jack B. Gross	1964	5
George D. Hardy	1965	6
Jess Larson	1967	7
Robert W. Smart	1968	8
Martin M. Ostrow	1973	9
James H. Straubel	1980	10
Martin H. Harris	1988	11
Sam E. Keith Jr.	1990	12
Edward A. Stearn	1992	13
Dorothy L. Flanagan	1994	14
John O. Gray	1996	15
Jack C. Price	1997	16

Aerospace Education Foundation Chairmen of the Board



**W. Randolph
Lovelace II**
1963-64



Laurence S. Kuter
1964-66



Walter J. Hesse
1966-69



J. Gilbert Nettleton Jr.
1969-73



George D. Hardy
1973-75



Barry M. Goldwater
1975-86



George D. Hardy
1986-89



James M. Keck
1989-94



Walter E. Scott
1994-97



Thomas J. McKee
1997-98



Michael J. Dugan
1998-2000



Jack C. Price
2000-

Aerospace Education Foundation Presidents



John B. Montgomery
1963-64



Lindley J. Stiles
1964-66



B. Frank Brown
1966-67



Leon M. Lessinger
1967-68



L.V. Rasmussen
1968-71



Leon M. Lessinger
1971-73



Wayne O. Reed
1973-74



William L. Ramsey
1975-81



Don C. Garrison
1981-84



George D. Hardy
1984-86



Eleanor P. Wynne
1986-87



James M. Keck
1988-89



Gerald V. Hasler
1989-94



Thomas J. McKee
1994-97



Walter E. Scott
1997-98



Jack C. Price
1998-2000



Richard B. Goetze Jr.
2000-

AFA Executive Directors



Willis S. Fitch
1946-47



James H. Straubel
1948-80



Russell E. Dougherty
1980-86



David L. Gray
1986-87



John O. Gray
1987-88



Charles L. Donnelly Jr.
1988-89



John O. Gray
1989-90



Monroe W. Hatch Jr.
1990-95



John A. Shaud
1995-

AFA National Secretaries

Sol A. Rosenblatt	1946-47
Julian B. Rosenthal	1947-59
George D. Hardy	1959-66
Joseph L. Hodges	1966-68
Glenn D. Mishler	1968-70
Nathan H. Mazer	1970-72
Martin H. Harris	1972-76
Jack C. Price	1976-79
Earl D. Clark Jr.	1979-82
Sherman W. Wilkins	1982-85
A.A. "Bud" West	1985-87
Thomas J. McKee	1987-90
Thomas W. Henderson	1990-91
Mary Ann Seibel	1991-94
Mary Anne Thompson	1994-97
William D. Croom Jr.	1997-2000
Daniel C. Hendrickson	2000-

AFA National Treasurers

W. Deering Howe	1946-47
G. Warfield Hobbs	1947-49
Benjamin Brinton	1949-52
George H. Haddock	1952-53
Samuel M. Hecht	1953-57
Jack B. Gross	1957-62
Paul S. Zuckerman	1962-66
Jack B. Gross	1966-81
George H. Chabbott	1981-87
William N. Webb	1987-95
Charles H. Church Jr.	1995-2000
Charles A. Neilson	2000-

Year	Total	Life Members	Year	Total	Life Members
1946	51,243	32	1974	128,995	837
1947	104,750	55	1975	139,168	898
1948	56,464	68	1976	148,202	975
1949	43,801	70	1977	155,850	1,218
1950	38,948	79	1978	148,711	1,541
1951	34,393	81	1979	147,136	1,869
1952	30,716	356	1980	156,394	2,477
1953	30,392	431	1981	170,240	3,515
1954	34,486	435	1982	179,149	7,381
1955	40,812	442	1983	198,563	13,763
1956	46,250	446	1984	218,512	18,012
1957	51,328	453	1985	228,621	23,234
1958	48,026	456	1986	232,722	27,985
1959	50,538	458	1987	237,279	30,099
1960	54,923	464	1988	219,195	32,234
1961	60,506	466	1989	204,309	34,182
1962	64,336	485	1990	199,851	35,952
1963	78,034	488	1991	194,312	37,561
1964	80,295	504	1992	191,588	37,869
1965	82,464	514	1993	181,624	38,604
1966	85,013	523	1994	175,122	39,593
1967	88,995	548	1995	170,881	39,286
1968	97,959	583	1996	161,384	39,896
1969	104,886	604	1997	157,862	41,179
1970	104,878	636	1998	152,330	41,673
1971	97,639	674	1999	148,534	42,237
1972	109,776	765	2000	147,336	42,434
1973	114,894	804	2001	143,407	42,865

NATIONAL OFFICERS



BOARD CHAIRMAN
Thomas J. McKee
Fairfax Station, Va.



PRESIDENT
John J. Politi
Sedalia, Mo.



SECRETARY
Daniel C. Hendrickson
Layton, Utah



TREASURER
Charles A. Nelson
Sioux Falls, S.D.



This Is AFA

REGION PRESIDENTS

Information regarding AFA activity within a particular state may be obtained from the president of the region in which the state is located.



Central East Region
Delaware, District of Columbia, Maryland, Virginia, West Virginia
Thomas G. Shepherd
HCR 61, Box 167
Timber Ridge Rd.
Capon Bridge, WV 26711
(304) 856-3866



Far West Region
California, Guam, Hawaii
Rich Taubinger
12 Century Ct.
Roseville, CA 95678-1088
(916) 771-3639



Florida Region
Florida, Puerto Rico
David R. Cummock
2890 Borman Ct.
Daytona Beach, FL 32124-6846
(904) 760-7142



Great Lakes Region
Indiana, Kentucky, Michigan, Ohio
W. Ron Goerges
4201 W. Enon Rd.
Fairborn, OH 45324-9412
(937) 429-6070, ext. 102



Midwest Region
Illinois, Iowa, Kansas, Missouri, Nebraska
W. Graham Burnley Jr.
112 Elk Run Dr.
Eureka, MO 63025
(636) 938-6113



New England Region
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Eugene M. D'Andrea
P.O. Box 8674
Warwick, RI 02888-0599
(401) 461-4559



North Central Region
Minnesota, Montana, North Dakota, South Dakota, Wisconsin
Gary H. Olson
3610 90th Ave. N.
Moonhead, MN 56560-7238
(218) 233-5130



Northeast Region
New Jersey, New York, Pennsylvania
Raymond "Bud" Hamman
9439 Outlook Ave.
Philadelphia, PA 19114-2617
(215) 677-0957



Northwest Region
Alaska, Idaho, Oregon, Washington
Steven R. Lundgren
4581 Drake St.
Fairbanks, AK 99709
(907) 452-1751



Rocky Mountain Region
Colorado, Utah, Wyoming
Boyd Anderson
1120 Canyon Rd., Apt. 15
Ogden, UT 84404-7649
(801) 621-2639



South Central Region
Alabama, Arkansas, Louisiana, Mississippi, Tennessee
Billy M. Boyd
LSI Bldg. 268
166 Liberty St.
Columbus AFB, MS 39710-2001 (662) 434-2644



Southeast Region
Georgia, North Carolina, South Carolina
Zack E. Osborne
305 Lake Front Dr.
Warner Robins, GA 31088-6064 (912) 929-3384



Southwest Region
Arizona, Nevada, New Mexico
Scotty Wetzel
628 Via Linda Ct.
Las Vegas, NV 89144-1501
(702) 362-1767



Texoma Region
Oklahoma, Texas
M.N. "Dan" Heth
3000 Steve Dr.
Hurst, TX 76054-2118
(817) 498-2880



Special Assistant Pacific
Gary L. McClain
Komazawa Garden House D-309
1-2-33 Komazawa
Setagaya-ku, Tokyo 154-0012
Japan 81-3-3405-1512



Special Assistant Europe
Frank M. Swords
PSC 3, Box 1469
APO AE 09021-1466
011-49-6308-7237

NATIONAL DIRECTORS

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Ronald R. Fogleman
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Sam Johnson
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Bossier City, La.
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Shalimar, Fla.
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Pleasant View, Utah
Coleman Rader Jr.
Maple Grove, Minn.
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Lompoc, Calif.
I. Fred Rosenfelder
Renton, Wash.
Phillip J. Sleeman
Tolland, Conn.
William L. Sparks
Katy, Tex.
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William G. Strateimer Jr.
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Howard R. Yasina
Colorado Springs, Colo.
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Denver, Colo.
Joseph A. Zaranka
Bloomfield, Conn.
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Mary Ann Seibel-Porto
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John D. Ryan
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Arnold Air Society
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For information on
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Following each state name are the names of the communities in which AFA chapters are located. Information regarding chapters or any of AFA's activities within the state may be obtained from the appropriate contact.

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ARIZONA (Green Valley, Luke AFB, Phoenix, Prescott, Sedona, Sierra Vista, Tucson): **Arthur W. Gigax**, 3325 S. Elm St., Tempe, AZ 85282-5765 (phone 480-838-2278).

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DISTRICT OF COLUMBIA (Washington): **Rosemary Pacenta**, 1501 Lee Hwy., Arlington, VA 22209-1198 (phone 703-247-5820).

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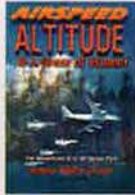
WYOMING (Cheyenne): **Stephan Pappas**, 2617 E. Lincolnway, Ste. A, Cheyenne, WY 82001 (phone 307-637-5227).

Books

Compiled by **Chequita Wood**, Editorial Associate

Airspeed, Altitude and a Sense of Humor: The Adventures of a Jet Tanker Pilot.

Ronnie Ridley George. Eakin Press, PO Box 90159, Austin, TX 78709-0159 (800-880-8642). 94 pages. \$16.95.



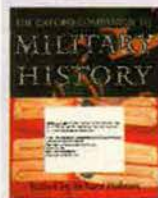
Our Personal War: A WWII Story of Love and Terror. Jan Tickner. Eakin Press, PO Box 90159, Austin, TX 78709-0159 (800-880-8642). 171 pages. \$19.95.



The Venona Secrets: Exposing Soviet Espionage and America's Traitors. Herbert Romerstein and Eric Breindel. Regnery Publishing, Inc., One Massachusetts Ave. NW, Washington, DC 20001 (888-219-4747). 608 pages. \$29.95.



Blind Bat: C-130 Night Forward Air Controller Ho Chi Minh Trail. Frederick F. Nyc III. Eakin Press, PO Box 90159, Austin, TX 78709-0159 (800-880-8642). 173 pages. \$26.95.



The Oxford Companion to Military History. Richard Holmes, ed. Oxford University Press, 198 Madison Ave., New York, NY 10016-4314 (800-334-4249). 1,048 pages. \$60.00.



The War in the Air, 1914-1994. Alan Stephens, ed. Air University Press, 131 W. Shumacher Ave., Maxwell AFB, AL 36112-6615 (334-953-2773). 418 pages. \$36.00.

History of Rocketry and Astronautics: AAS History Series, Vol. 23. Intl. Academy of Astronautics Symposia. Donald C. Elder and Christophe Rothmund, eds. Univelt, Inc., PO Box 28130, San Diego, CA 92198 (760-746-4004). 552 pages. \$60.00.



Petals of Fire. Herb Alf. Millennium Memorial Trust, Inc., PO Box 1273, Roseburg, OR 97470 (541-677-7443). 539 pages. \$45.00.



The Wild Blue: The Men and Boys Who Flew the B-24s Over Germany. Stephen E. Ambrose. Simon & Schuster, 1230 Avenue of the Americas, New York, NY 10020 (800-223-2348). 299 pages. \$26.00.



Luftwaffe Bomber Aces: Men, Machines, Methods. Mike Spick. Stackpole Books, 5067 Ritter Rd., Mechanicsburg, PA 17055-6921 (800-732-3669). 239 pages. \$34.95.



Poles in Defence of Britain: A Day-by-Day Chronology of Polish Day and Night Fighter Pilot Operations. Robert Gretzyngier. Seven Hills Book Distributors, 1531 Tremont St., Cincinnati, OH 45214 (800-545-2005). 294 pages. \$36.00.



Wings of Denial: The Alabama Air National Guard's Cover Role at the Bay of Pigs. Warren Trest and Donald Dodd. New South Books, PO Box 1588, Montgomery, AL 36102 (334-834-3556). 160 pages. \$17.95.

On the Edge of Earth: The Future of American Space Power. Steven Lambakis. University Press of Kentucky, 663 S. Limestone St., Lexington, KY 40508-4008 (800-839-6855). 365 pages. \$39.95.



Science and Technology: The Making of the Air Force Research Laboratory. Robert W. Duffner. Air University Press, 131 W. Shumacher Ave., Maxwell AFB, AL 36112-6115 (334-953-2773). 307 pages. \$27.00.



World and United States Aviation and Space Records. A.W. Greenfield, ed. National Aeronautic Association, 1815 N. Ft. Myer Dr., Ste. 500, Arlington, VA 22209. (800-644-9777). 442 pages. \$21.95.



Ordinary Heroes: A Tribute to Congressional Medal of Honor Recipients. Tom Casalini and Timothy Wallis. Sweet Pea Press, 10 1/2 N. Main St., Zionsville, IN 46077 (800-755-3706). 160 pages. \$35.00.



Sierra Hotel: Flying Air Force Fighters in the Decade After Vietnam. C.R. Anderegg. GPO, Supt. of Documents, PO Box 371954, Pittsburgh, PA 15250-7954 (866-512-1800). 210 pages. \$22.00.



Yesterday's Dragons: The B-17 Flying Fortress Over Europe During WWII. Abel L. Dolim. Communications Concepts, 35111-F Newark Blvd., Ste. 19, Newark, CA 94560 (510-792-1598). 154 pages. \$19.95.

By Frances McKenney, Assistant Managing Editor

Remembering the Korea War

The **Hawaii Chapter** used a \$1,000 matching grant from the Aerospace Education Foundation to carry out part of Pacific Air Forces' Korean War Airpower Symposium in Honolulu in June.

The three-day event featured eight panel discussions. The Korean War veterans on the "Stories From MiG Alley" panel included retired Brig. Gen. Benjamin B. Cassidy Jr. and retired Lt. Col. Dean E. Abbott. A native of the 50th State, Cassidy is a Hawaii Chapter member and flew 116 combat missions in World War II and 43 in the Korean War. Abbott is a member of the **Willamette Valley (Ore.) Chapter** and was Capt. Joseph C. McConnell Jr.'s wingman on the day the Korean War ace downed three MiGs.

William "Earl" Brown Jr., a member of the **Thomas W. Anthony (Md.) Chapter**, took part in the F-86 panel. Now a retired lieutenant general, he flew 125 missions in the F-86 Sabrejet in Korea (and another 100 in F-4s during the Vietnam War). Retired Col. Dean Hess, a pilot who started an unofficial orphanage for Korean children, participated in the panel on "The People Dimension." Other panelists included noted USAF historians Herman Wolk and William T. Y'Blood.

Among the representatives of several military services—and from various Korean War allies—was luncheon speaker retired Gen. Paik Sun Yup. In 1952, at age 32, he became the South Korean army's Chief of Staff. He was his country's first four-star. Lt. Gen. Charles R. Heflebower, 7th Air Force commander at Osan AB, South Korea, was also a luncheon speaker for the symposium.

A symposium reception was held at Hangar 7, Hickam AFB, Hawaii. On display: a restored F-86 and MiG-15, a MASH tent, field kitchen, radio jeep, "Air War in Korea" storyboards, and other memorabilia. Chapter Vice President Richard M. May Jr. had been the lead on restoration of the two fighter aircraft and was recognized during a ceremony at the reception.



AFA National Chairman of the Board Thomas McKee met with first-term Rep. Susan Davis (D-Calif.), of the House Armed Services Committee, in July to introduce her to AFA.

AEF support opened the event up to younger military members, according to Chapter President Jack L. DeTour.

New York State Convention

The tri-county chapters of Long Island—the **Francis S. Gabreski, Nassau Mitchel, and Queens Chapters**—hosted the 54th annual New York State convention at Hempstead, N.Y., in June.

Convention activities included a president's reception, golf tournament, and tour of the Cradle of Aviation Museum in Garden City, N.Y.

The 10th Jubilee of Liberty Medal ceremony, held at Hofstra University, was a highlight of the convention. The medal honors World War II veterans of the June 1944 Normandy invasion. Normandy government officials authorized the medal in 1991 and presented it to more than 35,000 veterans who returned to France for the 50th anniversary of the invasion. The tri-county AFA chapters periodically make formal presentations to those veterans who weren't able to travel to France in 1994 to receive them.

Rep. Peter King (R-N.Y.) presented 38 Army, Army Air Forces, Navy, and Coast Guard veterans with medals at the latest ceremony. It was the largest group of recipients so far, according to Fred DiFabio, downstate region vice president and Jubilee of Liberty Medal luncheon chairman.

AFA National President John J. Politi was keynote speaker for the awards dinner that evening. William G. Stratemeier Jr., an AFA national director, was convention chairman.

State of the Base

Delaware's Congressional delegation—Sens. Joseph R. Biden Jr. and Thomas R. Carper, both Democrats, and Republican Rep. Michael Castle—attended the annual "State of the Base" briefing in June at Dover AFB, Del. It was cohosted by the Delaware state AFA organization.

Brig. Gen. (sel.) S. "Taco" Gilbert, who was then commander of the 436th Airlift Wing at Dover, conducted the breakfast briefing, attended by more than 100 civic leaders and base officials. Gilbert described the military construction projects on base, wing

operations, and C-5 modernization programs.

The Congressmen expressed support for C-5 modernization and a desire for some C-17s to join the Galaxys at Dover.

Among the AFA officials attending the event were Ron Love, state president, and Stephanie Wright, state vice president, both from the **Delaware Galaxy Chapter**; Harry E. Van Den Heuvel, **Diamond State Chapter** president; and other state and chapter executive council members.

Three local newspapers covered the briefing.

Veteran of Bataan

A survivor of the Bataan Death March in the Philippines in World War II was the special guest at a Missouri AFA meeting in June, hosted by the **Earl D. Clark Jr. (Mo.) Chapter**.

John C. Playter was a field artillery officer in the Philippines in late 1941, when the US Army and Filipino soldiers withdrew to Bataan and fought a gallant holding action. The more than 70,000 troops were crippled by starvation and disease when finally overwhelmed on April 9, 1942. The Japanese then subjected them to a 65-mile march to a prison camp. Thousands perished on the trek. In August 1944, Playter was placed on a ship for transport to Japan. The ship was torpedoed, and most of the more than 700 prisoners who had been crammed into it died. But Playter and 82 others swam to shore, where Filipino guerrillas sheltered them. Playter was repatriated in November 1944.

At the meeting, Capt. Jason Armagost of the 325th Bomb Squadron at Whiteman AFB, Mo., read an excerpt from *Survivor*, Playter's memoir, published in 2000. Playter answered questions from the audience afterward. Maj. Gilbert Petrina, chapter president, and TSgt. Kevin E. Lewis, chapter vice president for communications, presented the guest with a print of the B-2 *Spirit of Missouri*, a memento of Playter's home state.

Tennessee State Convention

The **H.H. Arnold Memorial (Tenn.) Chapter** hosted the Tennessee State Convention in Tullahoma in May.

Award recipients at the awards dinner, held in nearby Lynchburg, included John W. Glass III, President of the **Chattanooga Chapter**, Glass received the Tennessee Volunteer Award.

Col. Patrick Eagan, director of support at the Arnold Engineering Development Center, Arnold AFB, Tenn., was the keynote speaker. He de-

scribed AEDC activities and provided more details on the flight simulation facilities that convention goers had toured earlier in the day.

Joseph E. Sutter of the **Gen. Bruce K. Holloway Chapter** was re-elected state president at the business session. Other officers re-elected were Nancy I. Blanchard, vice president, and George A. Vitzthum, secretary, both from the **Maj. Gen. Dan F. Callahan Chapter**, and James C. Kasperbauer, treasurer, of the **Everett R. Cook Chapter**.

Among the AFA notables at the gathering was Billy M. Boyd, South Central Region president.

Winners

Gen. Richard B. Myers, vice chairman of the Joint Chiefs of Staff, was guest speaker at a **Donald W. Steele Sr. Memorial (Va.) Chapter** luncheon in June. Among the more than 130 in attendance were foreign air attachés from 13 countries.

Myers spoke about challenges facing the Department of Defense and the ongoing Quadrennial Defense Review. He joined John E. Craig II, an AFA national director, and William L. Anderson, state president, in presenting the chapter's 2000 national-level awards. (The recipients were

listed in the magazine's November 2000 issue.)

Also at this membership meeting, Chapter President James T. Hannam presented chapter scholarships for 2001 to sisters Lisa and Linda Bradshaw, who are AFROTC cadets at Virginia Polytechnic Institute and State University in Blacksburg, Va.; Caroline Simpson, who plans to join the AFROTC program at Pennsylvania State University this fall; and Timothy Woolf.

Also in June, chapter member Lt. Col. Michael W. Isherwood received the AFA Writing Award at the National War College, Ft. McNair, D.C. Mary Anne Thompson, a former AFA National Secretary, and Craig were on hand for the presentation, made with Army Maj. Gen. Reginald G. Clemmons, NWC commandant. Isherwood's paper was entitled "Through a Glass Darkly: Viewing US Strategic Options on Iraq."

Christa's Planetarium

To encourage family participation, the **Brig. Gen. Harrison R. Thyng (N.H.) Chapter** chose to visit the Christa McAuliffe Planetarium in Concord, N.H., on a Saturday in June.

The planetarium, which opened in June 1990, honors the Concord High



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AFA/AEF National Report

School teacher who died in the explosion of the space shuttle *Challenger* in January 1986.

Twenty-four chapter members and guests toured the planetarium's exhibits and watched a presentation called "Tonight's Sky." Chapter President Eric P. Taylor said the most interesting aspect of the visit was audience participation in this show; at several points in its course, the audience voted from among three options to decide what the next step should be.

Following a lunch, the chapter held a business meeting at the New Hampshire Technical Institute, adjacent to the planetarium.

Golf Outing

When the **David J. Price/Beale (Calif.) Chapter** cohosted a golf tournament in June, AFA members from several chapters in the Golden State traveled to Beale Air Force Base to take part.

Chapter President Maj. Dennis Davoren headed the tournament's winning team that included Michael J. Peters, president of the **Brig. Gen. Robert F. Travis Chapter**. Rich Taubinger, Far West Region president and a **C. Farinha Gold Rush Chap-**



The Central Florida Chapter donated the top two awards for winners of Civil Air Patrol Group 4's Aerospace Quiz Bowl held in June at Patrick AFB, Fla. Richard A. Ortega (far right), state vice president for aerospace education, presents \$300 to the first-place Seminole team.

ter member, and Brig. Gen. Stanley Gorenc, Beale Chapter member and commander, 9th Reconnaissance Wing at Beale, were among the tournament's AFA participants.

This was the second year the chap-

ter cohosted the event with a local chapter of the Daedalians, reported Davoren. Forty-four golfers teed off on the links to benefit scholarship funds for several organizations.

Davoren added that, to boost support for the tournament, the organizers printed corporate logo flags for top sponsors. The flags flew at various holes and were later framed and presented to the sponsors.

More AFA/AEF News

■ The **E.W. Rawlings (Minn.) Chapter** recently donated \$2,500 to the Red Tail Project of the Confederate Air Force's American Airpower Heritage Museum. The museum has been restoring a P-51C Mustang that will highlight the role of the Tuskegee Airmen in World War II. Tuskegee Airmen fighter pilots had been nicknamed the Red-Tail Angels—for the markings on their aircraft—by bomber crews that they escorted. Kenneth O. Wofford, chapter vice president for aerospace education, and Coleman Rader, an AFA national director, have worked on the project for several years. Rader also recently helped prepare an educational supplement on the Tuskegee Airmen that can be adapted for use in local newspapers.

■ The **Fairbanks Midnight Sun (Alaska)** and **Anchorage Chapters** hosted a visit by Fred Rosenfelder, an AFA national director, in June. He attended a Fairbanks Chapter meeting at Eielson Air Force Base, then joined Chapter Secretary James W. Drew, Arthur Buswell, several chap-

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ter Community Partners, and local business and government leaders as guests of the 168th Air Refueling Wing (ANG) at Eielson. They received an orientation flight on a KC-135. The tanker demonstrated its mission for them with an air refueling of an E-3 Airborne Warning and Control System aircraft. The next day, Anchorage Chapter President Floyd E. Gori and Vice President Gary A. Hoff hosted Rosenfelder's visit to Elmendorf Air Force Base. During the visit, they met with Lt. Gen. Norton A. Schwartz, 11th Air Force commander and a chapter member.

■ **The Gold Coast (Fla.) Chapter** hosted its third Air Fair. Forty-five antique, classic, warbird, and military aircraft were on static display during the two-day event held at the Pompano Beach Air Park, Fla. A 1933 Waco biplane once owned by publisher William Randolph Hearst and a Bell Jet Ranger helicopter provided rides. Among the groups represented at the fair were the Tuskegee Airmen, WASPs, and a military vehicles collectors club which displayed World War II trucks, jeeps, and tanks. The chapter's executive vice president, Rod Edmunds, was Air Fair chairman. Other chapter members who managed the event were Walter E. Houghton, air operations; Joe C. Montgomery, marketing; Pat Boyce, public relations; and Milton Markowitz, chapter treasurer.

AFA Conventions

Sept. 15-19	AFA National Convention, Washington
Sept. 21-22	Colorado State Convention, Colorado Springs, Colo.
Sept. 21-23	Delaware State Convention, Dover, Del.
Sept. 28-30	New Hampshire State Convention, Portsmouth, N.H.
Oct. 12-14	Pennsylvania State Convention, Altoona, Pa.

■ The 927th Air Refueling Wing (AFRC) at Selfridge ANGB, Mich., recognized the **Mount Clemens (Mich.) Chapter** with a Certificate of Appreciation in May. Wing operations officer Col. Jeff Robertson presented the certificate to Chapter President Thomas C. Craft to thank the chapter for its donations of gift certificates to wing members over the past several years.

■ **The John W. DeMilly Jr. (Fla.) Chapter** "bought" the 14th hole at the Keys Gate Golf and Country Club to support a fund-raising golf tournament held by the 93rd Fighter Squadron (AFRC), Homestead ARS, Fla. The chapter also recently designated chapter members Michael E. and Irene Richardson as a Scott Associate of AEF, to celebrate their recent marriage.

■ Kyongseon West had only four courses to complete before earning her bachelor's degree from the University of Maryland's Asia Division.

Other assistance programs covered tuition for two of them, but West, whose spouse is an Air Force E-4, was going to have to pay for the other two classes herself. She was also due to deliver a baby in June. She figured the baby would come first, then the degree. After AEF selected her for a 2001 Spouse Scholarship, however, she immediately signed up for all four classes and was to receive her degree in information systems management in May. Because of the scholarship, she wrote in her thank you letter to AEF, she is now ahead of schedule and can make plans for a graduate degree.

Have AFA/AEF News?

Contributions to "AFA/AEF National Report" should be sent to *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: afa-aef@afa.org. ■

Unit Reunions

reunions@afa.org

29th FIS. Oct. 6-10, 2002, in San Francisco. **Contact:** John Baczynski (415-897-2419) (FTRJOK@aol.com).

38th, 66th, and 126th Air Police Sqs. Laon, France. Oct. 2-4 in Las Vegas. **Contact:** Tom Baranski, 6190 Quince Rd., Memphis, TN 38119 (901-683-1206) (TGBARAN@bellsouth.net).

40th BS, 6th BW (H). Oct. 12-14 in San Antonio. **Contact:** Len Kunko, 1601 S. Kentucky Ave., Roswell, NM 88201 (505-622-7546) (LKUNKO98@prodigy.net).

70th Air Refueling Assn. Oct. 10-14 in Jacksonville, AR. **Contact:** Taby Tabyanan, 108 Old Mill Rd., Dardenelle, AR 72834 (501-229-4462) (tabyanan@cox-internet.com).

79th FG, including 85th, 86th, and 87th FSs. Oct. 7-11 at the Marriott River Front Hotel in Savannah, GA. **Contact:** Edwin Newbould, 1206 S.E. 27th Ter., Cape Coral, FL 33904 (941-574-7098).

97th BW, Smoky Hill AFB, KS, and Biggs AFB, TX (1946-50). Sept. 20-22 in Irving, TX. **Contact:** Victor F. Riggs, 2524 Candleberry Dr., Mesquite, TX 75149 (972-285-1672) (Bombwing97riggs@yahoo.com).

99th BG, North Africa/Italy (WWII). April 16-21,

2002, in Nashville, TN. **Contact:** Walt Johnson, 55 Northwood, Huntington TN 38344.

390th FS. Sept. 21-22 at Mountain Home AFB, ID. **Contacts:** Lt. Dave Van Pelt (208-828-6390) (David.vanpelt@mountainhome.af.mil) or Gloria Valdez (208-828-3089) (Gloria.Valdez@mountainhome.af.mil).

417th BG and attached units. Sept. 13-15 in Colorado Springs, CO. **Contact:** R.N. Kunselman, 3048 Ellesmere Dr., Colorado Springs, CO 80922-1275 (719-574-4818) (r_rk417bg@juno.com).

438th FIS, 507th FG/Wg, Kinross/Kincheloe AFB, MI, including SAC. July 17-21, 2002, in Sault Ste. Marie, MI. **Contact:** Joe Sullivan, 7319 Eastwick Ln., Indianapolis, IN 46256 (317-845-9311) (jsullivan7319@aol.com).

463rd BG (H). Oct. 3-6 in Nashville, TN. **Contact:** Art Mendelsohn, PO Box 1137, La Canada, CA 91012 (818-790-3722) (B17463rd@EARTHLINK.NET).

1254th Air Transport Gp. Oct. 26-27 in Arlington, VA. **Contact:** Joseph Kuchinsky, 106 Ridge Point Pl., Gaithersburg, MD 20878 (301-948-8835).

Arnold Air Society Area III, ARCON 2001. Oct.

26-28 at the Crowne Plaza Ravinia in Atlanta. **Contact:** Aaron Sauer, 685 Cherry St., Atlanta, GA 30332 (gtmaverick@mindspring.com).

F-16 Viper Assn, including F-16 Viper drivers, associates, and families. Oct. 4-6 at Andrews AFB, MD. **Contact:** www.f16viper.org.

Pilot Class 43-D, all commands. April 24-27, 2002, at Embassy Suites, Dallas/Fort Worth Airport, TX. **Contacts:** George Savage (817-244-5600) (Gjsavage23@aol.com) or Frank Dutko (phone: 850-932-3467 or fax: 850-932-3467) (dutko43d@hotmail.com).

Pilot Class 45-B, Luke Field, AZ. Oct. 4-7 at Wright-Patterson AFB, Ohio. **Contact:** Russ Klug (262-549-5584).

Pilot Class 55-U and 56-A. Oct. 19-20 at the Sheraton-Gunter Hotel in San Antonio. **Contact:** Don Breeding, 3834 Southwestern, Houston, TX 77005. ■

Mail unit reunion notices four months ahead 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. We reserve the right to condense notices.

Pieces of History

Photography by Paul Kennedy

Mr. Bones



Call it macabre fighter pilot "humor." The 95th Fighter Squadron at Tyndall AFB, Fla., has as its mascot "Mr. Bones." He embodies the unit emblem, a skull sporting a silk high hat, white bow tie, monocle, and a cane in its white-gloved hand. The emblem—shown here on a scarf and leather flight jacket—was officially approved in 1954. The 95th traces its roots to January 1942, when it

was constituted as the 95th Pursuit Squadron (Interceptor). During World War II, the 95th FS flew P-38s in North Africa and Italy. Today, squadron members—who proudly refer to themselves as "Boneheads"—train F-15 pilots and maintainers.

Memorabilia courtesy of the 95th Fighter Squadron, Tyndall AFB, Fla.



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