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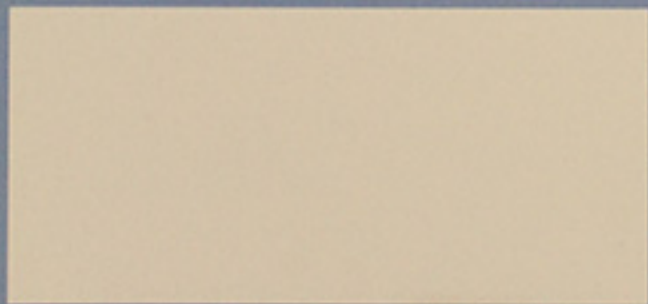
AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

Striking Back
Airpower Hits the Terrorists
Strategy For Changing Times

The B-52 Turns 50:
An Old Warrior in a New War



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December 2001, Vol. 84, No. 12

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About the cover: A B-52 heads back to Diego Garcia after a bombing mission over Afghanistan. See "Fifty Years of the B-52," p. 50. USAF photo by TSgt. Cedric H. Rudisill.

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By John T. Correll, Editor in Chief

Strategy for Changing Times

IN early September, the Pentagon was just finishing up the Quadrennial Defense Review, on which it had labored for the past seven months. Secretary of Defense Donald Rumsfeld had been given a broad charter to transform the armed forces to better meet the needs of the new century.

However, the White House had left the drafting of strategy to the Pentagon. At that point, developing national security strategy wasn't on the Administration's front burner.

That changed suddenly with the terrorist attacks on Sept. 11. A quick revision to the QDR made homeland security the top defense priority.

More important was the "Bush Doctrine." The President declared that the focal point of his Administration will be destroying the terror networks. Nations must choose: "Either you are with us, or you are with the terrorists," Bush said. "From this day forward, any nation that continues to harbor or support terrorism will be regarded by the United States as a hostile regime."

With that, the President laid the foundation for the first real defense strategy we have had since the Cold War. It is unlike the loose strategies of the 1990s, which scattered too much of their attention on interests deemed "important" but not necessarily "vital."

This time, the security of the nation is at risk. This time, there are enemies intent on bringing us down.

Assumptions and relationships in effect before Sept. 11 may no longer be in effect. As Deputy Secretary of Defense Paul Wolfowitz told the BBC, "We have a much higher priority now than anything we had two, three, four years ago."

It is possible that new alliances could emerge, in the same way that the Cold War spawned NATO. We have already seen extraordinary cooperation from other world powers, including Russia, in the counterattack on terrorism.

The Bush Doctrine is clearly the cornerstone of the new strategy, but major building blocks will be sup-

plied by Rumsfeld and his QDR team. A key point, which Rumsfeld has been pushing since last summer, is that we should move from a "threat-based" strategy to one that is "capabilities-based."

The capabilities-based model concentrates on how an adversary might fight rather than—as previous strategies did—on who the adversary

Assumptions in effect on Sept. 11 may no longer be in effect.

might be and where a war might occur. This would, the QDR report said, "refocus planners on the growing range of capabilities that adversaries might possess or could develop" and point to the capabilities we will need ourselves.

It would also anticipate surprise.

In a column for the *Washington Post*, Rumsfeld said that we must simultaneously win the war on terror and "prepare now for the next war—a war that may be vastly different not only from those of the past century but also from the new war on terrorism that we are fighting today. The methods of the Sept. 11 strikes came as a surprise. In the decades ahead, we will almost certainly be surprised again."

Rocting al Qaeda out of the caves in Afghanistan is one, but only one, of the things we need to do. The QDR report introduced a new acronym for us to worry about: CBRNE—chemical, biological, radiological, nuclear, and enhanced high explosive—weapons in the hands of states supporting terrorism, particularly in the Middle East.

Critical national infrastructures, among them the electrical power grid and the banking system, are vulnerable. At some point, there will be a serious attack on our assets in space

or on the computer networks on which we increasingly depend.

On the other hand, Wolfowitz reminded the House and Senate Armed Services Committees in October, the next challenge we face "might even be a return to the past with nation states invading their neighbors."

No matter what self-appointed experts might say on television or in the newspapers, conventional forces have not lost their importance. The air defense of North America has moved from the sidelines to the front lines. Air National Guard interceptors are a common sight above American cities.

We should further note that the first requirement in the counterattack on al Qaeda was global power projection. Homeland security cannot be achieved by defensive measures alone. It is simply not possible to be on guard everywhere against everything. Thus, a big element in defending the homeland against terrorists is to move the fight out of our homeland and into theirs.

The strategic change brought on by the Bush Doctrine is still too new—and not yet mature enough—to see fully how it will be implemented and what requirements it will generate.

It is generally obvious, though, that the requirements will range from human intelligence on the ground to technology in air and space. The Bush Doctrine commits us to search out and destroy those who threaten the United States, whoever and wherever they are. Among the military capabilities essential to the purpose are long reach, precision, and a high order of intelligence, surveillance, and reconnaissance.

As they deliberate on these matters, the architects of the new strategy may also find value in an operational goal first declared by the Air Force in 1996. It said the guiding objective for the 21st century would be to find, fix, track, and target anything that moves on the surface of the Earth.

That sounds like a good prescription, not only for the war on terror but also for whatever lies beyond. ■



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Misunderstood?

In your August magazine, your editor in chief commented on a May 16 *Defense Week* essay in which I pointed out many of the challenges confronting the concept of Effects-Based Operations. His characterization of me as attacking the concept of EBO because it favors airpower and diminishes the primacy of land battle represents a misunderstanding of that article.

There is no discounting the potential of EBO, but America's national military strategy should not be based upon the hope that Effects-Based Operations will allow the nation always to avoid more traditional force-on-force operations. Both history and current systems theory support this position. I have been pleased by the numerous communications I have received from other personnel of the Air Force who also agree with my point of view. I recently attended a fine presentation by an Air Force research fellow explaining flaws of his service doctrine dealing with inflated expectations for precision strikes and Effects-Based Operations. Some airmen in the audience questioned how anyone could criticize the pursuit of precision. They missed the point of his presentation, as your editor did mine.

Effects-Based Operations relying heavily on USAF precision strikes should be an option available to national command authorities. However, they are not a panacea—as the current campaign in Afghanistan shows—and cannot substitute for the full spectrum capabilities of a balanced joint force.

Conrad Crane
Carlisle, Pa.

■ *Those who want to check Professor Crane's essay, "Effects-Based Operations: A Blast From the Past," can find it in the May 14 issue of Defense Week newsletter. He defined the objective, correctly, as seeking to achieve strategic goals "without resorting to costly force-on-force actions." However, he depicted the Effects-Based Operations concept as flawed by "overconfidence in the*

potential of technology." His criticism focused on precision strike, information superiority, and airpower.

Crane cited at length the example of the air war over Serbia, which showed (he said) that "waging war at a distance has not significantly lessened the amount of collateral damage inflicted upon civilian infrastructure." He said the air campaign "dragged on for more than two months" before achieving its objective and that "despite high expectations for a 'bloodless' campaign, as many as 1,500 civilians were killed."

I do not know where Crane got the alleged promise of a completely "bloodless" campaign. Nor do I know the source for his 1,500 civilians killed. The Milosevic regime itself reported 400 to 600 civilian deaths. In any case, technology and precision in this campaign kept the casualties low by comparison with conflicts of the past. For perspective, consider World War I, in which airpower was a marginal factor and the civilian death toll was approximately 13 million.

As for "inflated expectations for precision strikes," I hope that Crane and all Air Force research fellows are aware that the accuracy for aerial delivery of precision guided bombs in Serbia was 20 feet. Only 20 out of some 23,000 munitions expended there caused collateral damage or civilian casualties.

Crane's essay got down to its real business with the observation that "wars will not be won from a distance"—meaning airpower—and that

"the United States has been most successful in war when it concludes with a triumphant march through the enemy capital." As for the operation in Yugoslavia, he said that "the most likely reason for the end of the war was the growing threat of a NATO land invasion."

We've heard that one before, and I understood his position the first time. I just don't agree with it.—JOHN T. CORRELL

Hardware Vs. Training

John Tirpak's "Foreign Fighters Get Better" [*October, p. 30*] and the Air Force intelligence paper on which it's apparently based are more significant for what they ignore than what they say.

First, new and improved foreign fighters are not news. These new aircraft are responses to the needs of the market. We should actually welcome the competition: Without it, our aerospace industry would stagnate and die.

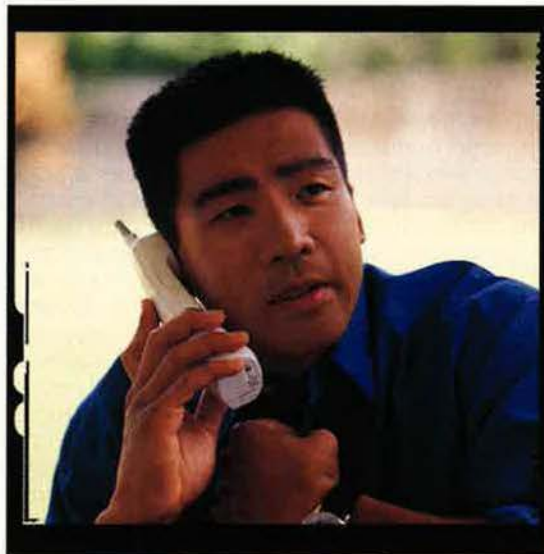
Second, while a fighter's technical performance characteristics are important, they represent just a fraction of the total picture. What's missing? Pilot training and proficiency, the tactics and procedures used when employing the aircraft, the number of fighters of this advanced type in a given force, and the logistical support available for the jets. Only when all of these factors are taken together can anyone accurately evaluate how much of a threat a new fighter is in a potential adversary's air force.

Tirpak gives short shrift to training and proficiency. While he quotes an unnamed industry analyst as saying that an advanced aircraft can make a mediocre pilot better, the inverse is also true and cannot be ignored.

In many foreign air forces, pilots get only a fraction—sometimes a small fraction—of the training time US pilots do. A significant portion of training must go to maintaining basic flying skills. When there's only a limited amount of flying time available, advanced tactics training has to be skipped just to make sure the pilot can safely fly the jet. One of the major reasons US air forces are so

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Letters

skilled is because they regularly take part in advanced training exercises. Few other nations have the resources to attempt anything close.

Numbers matter, too. During the Cold War, USAF made much of its technical superiority as a counterweight to the Warsaw Pact's numerical advantage. Now turn that on its head. If an adversary has only a few advanced fighters, while [those fighters] may have technical advantages over some USAF aircraft, our greater numbers, combined with better tactics, flown better, will ultimately prevail.

Further, we can't ignore the logistics tail. We know from present-day experience that many of the countries likely to buy these new foreign fighters have only limited abilities to support and maintain advanced aircraft, particularly without outside help. An advanced fighter is certainly no threat if it can't get off the ground.

Finally, the USAF analysis and Tirpak's article appear to be based on several worst-case assumptions. First, that the US will not buy enough of our new fighters. Second, that we will face a "peer competitor" enemy, even though other intelligence analyses indicate no such enemy will emerge for many years.

Third, that that enemy will have the resources to buy enough of these new fighters and devote enough time and money to build an air arm as good as any of ours. And fourth, that we would either not notice or not react until it was too late. These assumptions seem dubious at best.

Lt. Col. Ross B. Lampert,
USAF (Ret.)
Edmond, Okla.

■ *Lampert is criticizing assertions not made in the article, which was meant as a status report on foreign fighter aircraft.*

Foreign air forces are upgrading, the fighters available to them are improving in all respects, and the inherent advantages of fielded US fighter designs, which are all more than 25 years old, are diminishing. That's not "worst case," it's a fact.

Training and logistics support vary by country and can improve—or decay—in often startlingly brief periods of time, depending on national will and funding. Aircraft kinematics, on the other hand, tend not to change that much.

Far from downplaying training and proficiency, the article concluded with the observation that these factors

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JOHN A. TIRPAK

For the Record

The *Air Force Magazine* article "Threats to the Nets" [October, p. 22], by Michael C. Sirak, stated that "the National Infrastructure Protection Center, established in 1998, works with the federally funded Computer Emergency Response team Coordination Center at Carnegie Mellon University to detect, assess, and develop responses to cyber-attacks."

We would like to correct this statement. The work that the CERT Coordination Center performs for the NIPC is limited to facilitating communication during incident resolution with law enforcement and helping the NIPC design an incident response process to facilitate the reporting of computer security incidents to law enforcement.

In fact, the CERT/CC's support for DOD is more extensive than is indicated in your article. The CERT/CC is located at the Software Engineering Institute, a DOD-sponsored federally funded research and development center at Carnegie Mellon. The CERT/CC is sponsored on behalf of DOD by the Joint Task Force-Computer Network Operations and works closely with the Defense Information Systems Agency DOD Computer Emergency Response Team, DISA Regional CERTs, USSPACECOM, military service computer security incident response teams, and defense intelligence agencies.

The CERT/CC transitions knowledge about new threats and vulnerabilities to DOD incident response teams through various methods of communication and offers assistance to resolve incidents affecting DOD systems. The CERT/CC is also working with DOD to develop a capability to predict trends in malicious code development and functionality for the purpose of identifying new threats or possible attacks that would involve DOD machines and networks.

Stephen E. Cross
Director, SEI
Pittsburgh

War on Terror

These acts were not committed by a group of mentally deranged fanatics. [See "Aerospace World: The September Massacre—Sept. 11, 2001," October, p. 9.] These attacks were committed by a ferocious, intelligent, and dedicated adversary. These people hate the US with all of their being. You will recall that there was dancing in the streets in much of the Arab world following the Sept. 11 attack.

The news media, particularly the

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major networks, are now giving air time to the Osama bin Laden group. Few to none of the major network reporters wear the American flag or ribbon when reporting. [They say] this might offend the Muslim world and thus displease their international audience. Simply put, the news media is giving aid and comfort to the enemy. This borders on treason.

This war will probably be won or lost by the American citizen, not diplomats, politicians, or soldiers. Can there be any doubt that this is a war of annihilation? It is not unthinkable that, over the long drawn out process of conducting this war, the news media may adversely affect its outcome. I quote President Bush, "You're with us or against us."

I suggest that concerned persons contact their political representatives, the major TV networks, to include the talk shows, in an attempt to stop these irresponsible acts.

Brig. Gen. O.T. Ridley,
USAF (Ret.)
Murfreesboro, Tenn.

It is a shame that a large number, perhaps a majority, of Muslims around the world believe the US' and our allies' fight is with them and not the murderers who attempted to kill 50,000 innocent civilians on Sept. 11. Don't they realize that the last three conflicts the US has been involved in during the last decade were in defense of Muslim populations (Kuwait, Bosnia, Kosovo)? These Muslim weren't subverted—they were freed.

Lt. Col. Terry Van Keuren,
USAF (Ret.)
Golden, Colo.

Robert S. Dudney presented an informative article on the horrible events of Sept. 11, giving accolades to the fighters and AWACS that launched to defend the nation in its dark hours after the attack. However, he commit-

ted the typical omission of one who doesn't fully understand what it takes to provide such a defense, principally that it takes air refueling support to make any response successful.

He failed to mention that dozens of air refueling assets, both KC-10s and KC-135s, were redirected or short-notice launched after the attacks to ensure the various combat air patrols and early warning aircraft could stay on station. Air refueling assets have been on station and on alert alongside the fighters and AWACS ever since and will continue to be.

Like every other service member in any major weapon system or specialty, I don't need recognition or praise to accomplish what I'm trained to do. I am honored to be able to take part in the defense of my country in this time of crisis. But, if Dudney is going to describe what weapon systems responded after the attack, I do not appreciate him omitting key players like the tankers. It's a total force concept, a team effort that makes it happen.

Capt. Don Long,
99th Air Refueling Squadron
Robins AFB, Ga.

■ "The September Massacre" was a short summary in the "Aerospace World" news section of the magazine. It did not include specific reference to everyone and every system with a role in the response. Before you read into that any lack of regard or appreciation for tankers and their crews, please notice the air refueling photo on the cover of that issue and the multiple tanker references and photos in the magazine that month.—

THE EDITORS

Recruiter Friendly

In reading "The Recruiters and the Schools" by Bruce D. Callander [October, p. 62] I was very surprised to read the Commonwealth of Massachusetts was identified as a state



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Letters

that is not armed forces recruiting friendly. As a 10-year Air National Guard recruiter, and a former member of a Commonwealth school committee, I can assure you it is against the law to treat armed forces recruiters differently than any other type of recruiter, be it civilian business or educational institution.

In fact, here is the excerpt from the Massachusetts General Law, "Chapter 71: Section 88. Military recruiters; on-campus recruiting opportunities. Section 88. Notwithstanding any other provision of law to the contrary, all public high schools shall offer the same student information and on-campus recruiting opportunities to representatives of state or United States armed services as they offer to nonmilitary recruiters."

I am not aware of "any other provision of law to the contrary." Consequently, any recruiter experiencing difficulty gaining access to a public school need only contact the governing school committee or the Commonwealth of Massachusetts Department of Education.

MSgt. Peter M. Gorman,
Massachusetts ANG
Milford, Mass.

■ *As stated in the article, the data were provided by DOD, based on reports from active duty recruiters in the various states. Perhaps there was some change in the Massachusetts law or perhaps it's being misapplied.*—THE EDITORS

Too Much?

Please tell me that there was a typo in the section stating that the Air Force would expend \$150 million to upgrade 1,300 housing units in the UK. Would it not be cheaper to raze those units and build new ones? Refurbishing at over \$115,000 per unit sounds a bit excessive.

Don LeBlanc
Scott, La.

■ *There was no typo.*—THE EDITORS

The DFC

Why the uproar about awarding the [Distinguished Flying Cross] to a crew member of the EP-3? [See "Letters: The DFC," November, p. 8, and "Letters: Speaking of the Last Flight," September, p. 6.]

The certificate for the award of the DFC that I am looking at simply says: This is to certify that the President of the United States of America authorized by act of Congress July 2, 1926, has awarded the Distinguished Fly-

ing Cross to (name of the recipient) for extraordinary achievement while participating in aerial flight (date of action), followed by the proper signatures.

The certificate also does not discriminate between combat and non-combat flight or officer and enlisted airmen. What may be more extraordinary in the discussion is that there are numerous nonpilot crew members who have been honored with the DFC. As to the proliferation of not only awards and ribbons is concerned, Lt. Col. Jim White may have a very valid point. A business suit (that mimics an airline pilot's) in lieu of the Air Force uniform or the Navy uniform, a ribbon for completing basic training, and, yes, the new Air Force symbol itself, among others, seem to be cheapening our rich military tradition and apparently pay more attention to mod trends and greedy merchants.

CMSgt. Johann H. Behnken,
USAF (Ret.)
Shalimar, Fla.

There is no requirement to be in combat for the award of this decoration. For his solo flight across the Atlantic, Charles A. Lindbergh was the first recipient of the DFC. The Wright brothers received the DFC by an act of Congress for their first manned flight. Amelia Earhart was the only female civilian to be awarded the DFC by the US Army Air Corps. Richard E. Byrd was also an early recipient of the DFC for his historical flight over the North Pole.

MSgt. Joseph E. Manos,
USAF (Ret.)
Sacramento, Calif.

Need Five

With regard to the article "The Defense Budget at a Glance" [*The Chart Page*, September, p. 78], anything less than five percent GDP for defense outlays is a surefire ticket to disaster. Don't these politicians we keep electing to Congress ever learn anything from past history? [Theodore Roosevelt] said it best: "Speak softly and carry a big stick."

Maj. Maynard H. Kolb,
USAF (Ret.)
Seguin, Tex.

Correction

In the November issue, in the photo caption in "Aerospace World" on p. 10, the date for the start of the humanitarian daily rations air-drop in Afghanistan should have been Oct. 7 (EDT).

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The Chart Page

By Tamar A. Mehuron, Associate Editor

Weapons of Mass Destruction

Twenty-one countries which are declared, suspected, or aspiring owners of mass-destruction weapons possess ballistic missiles.

So states a recent report on the subject by the Congressional Research Service. Among these 21 are established powers such as the United States, Britain, France, Russia, and China, each of which has fielded nuclear arms for at least 35 years.

The others, however, can be found in a great arc of crisis ranging from North Africa through the Mideast and South Asia to Northeast Asia. Three—India, Pakistan, and Israel—are viewed as nuclear weapons states. North Korea probably has them, and Libya, Iran, and Iraq are said to be developing them.

Others have chemical weapon and missile development programs, and several are reportedly working on biological weapons.

Source: Congressional Research Service, "Nuclear, Biological, and Chemical Weapons and Missiles: The Current Situation and Trends," Aug. 10, 2001.

Who Has What?

Nation	Nuclear Weapons	Biological Weapons	Chemical Weapons	Ballistic Missiles (Longest range)
Algeria	—	Research?	Suspected	SRBM
China	Known	Likely	Has Had	ICBM
Egypt	—	Known R&D	Likely	SRBM
Ethiopia	—	—	Likely	—
France	Known	Ended	Ended	SLBM
India	Known	—	Has Had	MRBM
Indonesia	—	—	Sought	—
Iran	Seeking	Likely	Has Had	MRBM
Iraq	Seeking	Known	Known	SRBM
Israel	Known	Likely R&D	Likely	MRBM
Kazakhstan	Ended	—	Suspected	SRBM
Libya	Seeking	Research	Likely	MRBM
Myanmar	—	—	Likely	—
North Korea	Likely	Likely	Known	IRBM
Pakistan	Known	—	Likely	MRBM
Russia	Known	Suspected	Known	ICBM
Saudi Arabia	—	—	Suspected	MRBM
South Africa	Ended	Ended	Suspected	Ended
South Korea	Ended	—	Suspected	SRBM
Sudan	—	—	Suspected	—
Syria	—	Seeking	Known	SRBM
Taiwan	Ended	Suspected	Likely	SRBM
Thailand	—	—	Suspected	—
UK	Known	Ended	Ended	SLBM
US	Known	Ended	Known	ICBM
Vietnam	—	—	Likely	SRBM
Yugoslavia	—	—	Known	Suspected

Key:	
SRBM	Short Range Ballistic Missile 620 miles
MRBM	Medium Range Ballistic Missile 621–1,860 miles
IRBM	Intermediate Range Ballistic Missile 1,861–3,410 miles
ICBM	Intercontinental Ballistic Missile More than 3,410 miles
SLBM	Submarine Launched Ballistic Missile Various

Aerospace World

By Peter Grier

Whiteman B-2 Flies Longest-Ever Combat Mission

Six B-2 stealth bombers from the 509th Bomb Wing, Whiteman AFB, Mo., flew combat sorties lasting more than 40 hours in the first days of the air strikes in Afghanistan. One of the B-2s flew 44-plus hours—the longest such flight in the history of aviation.

The B-2s flew six sorties in the first three days of US strikes against the Taliban and terrorists in Afghanistan.

"The B-2 performed as advertised," said 509th Bomb Wing Commander Brig. Gen. Anthony F. Przybyslawski.

B-2 pilots are well-prepared for long-range missions, he said. They fly simulator sorties up to 50 hours in length.

After attacking targets in Afghanistan, the bomber crews landed at the British island of Diego Garcia in the Indian Ocean. With engines running, crews changed for the 30-hour flight home.

"The fact these aircraft never shut down their engines for more than 70 hours highlights the durability and reliability of this weapon system," said Przybyslawski. "Every aircraft landed here [at Whiteman] 'code one,' which means they are mechanically ready to go again."

Victory Certain, Chief Declares

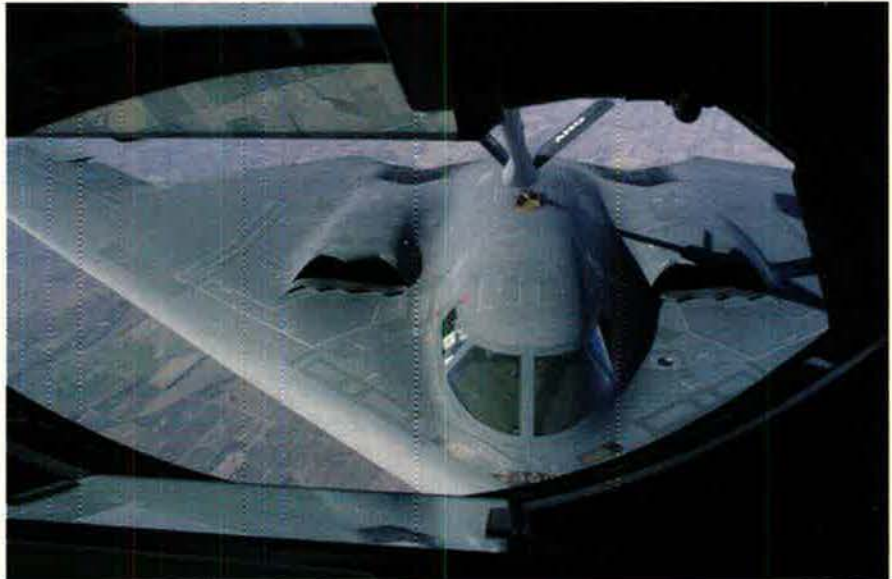
The war on terrorism may be long and difficult, but in the end, the US military will be victorious, said Gen. John P. Jumper, Air Force Chief of Staff.

In recent remarks, Jumper said USAF will be successful in any missions it is called upon to perform.

"Although this next war may not be a 100-0 war like Kosovo, I know which team will come out on top," said Jumper.

The demands of this new conflict make the Air Force's ongoing transformation even more important, he said. The problems of retention of needed personnel, recapitalization of an aging aircraft fleet, and readiness of both man and machine must be addressed.

Retention, for example, may require "a new definition of quality of



A Nebraska Air National Guard KC-135R refuels a B-2 bomber from Whiteman AFB, Mo. B-2s flew from Missouri to Afghanistan to take part in Operation Enduring Freedom.

life," he said. That means more than a higher material standard of living.

"The most important part of quality of life is how we feel about ourselves," added the Chief. "[Those of us in uniform] symbolize the strength of the nation. When we have a crisis, the nation turns to us. We should feel good about that."

Tools and training are also a necessary part of retention. Few personnel can stay upbeat for long without the tools they need to do the job.

The F-22 and Joint Strike Fighter will help counter the rising age of the aircraft fleet. But more needs to be done, said Jumper. He wants to plan now to replace the current Boeing 707-based fleet of tankers and intelligence, surveillance, and reconnaissance assets.

An aging fleet has implications for more than just maintenance costs.

"In many ways, the superb technological edge that [we] have always enjoyed over our adversaries has eroded," said Jumper. "Our experience shows that our pilots flying the [adversary's] airplane beat our pilots flying our airplanes almost every time."

"Our main edge today is our train-

ing," said the Chief. "We will not relinquish one iota of the quality training that characterizes our Air Force."

Bush Vows Full Support for Military

In Oct. 15 remarks at Ft. Myer, Va., President Bush promised that the United States military will have everything it needs to fight terrorism.

"I made a commitment to every serviceman and -woman: For the mission that lies ahead you will have everything you need—every resource, every weapon, every means to assure full victory for the United States, our allies, our friends, and the cause of freedom," said Bush at a Full Honors Welcome Ceremony for the new Chairman of the Joint Chiefs of Staff, Air Force Gen. Richard B. Myers, and the new vice chairman, Marine Gen. Peter Pace.

The US is now engaged in a war on many fronts, said Bush. All agencies of the federal government will be involved. But he said the military is playing an essential role.

"In the values and traditions of our military, you represent everything they hate," said Bush. "You defend hu-

USAF photo by SMSgt. Lee Straube

Civilian Airliners and the Rules of Engagement

Under new rules of engagement in force since Sept. 11, some US military commanders have the authority to authorize the destruction of hijacked airliners that threaten lives on the ground.

The Department of Defense had no explicit policy for such a scenario prior to the terrorist attacks on the World Trade Center and Pentagon, said officials.

On that day, suicide-hijackers created mass destruction weapons out of four civil airliners, crashing them into the North and South Towers of the World Trade Center, the Pentagon, and—in an apparent misfire—into the Pennsylvania countryside.

If time permits, such a fateful decision to shoot down an airliner would be made by the nation's Commander in Chief. President Bush gave such an order on Sept. 11, but it was after the terrorist attacks. The new rules eliminate any delay.

In the event there is insufficient time to check with the White House or Pentagon high command, shutdown authority would vest in Gen. Ed Eberhart, head of the North American Aerospace Defense Command.

If impact were only seconds away and there was no time to seek guidance up the chain of command, responsibility and authority would devolve to Maj. Gen. Larry K. Arnold, two-star head of 1st Air Force in the continental US, and Lt. Gen. Norton A. Schwartz at Elmendorf AFB, Alaska, for attacks in that state.

Adm. Dennis C. Blair, head of Pacific Command, would have authority for Hawaii.

"We'll certainly try to do it faster than that, however," said Evey.

The growth of mold and mildew caused by water used on fires is also a concern. Pentagon air is being tested "to ensure that it's a healthy work environment," said Evey.

NATO Sends AWACS to Patrol US Skies

Five NATO Airborne Warning and Control System aircraft have flown from Germany to help the US in its fight against terrorism.

The radar airplanes, which are based at Tinker AFB, Okla., are assisting in continental defense operations, freeing the US military's own AWACS aircraft for operations elsewhere.

The switch marks the first time in the 52-year history of the North Atlantic alliance that NATO assets have been used to protect the United States. The airplanes will be flown by multinational crews and provide radar coverage for USAF combat air patrols.

The NATO aircraft will "be here as long as we need them," said Capt. Ed Thomas, a spokesman for NORAD, headquartered at Peterson AFB, Colo.

Bush Unveils "Most Wanted" List of Terrorists

President Bush released a list of the world's "Most Wanted Terrorists" during an Oct. 10 ceremony at FBI headquarters in Washington.

The list has 22 names and faces, with Osama bin Laden at No. 1.

"Terrorism has a face, and today we expose it for the world to see," said Bush.

Some of those on the list have already been indicted by US courts.

man freedom. You value life. Here and around the world, you keep the peace that they seek to destroy."

Both Myers and Pace epitomize the code by which the US military lives, said the Commander in Chief, "a code of honor and a tradition of loyalty and decency."

US Makes No Military Requests of Riyadh

The US made no request to Saudi Arabia to launch air strikes against Afghanistan from Saudi bases, said a key Saudi official on Oct. 4.

Indeed the US did not ask the Saudis for anything at all of a military nature during Secretary of Defense Donald Rumsfeld's visit to the area prior to the beginning of air strikes against Taliban and al Qaeda forces.

"This matter was not a point of discussion between the two sides," said Saudi Defense Minister Prince Sultan bin Abdul Aziz at a joint press conference with the US defense chief.

The prince denied that the Saudi government was resisting US calls to freeze the funds of organizations that support terrorism. "If we find them, we will take all the necessary measures," he said, through a translator.

Pentagon Repairs Will Take Years

It could take more than three years and about \$800 million to repair the damage to the Pentagon sustained

in the Sept. 11 terrorist attack. The damaged sections of the building—Wedge 1 and Wedge 2—will have to be torn down, cleared, and rebuilt, said Walker Evey, Pentagon renovation project manager, at an Oct. 2 press briefing. That should take about 18 months.

Then utilities will have to be routed through the area and furniture, fixtures, carpeting, and other equipment installed. This phase of the project could take upward of two years.

Guard Units Find Merit in Airport Patrol

SMSgt. Tim Hall, 150th Security Forces Squadron, New Mexico Air National Guard, says he has never seen anything like it. Deployed to Albuquerque Airport as part of a national effort to bolster airline security, he has been welcomed by passengers and air employees alike.

"The gratitude we've been receiving has been overwhelming," said Hall, a 13-year veteran of civilian police forces.

In late September President Bush announced that National Guard troops will bolster security at 422 of the nation's largest airports for four to six months. The FAA officially requested about 5,000 troops to carry out this historic mission.

State governors can decide what roles the Guard will actually fill. But duties can include monitoring and reinforcement of checkpoints, monitoring performance of civilian screeners, and assistance of civilian security as required.

In Albuquerque—as in most other venues—early returns are enthusiastic. The Guard members are offered food and drink and showered with compliments.

One woman in New Mexico offered a Guardsman \$5 because her son is a soldier, too.

"This is nothing unusual for this squadron," said Hall, who spent 17 years on active duty. "Half of the people are police officers, and we have performed flight line security and air base ground defense missions in Saudi Arabia during the Gulf War."

Afghan Food Drop Marks First Use of New System

When the US military began air-dropping food aid over Afghanistan on Oct. 7 (approximately 9:30 p.m. EDT), the move marked the first operational use of a new drop system intended to be both safer and easier to use than its predecessors.

The Air Force credits two loadmasters—SMSgt. Cliff Harmon and MSgt. Donny Brass—with developing the novel method.

Rather than rely on heavy food pallets hanging from parachutes, the tri-wall aerial delivery system uses refrigerator cardboard boxes with three-ply walls. Forty-two such boxes are carried on each C-17 Globemaster on each run. They are packed with a total of more than 17,000 humanitarian relief meals.

Flown at high altitude and at night, the missions are dangerous.

"The fact that you're flying into a combat zone cannot be ignored," said Col. Kip Self, director for mobility forces in support of Operation Enduring Freedom.

As they approach drop zones, the crews depressurize the aircraft and open the rear cargo door. At a precise moment, pilots raise the C-17 nose slightly, allowing loadmasters to slide the boxes out the back.

The boxes are tied to a static line that tightens and flips them over once they are free of the airplane. The boxes themselves disintegrate and food packs spill free and disperse over the zone.

"We determined our drop zones, taking into account where the people who needed the aid are located, potential threats in the area, and existing wind conditions to maximize accuracy to the best of our ability," said Col. Bob Allardice, overall mission commander of the initial C-17 runs.

Heavy wooden crates parachuted down by previous methods were not always safe for those on the ground. The new scattering method also packs many more meals on airlifters.

"We've tripled the size of the payload that we deliver now, and that means a lot when you're feeding three times as many people as you used to," said co-developer Harmon.

Each of the plastic food packs contains 2,200 ready-to-eat food rations specially designed for moderately malnourished refugees.

The special humanitarian meals were developed following the US experience in providing aid to Kurdish refugees in northern Iraq following the Gulf War. Many military rations contain pork, which Muslims cannot eat.

The packs provide an entire day's nutritional requirements. Each contains two vegetarian meals, most based heavily on lentils. Typical entrees are beans with tomatoes, beans and rice, and bean salad.

Complementary items include bread, a fruit bar, a fortified biscuit, peanut butter, and spices. The packets are marked with illustrations showing how to eat the food, a US flag, and the words, "A Food Gift From the People of the United States of America."

The packs cost about \$4 each and have a shelf life of upward of two years. At the beginning of the airdrops, officials said the US had about two million of the "culturally neutral" humanitarian meals in stock. As of Nov. 2, USAF crews had dropped 1,062,000.

There is a \$5 million reward for information leading to the arrest of any of the terrorists. The Air Line Pilots Association and Air Transport Association have offered a further \$2 million reward for bin Laden.

The full list can be viewed at www.fbi.gov.

White Is Point Man for Homeland Security

Secretary of Defense Donald Rumsfeld announced Oct. 2 that he has designated Secretary of the Army Thomas E. White as DOD's executive agent for homeland security issues.

White is a retired Army brigadier general who has also served as vice chairman of Enron Energy Services.

"I look forward to working closely with Gov. Tom Ridge as he leads this vital effort," said White.

Marines Form Anti-Terror Brigade

On Oct. 4 Marine Corps leaders announced that they will stand up an anti-terrorism brigade, with full operational capability set for Dec. 1.

End strength of the new brigade will be 4,800 personnel. It will merge three existing anti-terrorism units: the Marine Security Force Battalion, the Marine Security Guard Battalion, and the Chemical, Biological Incident Response Force.

A fourth element, an anti-terrorism battalion, will evolve from the 1st Battalion, 8th Marines, the unit terrorists hit in Lebanon in 1983, killing 241 US service members.

Establishment of the brigade may require the Marines to request an addition of 2,400 people to their authorized end strength. Its aim is to provide "vigilance with an attitude

and the Marine Corps muscle to back it up," said Brig. Gen. Douglas V. O'Dell Jr., who will command the unit.

Administration Creates Cyber-Security, Anti-Terror Posts

At a White House ceremony Oct. 9, National Security Advisor Condoleezza Rice and Director of Homeland Security Thomas Ridge announced the creation of two new anti-terrorism posts: special advisor to the President for cyber-security and national director and deputy national security advisor for combating terrorism.

The cyber-security job will be filled by Richard A. Clarke, who is one of the nation's leading experts on the subject, said Ridge. In a long career of government service Clarke served as deputy assistant secretary of state for intelligence and as assistant secretary of state for politico-military affairs. In 1998, he was appointed as the nation's first national coordinator for security, infrastructure protection, and counterterrorism.

Retired Army Gen. Wayne A. Downing will be the anti-terrorism director. Downing spent 34 years in the US Army, retiring in 1996 from his last assignment—commander in chief, US Special Operations Command. Downing headed the commission that studied the 1996 terrorist attack on the Khobar Towers in Saudi Arabia to make recommendations on how to protect US facilities around the world.

Clarke and Downing will report to both Rice and Ridge.

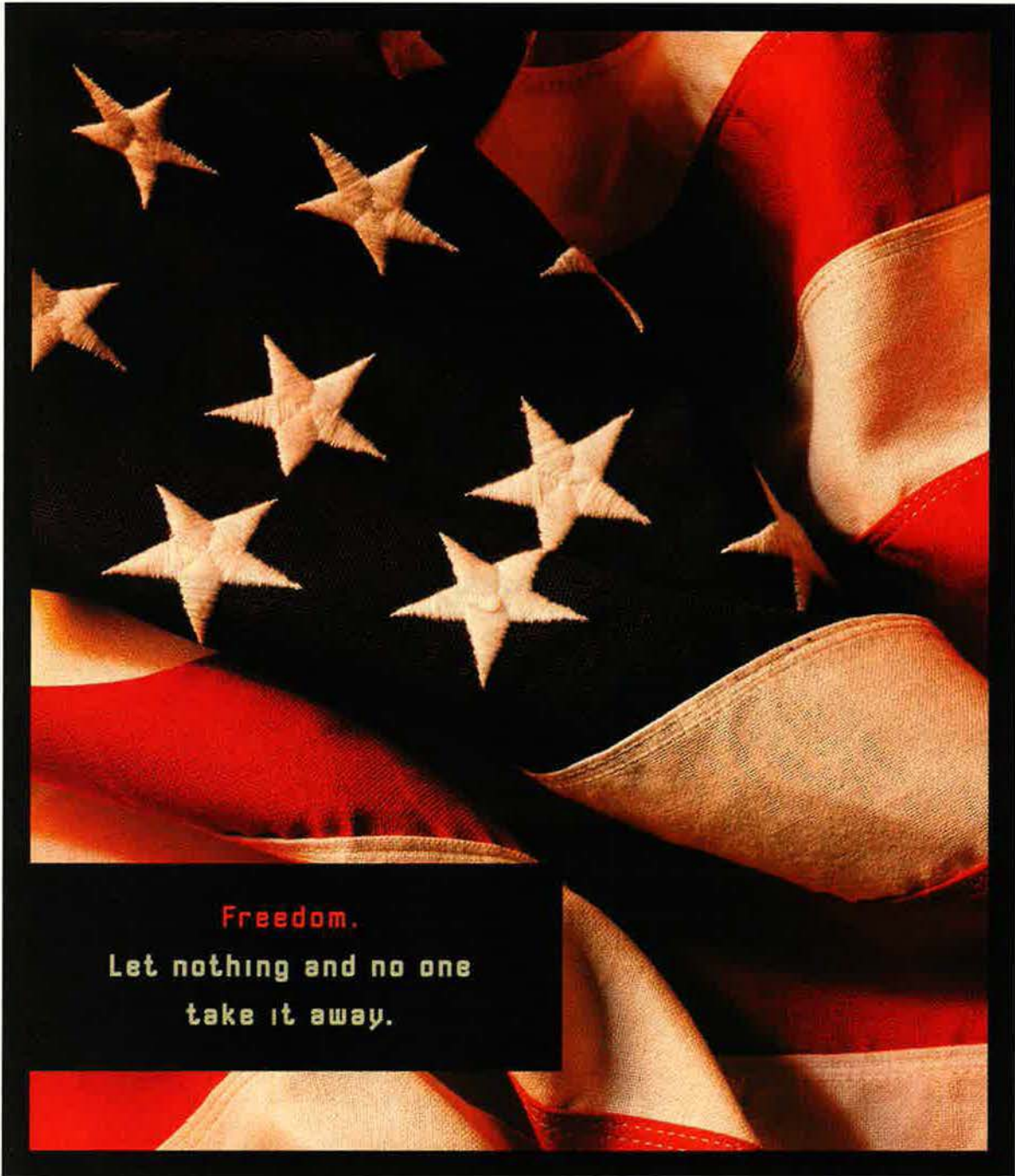
CAP Establishes Fund for DOD Victims

The Civil Air Patrol has established the EAGLE (Extending A Gift of Love and Empathy) Fund to receive charitable donations for the relief of victims of the terrorist attack upon the Pentagon and their families.

Specific goals of the fund will include support of long-term educational, health, and rehabilitation needs, as well as grief counseling and general support. Checks may be mailed to: Civil Air Patrol EAGLE Fund, Department 3139, PO Box 2153, Birmingham, Ala. 35287-3139. Donors may also go online to www.capnhq.gov for credit card information.

US Preserves Flag From Pentagon Crash Site

The large American flag draped as a memorial near the hole blown in the side of the Pentagon by a hijacked airliner was lowered Oct. 11 and will be preserved for posterity.



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Roche Discusses Terror, USAF's Mission

Recent events mean that the Air Force is now facing a fundamentally changed world, Air Force Secretary James G. Roche said Oct. 5 during a visit to Lackland AFB, Tex.

"We are now entering an era in which we need to anticipate and prepare for asymmetric attacks, including but not limited to terrorism," Roche said.

The Air Force role in defending the US in this new era will involve, above all, use of global reconnaissance and strike assets when called upon, according to the service's top civilian leader. In this context the reorganization of Air Force assets into Aerospace Expeditionary Forces was prescient.

"The contingency world we live in now dominates our activity," said Roche. "As we embark on yet another contingency, we have configured ourselves for this sort of thing."

The Air Force will continue to perform its traditional role in the air defense of the nation. The new Office of Homeland Security will fit that role into a coordinated, comprehensive strategy to combat terrorism, said the service Secretary. He noted that in the Department of Defense the Army will have the lead in the homeland defense mission.

Looking to the future, Roche said he had four priorities for Fiscal 2002. The first is people—recruitment and retention of "the very best individuals." The second is strategy. The third is efficiency. The fourth is innovation and the industrial base.

The Air Force needs "to reform, in a constructive manner, [its] acquisition policies and processes so as to ensure innovation and competitive vibrancy within the defense industrial base," said Roche.

The garrison flag is the largest size in the US military inventory. Prior to Sept. 11 it belonged to the US Army Band at nearby Ft. Myer, Va. When President Bush visited the Pentagon shortly after the terrorist attack, soldiers and firefighters unveiled the flag and hung it over the side of the building.

The flag was in place for nearly a month, illuminated at night with floodlights. It is now soot-stained and ripped in one spot where it rubbed against the building.

"This flag will never be flown again," said Maj. Gen. James T. Jackson, commander of the Army Military District of Washington, following its ceremonial lowering by troops from A Company, 3rd Infantry, "The Old Guard."

Kin of Activated Reservists Get Tricare

The families of most of the reservists called to active duty by the Pentagon in the wake of Sept. 11 are eligible for Tricare benefits, according to DOD health officials.

The type of coverage received depends on the length of activation orders. If reservists are called up for more than 30 days, families are covered under Tricare Extra or Standard from the day of mobilization onward.

While these programs make family members eligible for space-available care at military medical facilities, such space may be limited and should only be requested in an emergency.

Use of Tricare Extra network providers can minimize any cost sharing or deductibles called for under the

Taking Out Bin Laden Not No. 1 Goal

The Administration in recent weeks has emphasized that finding Osama bin Laden is not the primary goal in the War on Terror. The primary goal is to stop terrorists and stop countries from harboring them, Defense Secretary Donald Rumsfeld reminded reporters Oct. 25.

That message appears to have reached the American public. In late October a Gallup poll revealed that a majority of Americans believe destroying terrorist operations in Afghanistan and removing the Taliban from power are more important than capturing or killing bin Laden.

Destroying terrorist operations	41 percent
Removing the Taliban from power	29 percent
Capturing or killing bin Laden	25 percent
Other	3 percent
No opinion	2 percent

program, suggested Col. Kathleen Woody, director of medical readiness and programs in the Office of the Assistant Secretary of Defense for Reserve Affairs. "You want to have them in a program with some continuity with the providers."

The families of reservists called up for 179 days or more have the option to enroll in Tricare Prime, the HMO-like option that requires an annual fee. They will receive care in a military medical treatment facility or be assigned to a local network provider with no cost shares or deductibles.

More information on Tricare is available at www.tricare.osd.mil.

GEMS On Alert for Bioterrorism

Air Force medics are well-prepared

to detect and track any outbreak of biological or chemical terrorism via the computerized Global Expeditionary Medical System.

GEMS was originally developed to electronically collect information on diseases and medical conditions among personnel deployed to Southwest Asia. Eventually it will be used in all Air Force medical installations.

The system converts all paper-based patient medical records into electronic records. This digital database is easy to update and can collate data from multiple patients and locations to spot medical trends.

After all, medical professionals "can very much be the point of entry to an event like the anthrax cases. ... All of those patients show up [in emergency rooms] with symptoms—fever, headache, nausea, vomiting, etc.," said Brig. Gen. Klaus O. Schafer, assistant surgeon general for medical readiness, science, and technology

at the Office of the Surgeon General, Bolling AFB, D.C.

GEMS will flag an increase in certain symptoms, enabling doctors to make earlier diagnoses.

Second Predator Lost Over Iraq

An unmanned RQ-1B Predator Unmanned Aerial Vehicle supporting Operation Southern Watch on a routine mission over southern Iraq went missing on Oct. 10. The UAV may have crashed or been shot down.

Officials said they had no plans to try to recover the aircraft, as it contained no sensitive equipment that would be compromised by falling into Iraqi hands.

A Predator was also declared missing during a similar mission Sept. 11.

That aircraft was subsequently declared a combat loss.

Since December 1998, Iraqi forces have fired anti-aircraft missiles or artillery against US and coalition aircraft more than 1,050 times. There have been more than 430 such attacks this year alone.

Iraqi aircraft have violated the southern no-fly zone some 160 times over the last three years.

Families of KIA To Get Retired Pay

The Senate approved an amendment to the defense authorization bill that would allow the family members of all service personnel killed in the line of duty to receive a portion of retirement benefits based on number of years of service.

Current law extends such benefits only to families of those who have served for 20 years or more and thus are vested for retirement.

"If we are going to ask these brave men and women to put their lives on the line for our country, we must pledge to help take care of their families by giving them the retirement benefits their service member earned," said a sponsor of the measure, Sen. Kay Bailey Hutchison of Texas.

The amendment is retroactive to Sept. 10, 2001, to include those who died in the Sept. 11 attack on the Pentagon.

Airman First To Die in War

MSgt. Evander Earl Andrews, 366th Civil Engineer Squadron, Mountain

Home AFB, Idaho, was killed in a heavy equipment accident Oct. 10 while deployed to Prince Sultan Air Base in Saudi Arabia for Operation Enduring Freedom.

He thus became the first US casualty in the war against terrorists and their supporters in the nation of Afghanistan.

Andrews was buried at Arlington National Cemetery in Washington, D.C. A safety board will investigate the cause of the accident.

Program Yields Deployable Communication

As Air Force units deployed in support of Enduring Freedom, the Electronic System Center's Theater Deployable Communications program office at Hanscom AFB, Mass., was busy providing them with all the carry-along communications equipment they required.

The TDC program office offers everything from computers and telephone switches to satellite terminals and radios for deployed units. It buys off-the-shelf commercial equipment and keeps it upgraded as necessary.

Fifty units had taken advantage of TDC capability as of early October. The program office is planning to provide deployable communications to 122 units through 2005.

One of the office's main goals is to help reduce airlift requirements by purchase of equipment that is lighter and takes up less space than older technology. Another is to ensure the equipment doesn't require extra manpower.

Support for Military Action Remains High

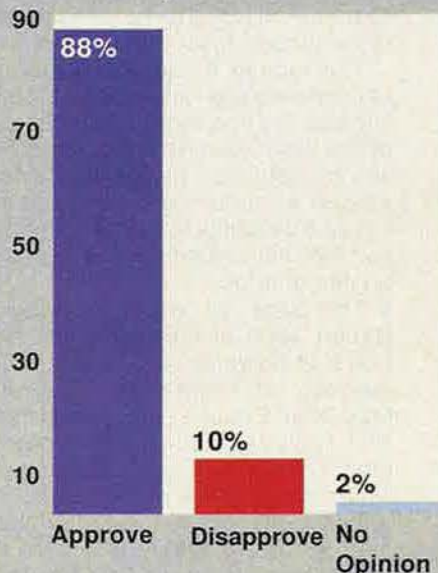
More than a month after the Sept. 11 attacks, Americans still overwhelmingly favored military retaliation against the terrorists and nations that support them.

A new Gallup poll taken in late October showed a similar high level of support as one taken shortly after the attacks. In late September a poll revealed that 89 percent of Americans favored military retaliation. In October, 88 percent of Americans voiced their approval of the current US military action in Afghanistan.

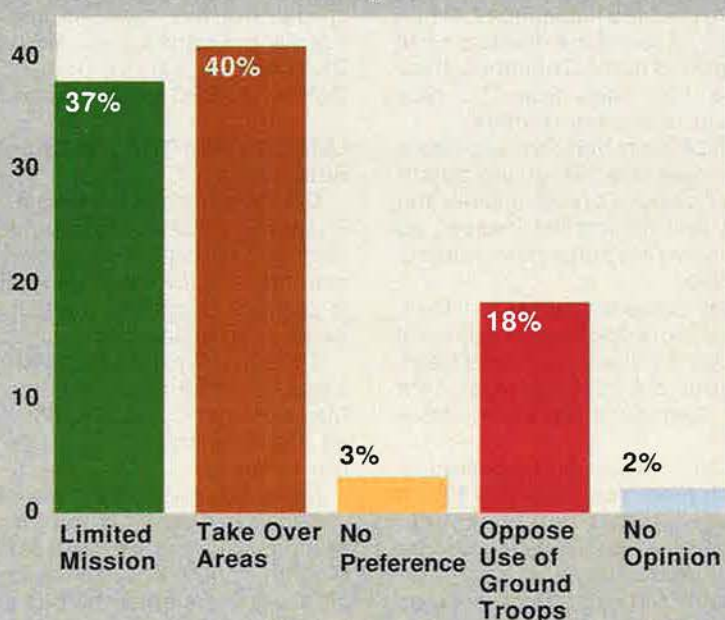
That same strong feeling carried over to the use of US ground troops. In the October poll, Americans were asked a series of questions relating to levels of use of ground forces or whether they opposed their use entirely. The answer: Eight out of 10 Americans support the use of ground troops.

Of the 80 percent that advocated their use, half said the role of ground troops should be more expanded, while slightly less than half favored limited missions. Three percent had no preference.

Military Retaliation



Use of Ground Troops



Lockheed To Build Strike Fighters

The Pentagon announced Oct. 26 that Lockheed Martin has won a pitched battle with rival Boeing and will build the next-generation stealthy Joint Strike Fighter.

As currently envisioned, the JSF would be the largest procurement program in Pentagon history, with a total value that could surpass \$200 billion.

Lockheed's design was a clear winner, said Air Force officials. "I would not characterize it [the contract decision] as a squeaker," said Secretary of the Air Force James Roche.

Lockheed, which is teamed with Northrop Grumman and BAE Systems, now has a \$19 billion contract to build 14 developmental strike fighters.

Separately, the Pentagon awarded Pratt & Whitney a \$4.8 billion contract to provide engines for the strike fighter's engineering and manufacturing development phase. In the production phase, P&W will compete with a General Electric/Rolls Royce team.

Officials decided against splitting the work between the two JSF competitors, as some members of Congress advocated. Picking a single winner provides taxpayers with the best value for their defense dollar, said Roche.

Columbus Units Combat West Nile Virus

Health teams from Columbus AFB, Miss., are working with state and federal health officials to help combat an outbreak of West Nile virus in the area near the base.

West Nile virus is spread through bites from infected mosquitoes. While no human cases of the disease have been reported in the Columbus area, the virus has been found in nine horses and a number of birds.

Health officials and civil engineers from the base are identifying potential local mosquito breeding sites and trapping and testing the insects, as well as surveying birds, pets, horses, and people.

"As this disease spreads, I think more and more Air Force bases will start to test for the virus," said Capt. Jane Harris, public health chief, 14th Medical Operations Squadron at Columbus.

West Nile virus first appeared in the US in New York City in 1999. It has since spread, via mosquito, throughout the East. While it can be fatal to humans, most infections result only in mild symptoms, such as fever or body aches.



USAF photo

It's official: Lockheed Martin will build the Joint Strike Fighter, thus winning the largest procurement program in Pentagon history. Here, the company's X-35 demonstrator goes through its paces over Edwards AFB, Calif.

AFSPC Absorbs SMC

Space and Missile Systems Center, Los Angeles AFB, Calif., became part of Air Force Space Command in a command realignment ceremony Oct. 1.

The move is just one of the changes brought about by the Air Force implementation of recommendations from the Commission to Assess US National Security Space Management and Organization. Moving SMC from Air Force Materiel Command to AFSPC consolidates the service's space procurement and operations functions in one organization.

"We are creating an organization that has no counterpart anywhere—a cradle-to-grave powerhouse that's exactly the right organization for the 21st century," said Lt. Gen. Roger G. DeKok, AFSPC vice commander.

Lajes Airmen Train to Counter Fuel Spills

US fuels experts from Lajes Field, Portugal, recently combined with Portuguese military and local civilian counterparts for a full-scale exercise to practice response to a fuel spill in nearby Praia Bay.

The bay, less than 10 minutes from Lajes, is home to the Military Traffic Management Command port, where all maritime shipments for the base are received.

Lajes has the largest fuel-storage capacity in the Air Force, so spill-response training is a must, said Norm Guenther, 65th Environmental Flight chief. Tankers enter the bay and deliver between one million and nine

million gallons of JP-8 jet fuel and diesel fuel several times a year.

The exercise involved deployment of a containment boom as well as classroom training and a tabletop briefing.

"In an actual spill, the basic strategy would be to contain the spill with booms, recover the petroleum product from the surface of the water with skimmers, [put the fuel in drums], and store the drums in the hazardous-waste warehouse for later shipment off island," said Guenther.

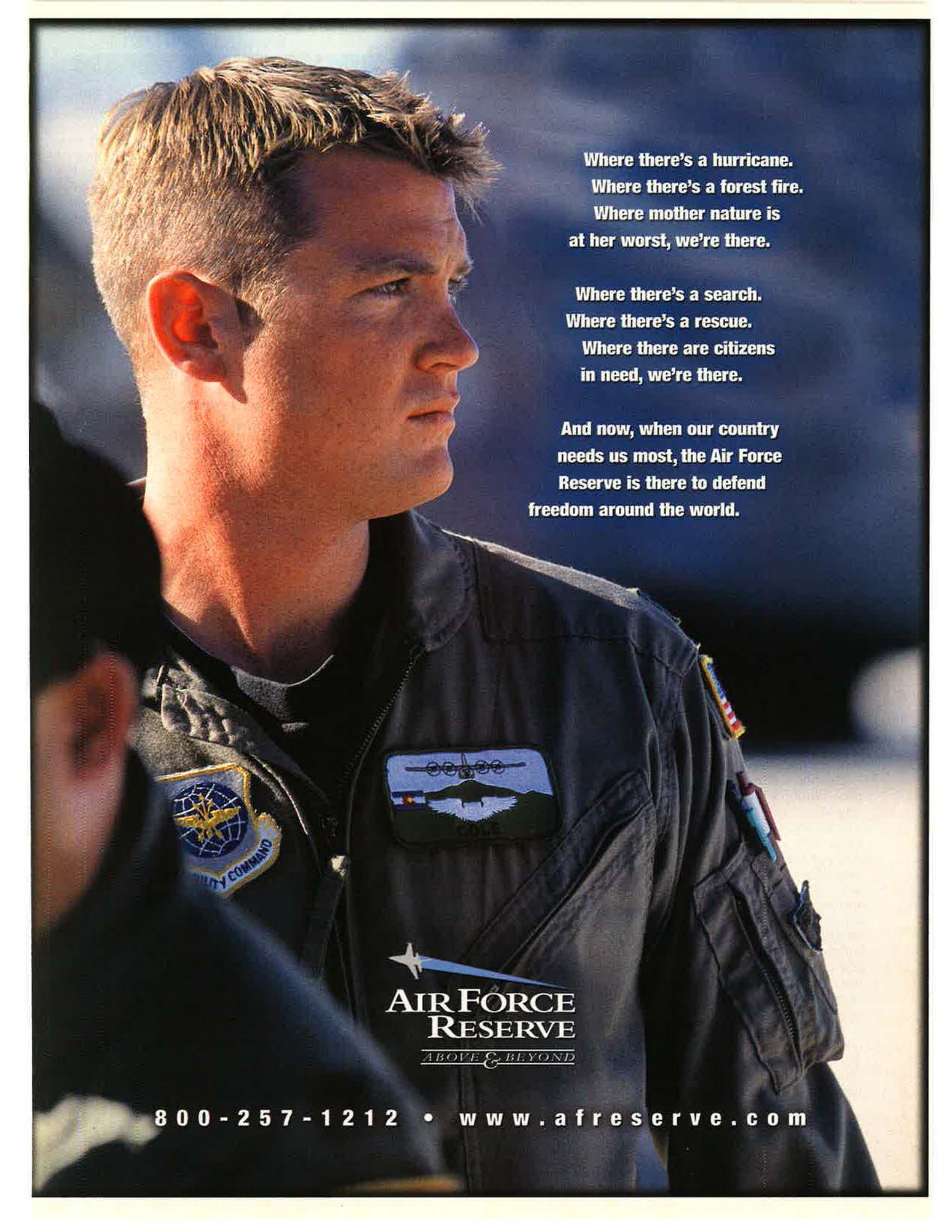
F-22 Demonstrates First Airborne Target Intercept

On Sept. 21 an F-22 Raptor successfully "killed" a target drone with a radar-guided missile for the first time.

The launch of an AIM-120C advanced medium-range air-to-air missile was the final flight-test milestone of the fiscal year. In completing earlier milestones, the F-22 demonstrated its radar detection capabilities and its ability to release AIM-120 and AIM-9 Sidewinder missiles at high angles of attack.

The Sept. 21 exercise involved Raptor 4005 of the Combined Test Force at Edwards AFB, Calif., flying subsonic at 40,000 feet. Test pilot Maj. Brian Ernisse launched a single AIM-120C at an unmanned target aircraft. The warhead-less missile passed within lethal range of the target.

The F-22 test program is scheduled to fire 60 AIM-120Cs over the next three years. Twenty of the tests will involve combat-realistic scenarios.

A man in a dark flight suit is shown in profile, looking towards the right. The background is a bright, hazy sky. The man has short, light-colored hair and a serious expression. On his flight suit, there are several patches: a circular patch on the left chest with a globe and the text 'COMBAT SUPPORT COMMAND', a rectangular patch on the right chest depicting a biplane flying over a landscape, and a small American flag patch on the right shoulder. The overall tone is patriotic and professional.

**Where there's a hurricane.
Where there's a forest fire.
Where mother nature is
at her worst, we're there.**

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Raptor Detachment Activates

The Air Force Operational Test and Evaluation Center activated an F-22 detachment at Edwards AFB, Calif., on Oct. 1.

AFOTEC's Det. 6 will conduct the Raptor operational test program, scheduled to begin in April 2003. It will build on the foundation of the test program carried out by the Combined Test Force at Edwards.

Enlisted Needed for Aviation Posts

The Air Force is looking for as many good enlisted personnel as possible who are interested in the nine career enlisted aviator specialties.

A number of the posts are on the list of critical skills that are chronically short of personnel. Benefits include flight incentive pay starting at \$150 a month and increasing to \$400 per month.

The specialties include in-flight refueling specialist; rotary-wing flight engineer; fixed-wing flight engineer, performance qualified; loadmaster; airborne communications specialist; airborne battle management systems specialist; airborne mission systems specialist; flight attendant; aerial gunner; and airborne cryptologic linguist.

CAP Training Mission Gets Real

Nevada Civil Air Patrol personnel were about to embark on a recent training exercise when their day suddenly turned to a real rescue mission.

While the CAP personnel were studying exercise plans at North Las Vegas Airport, a novice pilot in an ultralight aircraft crashed in nearby mountainous terrain.

Despite suffering a broken leg, the pilot managed to broadcast a Mayday alert. CAP 1st Lt. Jim Montgomery, flying nearby, picked up the message and began circling the area. Nevada Wing Commander Matt Wallace then took over the cover mission, circling the crash site while comforting the downed pilot by radio. Montgomery flew higher to relay information back to base. A local fire department dispatched a ground rescue team, with Wallace guiding them via cell phone. It took the ground team more than an hour to travel 15 miles in the rugged terrain.

After their arrival, medical personnel ordered an emergency helicopter evacuation. "I can't say enough good things about Civil Air Patrol," said the injured pilot, Jim Brow.

Tricare for Life Kicks Off

The new Tricare for Life benefit

began right on time on Oct. 1, adding 1.5 million new beneficiaries to the military's health care system.

The program extends Tricare benefits to military retirees who are 65 or over and eligible for Medicare. It was mandated by the Fiscal 2001 defense authorization bill.

The only requirements for beneficiaries are that they ensure accuracy of enrollment information in the Defense Enrollment Eligibility Reporting System and that they be enrolled in Medicare Part B.

Officials say they believe Tricare for Life will both help retirees and become an inducement to those currently thinking about joining the service.

"This is a magnificent benefit, and we believe it will do a great deal to both recruit and ... retain those people who we so desperately need and rely upon to maintain this nation of democracy and freedom," said J. Jarrett Clinton, then acting assistant secretary of defense for health affairs.

F-16 Accident Report Cites G-LOC

An accident report concludes that G-Induced Loss of Consciousness led to the crash of an F-16 from the 77th Fighter Squadron, Shaw AFB, S.C., off the coast of South Carolina on July 6.

The pilot, Capt. Mitchell A. Bulmann, sustained fatal injuries while ejecting from the aircraft.

Clear and convincing evidence exists that Bulmann was affected by G-LOC, says the report. He regained consciousness long enough to try to eject, but the aircraft was at that point at a dangerous speed and position for ejection.

Bulmann was on a training mission at the time of the accident, conducting a series of basic flight maneuvers as the second F-16 in a formation of four.

Incidents of G-LOC typically incapacitate pilots for an average of 24 seconds, according to the report. During that period they may be completely unresponsive to external stimuli.

Alaska ANG Conducts Life-Saving Flight

On Oct. 10 a team from the Alaska Air National Guard's 210th Rescue Squadron helped save a 12-year-old boy's life by flying a late-night medical evacuation mission from Valdez to Anchorage.

The mission began with a phone call from the boy's doctor to the Air National Guard's Rescue Coordination Center at Camp Denali on Ft. Richardson.

"Other would-be rescuers weren't able to get through to help the boy

Senior Staff Changes

PROMOTIONS: To AFRC Major General: James P. Czekanski, Hugh H. Forsythe, Douglas S. Metcalf, Betty L. Mullis. To AFRC Brigadier General: Mark W. Anderson, John H. Bordelon Jr., Robert L. Corley, David L. Frostman, Linda S. Hemminger, Robert W. Marcott, Clay T. McCutchan, Harold L. Mitchell, James M. Siuder III, Erika C. Steuterman.

To ANG Brigadier General: David F. Brubaker, Michael W. Corbett.

CHANGES: Maj. Gen. (sel.) Ronald J. Bath, from Dep. Dir., AF Quadrennial Defense Review, USAF, Pentagon, to Spec. Asst., DCS, P&P, Quadrennial Defense Review/Defense Integration, USAF, Pentagon ... Brig. Gen. Richard J. Casey, from Cmdr., 43rd AW, AMC, Pope AFB, N.C., to Dir., Combat Spt., Defense Threat Reduction Agency, USD, Acq., Tech., & Log., Pentagon ... Brig. Gen. John J. Catton Jr., from Cmdr., 53rd Wg., AWC, ACC, Eglin AFB, Fla., to Spec. Dir., Info. Ops., Jt. Staff, Pentagon ... Gen. (sel.) Donald G. Cook, from Vice Cmdr., ACC, Langley AFB, Va., to Cmdr., AETC, Randolph AFB, Tex. ... Brig. Gen. Craig R. Cooning, from Dep., Space Commission Transition & Prgms., SMC, AFSPC, Los Angeles AFB, Calif., to Vice Cmdr., SMC, AFSPC, Los Angeles AFB, Calif. ... Brig. Gen. Jonathan S. Gratton, from Dep. Dir., Info. Ops., Jt. Staff, Pentagon, to Dir., Regional Affairs, Dep. Undersecretary AF (Intl. Affairs), OSAF, Arlington, Va. ... Gen. Hal M. Hornburg, from Cmdr., AETC, Randolph AFB, Tex., to Cmdr., ACC, Langley AFB, Va. ... Brig. Gen. (sel.) James P. Hunt, from Cmdr., 11th Wg., Bolling AFB, D.C., to Spec. Asst. to AF Vice C/S, Studies & Analysis, Pentagon ... Brig. Gen. (sel.) Edward L. Mahan Jr., from Vice Cmdr., Ogden ALC, AFMC, Hill AFB, Utah, to MAD, Info. Dominance, Asst. SECAF, Acq., Arlington, Va. ... Brig. Gen. Henry A. Obering III, from MAD, Info. Dominance, Asst. SECAF, Acq., Arlington, Va., to Dir., Transition to Services and Deployment, BMDO, Washington, D.C. ... Brig. Gen. (sel.) Winfield W. Scott III, from IG, AMC, Scott AFB, Ill., to Cmdr., 43rd AW, AMC, Pope AFB, N.C. ... Lt. Gen. (sel.) Bruce A. Wright, from Dep. Cmdr., Info. Ops., 8th AF, Barksdale AFB, La., to Vice Cmdr., ACC, Langley AFB, Va. ■

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due to poor weather conditions," said ANG spokesman Maj. Mike Haller.

The 210th sent an HH-60 Pave Hawk helicopter, accompanied by an HC-130 Hercules to assist with refueling. The weather was so bad that a normally quick trip took more than four hours.

"It was very important that the rescuers didn't jostle the young man, due to his medical condition," said Haller. "In the weather they faced, the Pave Hawk was the right machine to do the job."

The boy was delivered safely to an Anchorage hospital, in what was the 258th rescue mission for the Air National Guard RCC in 2001.

Jumper Says Air, Space Complementary

To fight and win wars, the Air Force must be sure that air and space operations complement each other, Chief of Staff Gen. John Jumper said during a recent visit to Whiteman AFB, Mo.

"We need to realize that we must integrate our manned, unmanned, and space platforms," said Jumper. "We shouldn't be jealous about which platform or sensor is put to work in the air, on the ground, or in space."

The goal of all should be to precisely locate, identify, and destroy targets, he said. Synthesizing time-critical information and quickly turning it into time-critical target destruction will be the determinant of future success.

The air and space operations center established last year at Nellis AFB, Nev., is a "weapons system" helping to accomplish this task.

"The primary job of these air and space operations centers ... will be to put actionable, decision-quality information [about the battlespace] in front of the commander," said Jumper.

Air Force officials are quick to acknowledge the bravery of those at the tip of the spear who put themselves in harm's way. But they are not the service's only warriors.

"Our warriors are no longer limited to the people who fly the airplanes," said Jumper. "Our entire force is a warrior force."

Chief Sees Expanded Role for UAVs

The role of Unmanned Aerial Vehicles in the Air Force will only get bigger in the years ahead, according to the Chief of Staff.

The service is looking to make that expansion go as smoothly as possible. Thus the new Global Hawk long-range UAV will initially operate out of Beale AFB, Calif., where the U-2 is stationed. That way the Global Hawk program can take advantage of lessons learned in strategic reconnaissance by those who have been in the field a long time.

"We want the Global Hawk [at Beale] so that the people who own the high-altitude reconnaissance mission today can resolve [any conflicts] during the shift from manned to unmanned operations," said Jumper recently while en route to a troop visit.

The time when UAVs have the capabilities of today's manned platforms is "down the road," said the Chief of Staff. "Each have their own niche."

In the future the trademark of UAVs will be their ability to shift from data collection to targeting.

Currently, the Air Force is testing the Predator UAV with the Hellfire missile. The intent is to have the ability to destroy a target of opportunity, such as a mobile missile launcher, before it has a chance to escape.

"We aren't trying to stem an ar-

mored attack with a handful of Predators," said Jumper.

Wolfowitz Explains QDR Results

The beginning of a new war on terrorism has only reinforced the need for the US military to transform itself to face the threats of the new century, Deputy Secretary of Defense Paul Wolfowitz told the Senate Armed Services Committee on Oct. 4.

That means the recommendations of the just-completed Quadrennial Defense Review are even more important than they otherwise would have been, he said. The Pentagon is now even more likely to move quickly in the QDR's direction and with more resources than planned.

"The Quadrennial Defense Review has set some very important directions, whose importance and accuracy [are] only confirmed by the events of Sept. 11," said Wolfowitz.

In general the QDR urges an effort to confront threats themselves, as opposed to specific countries from which they are judged to emanate. One of its most important priorities is a new emphasis on homeland defense.

"One of the conclusions we reached in the review is that we're just ... at really a very early stage of figuring out what the role of the Department of Defense might be, for example, in responding to a major act of terrorism with weapons of mass destruction," said Wolfowitz. "We've got to accelerate that work."

A second emphasis is the need to deal with uncertainty and surprise.

US forces need to be flexible enough "to respond to the unexpected, not simply to preview and predict the unexpected," said the Pentagon's No. 2 civilian.

Traditional aspects of deterrence—such as the threat of nuclear retaliation—retain validity, according to the QDR. But the nation also needs to be able to deter other forms of violence—such as terrorist violence.

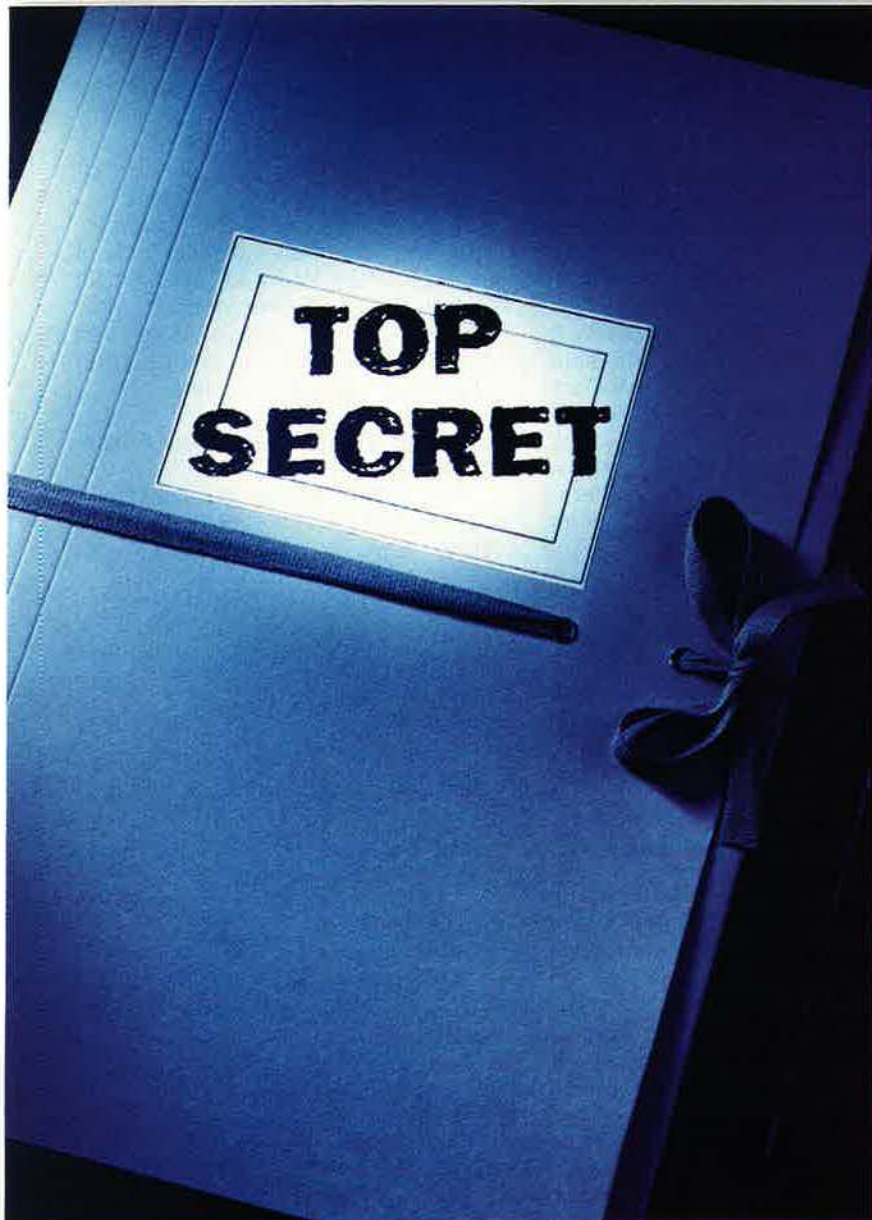
As to force size, the new QDR calls for US forces first to be able to defend America. Second, they must be able to engage and defeat two regional foes—one decisively—while continuing with smaller-scale operations.

Space Ops School Graduates First Class

The Space Operations School, Schriever AFB, Colo., recently graduated its first class. In doing so, the Air Force's newest school has begun its role in helping to bridge any existing gap between Air Force air and space doctrine.

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The school brings together personnel from career fields stretching from pilots to space and missile operators and acquisition experts. Its purpose is to help develop tactics, techniques, and procedures for space power doctrine and then teach officers how to put those to use.

Specifically, the school's mission is divided among three branches: future concepts, theory and tactics, and training and education.

The future concepts branch evaluates new technologies and assesses space wargame scenarios, among other things. The theory and tactics flight has the lead in development of space power theory. Training and education concentrates on teaching space operators how they can bring space resources to bear on the battlefield.

Among classes offered are the senior leaders space course, which is intended to enhance general and flag officers' knowledge of space integration.

Combat Communications Units Form Up

Air Force Reserve Command has restructured communications units in four states.

The 94th Combat Communications Flight moved from Dobbins ARB, Ga., to Robins AFB, Ga., where it became the 55th Combat Communications Squadron and partners with Air Combat Command's 5th Combat Communications Group.

The 707th Communications Flight at Tinker AFB, Okla., has reorganized to become the 35th Combat Communications Squadron and a partner with ACC's Tinker-based 3rd Combat Communications Group.

These units will "provide technology bridging capability between Air Force systems and allied and non-Air Force communications systems," said Lt. Col. Thomas Brown, chief of the readiness and combat support division in the directorate of communications and information at AFRC.

ICBMs Still US "Ace in Hole"

Almost 40 years ago, the Intercontinental Ballistic Missile was the United States' "ace in the hole" during the Cuban Missile Crisis. Today, the Minuteman III remains the nation's "ultimate space system," said Gen. Ed Eberhart, head of NORAD, US Space Command, and Air Force Space Command.

"It's a capability that warns other nations that there are certain things they can do and certain things they cannot do," said Eberhart. "If they

truly put our nation at risk, we have the capability to destroy them."

ICBMs were designed to deter nations. That does not mean that in today's era of response to terrorism they have lost their importance, according to Eberhart.

"It's not the right weapon to use to counter terrorist activity," he said. "But it remains a very relevant and capable tool to ensure no nation decides to attack our nation." He added, "If they truly put our nation at risk, we have the capability to destroy them."

Ongoing modernization will keep Minuteman III viable until 2020. The extensive service life extension program includes replacement of aging guidance and standby power systems, rebuilds of solid-propellant rocket motors, repair of launch facilities, and installation of new communications equipment and command-and-control consoles for combat missile crews.

After 2020 the nation will move to the next stage.

"I personally believe that will be a Minuteman IV," said Eberhart.

The new missile could be dropped into current silos or require current silos to be revamped, he said.

USAF Launches New Ad Campaign

On Nov. 5, the Air Force began its third year of paid television advertising with two new 30-second recruiting commercials. Another four TV commercials, as well as print ads, will air later as part of a national campaign named "Cross into the Blue."

Originally set for release during the first week in October, USAF officials delayed the launch because of the Sept. 11 terrorist attacks. Instead, during Monday Night Football, the service ran a 30-second ad first shown last year. It aired without narration and depicted Americans watching as airmen perform their daily tasks, including those involved in deployments and humanitarian missions.

In closing, it featured the words "Freedom Forever."

The new recruiting ads show some of the different specialties open to individuals in the Air Force. It's not just airplanes and pilots.

USAF's new Chief of Staff, Gen. John Jumper, who previewed the ads, said that every specialty "is critical to our success." The campaign shows a number of specialties the public may not realize exist.

"It invites young men and women to join us in our very important mission," he added.

The recruiting campaign is directed to a target audience of 16-to-24-year-

old men and women. The ads employ high-tech imagery to capture the attention of that younger audience.

"We want them to see the commercials and immediately want to find out more about the Air Force," said Donald Carpenter, USAF director of strategic marketing. The message: "When you cross into the blue, you enter a world of unimaginable possibilities."

Veterans Health Care Task Force Formed

The White House has created a 15-member Presidential task force to study ways in which US veterans' health care might be improved.

Heading the task force will be Gail R. Wilensky, who ran the Health Care Financing Administration under former President George H.W. Bush. Other members include health care experts, representatives of veterans and military service organizations, and officials with experience in the Department of Veterans Affairs and Department of Defense health systems.

An interim report is due next June.

"The task force's goals are to improve access to veterans benefits and to strengthen VA and DOD partnerships for health care services," said Wilensky. "Among the items that will be studied are the budgeting processes, billing, reimbursement, procurement of supplies and services, data sharing, and information technology."

House Approves DOD Authorization

The full House of Representatives passed the Fiscal 2002 defense authorization act on Sept. 25 by a vote of 398 to 17.

The bill would authorize \$343 billion in budget authority for next year, an increase of approximately \$33 billion over Fiscal 2001 levels. Within this, almost \$6 billion is allocated toward anti-terrorism programs, including force protection, intelligence, and related operations.

"I consider this to be merely a down payment on what must be a long-term commitment by our nation to defend against, seek out, and eliminate terrorism," said House Armed Services Committee Chairman Bob Stump.

NATO Takes Look at Re-engined AWACS

NATO officials toured a Boeing 707-300 upgraded with four Pratt & Whitney JT8D-219 engines, during a recent visit to the US.

The inspection of the aircraft at P&W's East Hartford, Conn., facility is part of NATO's AWACS upgrade

evaluation. NATO could issue a formal request for proposal for the re-engining of the alliance's current AWACS fleet next year.

"The JT8D-219 provides a significant increase in power and range for the 707 while cutting fuel burn, noise, emissions, operating, and maintenance costs," said Jason Chamberlain, director of airlift, surveillance, and tanker engine programs for Pratt & Whitney.

Family Member SGLI Coverage Automatic

On Nov. 1, married airmen who carry military life insurance should have seen a change in the amount deducted from their pay as their spouses were automatically enrolled in the Service members' Group Life Insurance program.

Children of SGLI participants are now also automatically covered with \$10,000 of life insurance, for free, under changes mandated by legislation signed into law June 5.

Participation for spouses is voluntary. However, enrollment is automatic. Those who don't want the coverage will have to file disenrollment papers.

"This is a great deal for Air Force people—especially the free insurance for children," said Maj. Jerry Couvillion, chief of the casualty services branch at the Air Force Personnel Center. "I don't know of any better deal out there."

New Unit Shifts USAFE Contingency Support

On Oct. 1, US Air Forces in Europe stood up a new headquarters organization intended to make any future contingency operations in the European theater run more smoothly.

The new USAFE Theater Aerospace Operations Support Center merges the missions and resources of a number of units, including USAFE Air Operations Squadron, USAFE Air Mobility Operations Control Center, 1st Combat Communications, and 32nd Air Operations Group.

The "Air War Over Serbia" after-action report on Kosovo operations was behind the push for the new overarching organization, said officials.

"It was clear that one of the most powerful things we could do was to review and restructure our warfighting organizations above the wing level," said Gen. Gregory S. Martin, USAFE commander.

"With that in mind, USAFE set upon the path towards building a more viable warfighting organization that would maintain a constant watch on

our day-to-day operational environment," said Martin.

New Military Rec Program Opens

Rocky Mountain Blue, the military's newest recreational program, officially opened for business Nov. 5 in the Colorado mountains.

The program is a joint venture between Air Force Space Command and the US Air Force Academy and Keystone Resorts, located in Keystone, Colo., 90 miles west of Denver. It is open to all military members, federal government employees, and military and federal retirees.

Keystone features six resort neighborhoods for year-round activities that include skiing, golf, hiking, horseback riding, and canoeing. Rates will be reduced under the Rocky Mountain Blue program.

To receive the RMB discounts, book rooms through USAFA Colorado R&R at the Rocky Mountain Blue Web site (www.rockymountainblue.com) or call toll free 877-517-3381.

News Notes

■ On Oct. 11, more than 20,000 people attended a United in Memory ceremony at the Pentagon parade ground for those killed in the terrorist attack on the Pentagon a month earlier.

■ Air Force Reserve Command exceeded its recruitment goal for the fiscal year that ended Sept. 30. AFRC signed up more than 10,500 recruits, almost 105 percent of its 10,037 requirement.

■ The newest wing in the Air Force, the 460th Air Base Wing was activated at Buckley AFB, Colo., and its predecessor, the 821st Space Group, was deactivated Oct. 1.

■ President Bush has nominated Air National Guard Maj. Gen. Daniel James III for appointment to the grade of lieutenant general and for assignment as director of the Air National Guard. Previously James served as adjutant general of Texas.

■ Maj. Ted Fordyce, chief of fixed-wing flight safety for Air Force Special Operations Command at Hurlburt Field, Fla., has the distinction of being the first special operator selected for the Air Force Legislative Fellows Program. Fordyce will serve for a year as a Congressional fellow in Washington.

■ The Uniform Services Thrift Savings Plan opened to military personnel Oct. 9. The retirement savings and investment plan is similar to the civilian world's 401(k).

■ A coalition of Vietnam veterans organizations has unanimously agreed on the design and wording of a spe-

cial plaque to be placed in the area of the Vietnam Veterans Memorial, per Congressional mandate. The gray granite plaque will be placed near the memorial's existing statue of three servicemen and will read, "In memory of men and women who served in the Vietnam War and later died as a result of their service. We honor and remember their sacrifice."

■ The Air Force officially designated its newest C-17 *Spirit of Connecticut* at an Oct. 12 ceremony at the Connecticut Air National Guard facility, Windsor Locks, Conn.

■ On Sept. 29 Alaska's Kodiak Launch Complex successfully carried out its first orbital launch. An Athena I launch vehicle placed four satellites in two different orbits for NASA and the Department of Defense.

■ The National Aeronautic Association has announced that Capt. Jodi A. Neff, the first woman to command a Special Operations Low Level C-5 Galaxy, will receive its Stinson Award for Achievement for the year 2001.

■ Philip Wayne Grone has been appointed the principal assistant deputy undersecretary of defense for installations and environment, and John Paul Woodley Jr. has been appointed assistant deputy undersecretary of defense for environment, according to an Oct. 9 personnel announcement.

■ The Air Force Club Membership Scholarship Program recently awarded a total of \$10,000 in scholarship money. Recipients, who wrote winning essays on the value of club membership, were, in order of finish: 1st Lt. Timothy Cummings, Nellis AFB, Nev.; Young Stinebiser, wife of MSgt. Paul Stinebiser, Scott AFB, Ill.; and SSgt. Stephen Parsons, Hanscom AFB, Mass.

■ Air Force Research Laboratory workers have recently been awarded two patents for devices that detect wiring problems before they cause catastrophic aircraft system failure. One is a sensor for the detection of conduit chafing. The second is a test instrument for detecting corrosion in electrical connectors without having to unplug them.

■ William Winkenwerder Jr. was sworn in Oct. 29 as the new assistant secretary of defense for health affairs. He was executive vice president of Health Care Services for Blue Cross Blue Shield of Massachusetts.

■ Gen. Robert H. "Doc" Foglesong officially assumed duties as Air Force vice chief of staff at a Nov. 5 Pentagon ceremony. He was deputy chief of staff for air and space operations. ■

The Quadrennial Defense Review says homeland defense is the top mission for the armed forces.

The QDR Goes to War

By John A. Tirpak, Senior Editor



THE Pentagon's new national military strategy declares defense of the US homeland to be its top priority and spells out new, businesslike plans for balancing near-term and long-term readiness. It calls for having military power sufficient to compel a change of a regime in one Major Theater War, while at the same time, stopping an enemy advance in another. It signals a shift in US emphasis from Europe to the Asia-Pacific region.

The strategy also aims squarely at preventing shocks and surprises such as the Sept. 11 terrorist strikes in New York City and Washington. DOD hopes to succeed by dispensing with a focus on "likely" threats and identifiable foes and shifting to preparations for dealing with dangerous capabilities, regardless of who may possess them. The Pentagon also wants a more robust intelligence, surveillance, and reconnaissance capability such that the United States can keep "persistent" watch over any given area, without gaps.

In addition, it maintains that long-range precision-strike systems shape

up as perhaps the most important transformational capability on the horizon.

This new capabilities-based strategy anticipates that enemies will use asymmetric means, such as cyberwar, terrorism, and chemical and biological weapons, to attack the United States and its forces and will not challenge the American military in its areas of dominance, such as air or naval power. The strategy would restructure packages of American military power by the effects they can achieve, rather than by their traditional roles. To this end, the military would forge new joint commands.

Such is the essence of the report on the 2001 Quadrennial Defense Review, submitted to Congress Sept. 30. This QDR report, mandated in law, preoccupied the Pentagon and the armed services for the seven months preceding the September attacks.

Deep Uncertainty

"We cannot and will not know precisely where and when America's interests will be threatened, when

America will come under attack, or when Americans might die as the result of aggression," wrote Defense Secretary Donald H. Rumsfeld in a foreword to the report.

"We should try mightily to avoid surprise, but we must also learn to expect it," he added, noting that intelligence about the intentions and capabilities of enemies will never be perfect. The ability to prepare for surprise and adapt to it when it comes is at the heart of the new strategy, Rumsfeld said.

In testimony before the Senate Armed Services Committee, Deputy Defense Secretary Paul D. Wolfowitz said the QDR was "largely completed" prior to the Sept. 11 attacks and that the events of that day "confirm" the QDR's basic direction, particularly the move toward homeland defense and preparations for terrorism.

Wolfowitz said that the 71-page document—which includes a large y favorable assessment of its usefulness by Army Gen. Henry H. Shelton, the now-retired Chairman of the Joint Chiefs of Staff—is a consensus product of senior military and civilian



leaders, but that the consensus came only after heavy debate and a “push” by Rumsfeld in certain directions.

In the QDR report, Rumsfeld wrote that the US will follow a four-step concept: assure, dissuade, deter, and defeat. The US will assure friends and allies and foster a worldwide climate for freedom and prosperity. At the same time, it will continue developing military capabilities—through research, procurement, or operational experimentation—that will dissuade potential enemies from trying to develop their own rival capabilities. If that doesn’t work, he asserted, the US military must be strong enough to deter an opponent from aggression, and if deterrence fails, America’s armed forces must be able to “decisively defeat” any opponent.

Assurance would come in the form of forward deployed forces and the willingness of the US to share military technology with its friends and allies, to form strong coalitions that will fight alongside each other in a crisis.

Dissuasion would be achieved by maintaining dominance in those mili-

The front line is no longer overseas: The Pentagon's new military strategy makes homeland defense the top priority. The strategy also places new emphasis on preparing to deal with emerging or unconventional destructive capabilities—no matter who has them or whether it seems likely they will be used against the US.

tary arts and technologies where the US already has unquestioned superiority and by consistent, though “selective,” investment in new platforms and technologies. A full three percent of the Pentagon’s annual budget will go to basic science and technology, Rumsfeld pledged. Deterrence would come from maintaining sufficiently sized, equipped, and exercised forces to convince a rational opponent not to commit aggression.

Major Theater Wars

In the event of two overlapping Major Theater Wars in different parts of the world, the QDR states, the US should have the ability to not only defeat one of the enemies but occupy his country and force a regime change. In the second MTW, US forces will have to be able to “defeat the efforts” of the enemy, preserving a later option to “decisively defeat” him as well.

A decisive defeat was characterized by defense officials as being equivalent to the outcome of the 1991 Gulf War, in which Iraq’s invasion of Kuwait was reversed and its military capability severely degraded, but Iraq itself was not occupied or forced to undergo a regime change.

Meanwhile, the QDR calls for collaboration with law enforcement, local emergency services, intelligence services, and other Cabinet departments to defend the nation and conduct operations abroad against known enemies. These activities—

ranging from diplomatic sanctions to freezing of financial assets, criminal arrests, responding to biological attacks, electronic surveillance, and dropping bombs—have all been undertaken against terrorist targets in the period following the Sept. 11 assaults. In this sense, the new strategy is already being pursued.

Like the 1997 review, the 2001 QDR concludes that the US faces no peer competitor in the world in the near future, but it notes that regional powers potentially will have the means to threaten US critical interests. It observes that ballistic missile technology is proliferating and puts high priority on achieving practical missile defenses as soon as possible.

The QDR report flatly states that Russia no longer poses a conventional threat to the US and that the two countries actually share some military objectives, such as the defeat of terrorism. It observes that, with the exception of the Balkans, Europe is relatively secure and that the US should shift its attention to South Asia. There, it notes, national militaries are growing commensurate with national economies, but governments in the region tend to be unstable.

Rumsfeld assistant Stephen A. Cambone told reporters the change in emphasis is not a shift but an example of how DOD will tailor forces for given regions “to meet ... evolving circumstances.”

The QDR report suggests that the Navy should make arrangements to homeport more of its warships in the Asia-Pacific region, keep two aircraft carriers in the area, and investigate whether friendly nations there would allow the Marine Corps to conduct amphibious training. Some Marine pre-positioned equipment should also be moved to the Asia-Pacific region, according to the QDR. Likewise, the Air Force will seek basing arrangements in the Indian Ocean and Persian Gulf.

Other critical areas where the US will act to preclude “hostile domination” include Northeast and Southwest Asia and the Middle East. Neither Central Asia nor sub-Saharan Africa was mentioned as areas of critical interest. The US will seek “peace and stability in the Western Hemisphere” and act to preserve “sea, air, and space, and information lines of communication,” as well as access to “key markets and strategic resources.”

No Force Cuts

Although there was much public worry that the QDR would devolve into a budget-cutting exercise—seemingly driven by the faltering economy and revenue shortfalls from a large tax cut—no call for force-structure reduction appears in the document. The report confirms the existing force structure, which includes about 1.4 million uniformed personnel and 18 Army divisions, 12 aircraft carriers, and 88 Air Force fighter squadrons. Of those USAF fighter squadrons, four are Air National Guard air defense squadrons.

The QDR also specifies that the US should maintain the current number of combat-coded heavy bombers—112 of them. It is a figure that would preserve the Air Force’s current available bomber fleet, whether or not the service is permitted to reduce its B-1B fleet from 93 to 60 airplanes.

Despite the lack of changes in force structure and end strength, Wolfowitz conceded to the Senate panel that there had been an effort to find “efficiencies” by reducing manpower and assets. After the Sept. 11 attacks, though, the search for such reductions was considered “meaningless” and dropped, he said.

Still, Wolfowitz acknowledged that, while “in most scenarios” the force structure’s size poses “moder-

USAF photo by SrA. Michele G. Misiano



The Sept. 11 attacks saw a sudden shift in the role and perceived importance of the air sovereignty mission. The burden of intercepting suspicious aircraft—both external to and within the US—falls on the Air National Guard.

ate levels of risk," in some others, "the risk would be high."

Gen. John P. Jumper, the new Air Force Chief of Staff, said he does not anticipate an increase in end strength as a result of the QDR and worries that this will stress the Air Force even further. But he also noted that USAF is taking a hard look at itself to see if "all of the people in the Air Force that should be on deployment status are on deployment status."

Previous QDRs did not address "the full range of threats to the US homeland" nor did they properly account for the demands of Smaller-Scale Contingencies or the requirements of forward deploying forces to deter conflict, Wolfowitz told the Senate defense panel.

The 2001 QDR says, "The new construct explicitly calls for the force to be sized for defending the homeland, forward deterrence, warfighting missions, and the conduct of Smaller-Scale Contingency operations." By planning for all such needs, requirements for systems and capabilities in short supply—airlift, for example, and special operations forces—will be more accurately stated. The QDR does not discuss specifics of airlift, such as whether more C-17s should be acquired.

Under the new construct, comparable force packages will be rotated to more evenly distribute the load of undertaking contingencies and providing presence. Air Force Aerospace Expeditionary Forces, for example, or a Marine air wing might substitute for an aircraft carrier in a given area.

Decisions Deferred?

The lack of force structure or end strength changes puzzled Senate Armed Services Committee chairman Carl Levin, who told Wolfowitz at the same hearing that the QDR "seems to me full of decisions deferred." Paraphrasing Shelton's QDR assessment, he described it as more of a vision "than the comprehensive roadmap to the force of the future" that had been promised. Wolfowitz said the programmatic and budgetary changes that would begin to implement the QDR would appear starting with the Fiscal 2003 budget request.

The QDR has dominated the Pentagon's activities since March, when the Bush Administration began making enough leadership appointments



USAF photo by Ssgt. Ken Bergmann

A big part of the QDR is assuring friends and allies while dissuading potential enemies. It also notes that the US will become more expeditionary. A healthy airlift system will make sure the US military can get overseas in a hurry.

at the Defense Department that a serious overhaul of military strategy could begin.

Rumsfeld empaneled 19 separate study groups to examine various facets of defense organization, technology, strategy, and business, in search of more relevant or efficient practices and places to invest. These were in addition to a panel Rumsfeld himself chaired, before becoming Secretary of Defense, on the organization of military space activities, which wrapped up in January. (See "The Space Commission Reports," March 2001, p. 30.)

These study groups considered the strengths that the US should not give up—its current asymmetric advantages—but also offered ideas on how the military should transform itself to confront future threats. Those that "reported out" in a public way concurred that longer-range platforms, highly precise attacks, information connectivity, and leap-ahead technologies are essential to preserving the US military edge.

The Pentagon's biggest managerial challenge will come in trying to balance near-, mid-, and long-term risk, says the report of the QDR. In the near term, the US is engaged in combat operations, and funds must be devoted to maintaining them. In the midterm, military facilities which have suffered from long budgetary neglect must be rebuilt or repaired, or service personnel will quit. In the long term, new technologies must be

matured into new weapon systems for future readiness.

The Pentagon is developing formulas for assigning risk in each of these areas and to determine how best to trade one against the other. However, given the long neglect of military facilities, revitalizing them can't happen overnight, Pentagon comptroller Dov S. Zakheim said.

Shelton, in his assessment of the QDR, noted that DOD has "successfully raised annual procurement spending to the \$60 billion level" but warned that it may take an addition of \$100 billion to \$110 billion a year to arrest the problem of "rapidly aging weapon systems."

Transformation of the force will be a priority, but the speed of transformation will depend on what the nation devotes to defense spending in the coming years. Since most weapon systems were not gradually replaced as they should have been in the 1990s, the cost of rapidly replacing them all at once would be very high, Wolfowitz said before the Sept. 11 attacks.

"To think we can't afford what we need ... is simply wrong," he emphasized in his October testimony. He added that "we need to move in those directions more rapidly and with more resources than we would have envisioned before the attacks."

The 10 to 20 Percent Solution

In testimony, Wolfowitz asserted that he would consider the force radi-

cally altered if only “10 or 20 percent of the capability is transformed.” This would allow the older, non-replaced assets, “what we call the legacy forces, to perform their missions more effectively.”

Transformation will be undertaken to achieve six critical operational goals, according to the QDR. These are:

- Protecting critical bases of operations, such as the US homeland and allies, and defeating weapons of mass destruction.

- Assuring the integrity of information systems and conducting information attacks.

- Projecting and sustaining US forces in distant theaters where anti-access means are being employed and defeating those means.

- Denying enemies sanctuary “by providing persistent surveillance, tracking, and rapid engagement with high-volume precision strike, through a combination of complementary air and ground capabilities against critical mobile and fixed targets at various ranges and in all weather and terrains.”

- Enhancing the capability and survivability of space systems and their support infrastructure.

- Using the leverage provided by information technology and innovative concepts to develop “an interoperable, joint C⁴ISR [Command, Control, Communications, and Computer, Intelligence, Surveillance, and Reconnaissance] architecture and

What the Force Must Be Able To Do

From Paul Wolfowitz, deputy secretary of defense, in Oct. 4 testimony to the Senate Armed Services Committee:

“In the QDR, we are proposing a new, more comprehensive approach. US forces will maintain the capability to:

- Defend the American homeland.
- Deter conflicts in four critical areas of the world, by demonstrating the ability to defeat enemy attacks, and do so far more swiftly than in the past or even today.
- Defeat aggressors in overlapping time frames in any two of those four areas.
- At the direction of the President, decisively defeat one of these two adversaries—to include invading and occupying enemy territory.
- Decisively impose our will on any one aggressor of our choosing.
- Conduct a limited number of contingencies short of war in peace time without excessive stress on our men and women in uniform.”

capability that includes a tailorable, joint operational picture.”

The fourth goal—high-volume precision strike at various ranges, including long ranges—is a “major transformational capability,” Wolfowitz pointed out to the Senate panel. He said the Pentagon is looking for better ways to tie the eyes of special operations forces on the ground to bombers and strike aircraft looking for hard-to-find moving targets. Such a capability is one “we would like to have today,” he added.

Anti-access capabilities—weapons of mass destruction, shore-based anti-

ship batteries, theater ballistic missiles, and anti-space capabilities that could interfere with US satellites—will likely be located throughout an enemy country, the QDR notes. Given advanced surface-to-air missiles, access to enemy airspace could be denied “to all but low observable aircraft.”

The development of “robust capabilities to conduct persistent surveillance, precision strike, and maneuver at various depths within denied areas” will be critical in the near future, according to the QDR.

The report also touts space control as an emerging transformational mission.

“Space surveillance, ground-based lasers, and space jamming capabilities and proximity microsattellites are becoming increasingly available,” says the report. A “key objective for transformation ... is not only to ensure the US ability to exploit space for military purposes but also as required to deny an adversary’s ability to do so.”

Mum on Systems

In keeping with its emphasis on capabilities, the QDR avoids discussing specific new systems, such as the F-22 fighter or Crusader artillery vehicle and their relative contributions to transformation but instead focuses on the effects desired from the military as a whole.

Jumper said the QDR “talks a lot about what the Air Force does any-

USAF photo by Judson Brohmer



Future readiness is a cornerstone of the new strategy. The QDR calls for preserving America’s asymmetric advantages, such as airpower, and specifically focuses on long-range precision strike and stealth—qualities found in the F-22.

way,” with regard to global operations, the use of a rotational force—as manifested in the 10 Aerospace Expeditionary Forces—“and it talks about space and information warfare, command and control, and information technologies—all already enjoying a full head of steam in the United States Air Force.”

But “what I see this portends for the Air Force is what I call the horizontal integration of manned, unmanned, and space. And when I say manned, I don’t necessarily mean airborne or spaceborne platforms; I also mean things on the ground, like people, who do simple things like put eyeballs on the target.” Jumper sees the next requirement as integrating all ISR assets and combat systems “at the digital level, so that they’re networked in a way that can resolve ambiguities about target location/target identification at the machine level.”

Overall, “I think that we are on the road in each of these major categories that they’ve described,” Jumper said.

Transformation will also involve organization, and the QDR seeks to establish a new Standing Joint Task Force under each of the regional combatant commands, such as Central Command and Pacific Command. These will ensure interoperability and communication capability among the services and with likely allies in the area and establish standard operating procedures and tactics.

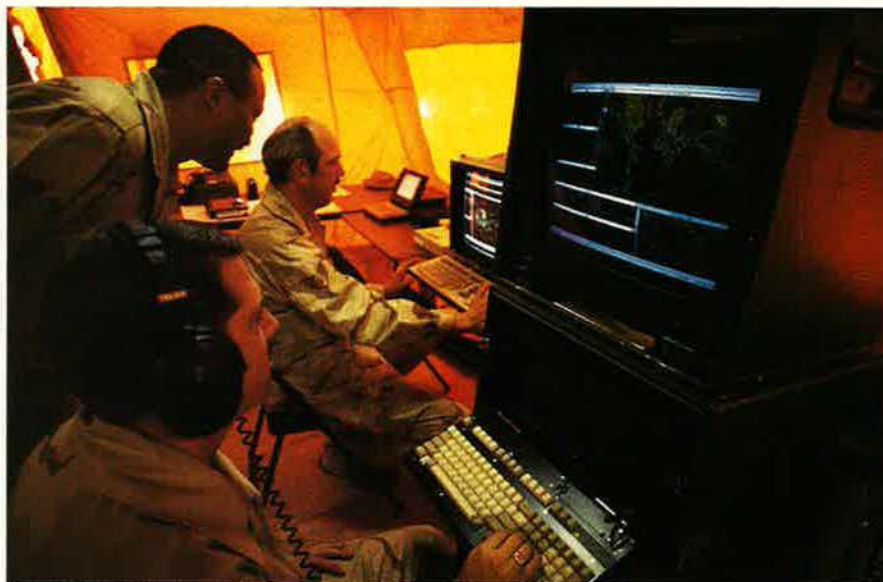
The SJTFs will “develop new concepts to exploit US asymmetric military advantages and joint force synergies.” Besides collecting the best that each service has to offer, the SJTFs may offer a lighter, leaner, and more efficient approach to dealing with crises.

An enabling technology for SJTFs will be a space based radar, as well as airborne and human intelligence, to track moving targets and pass the information to area strike assets.

The SJTF “could serve as the vanguard for the transformed military of the future,” the Pentagon asserts in the QDR.

The Pentagon is also contemplating a joint opposing force to play the enemy to SJTFs in exercises and experiments, which will take place every two years at a minimum.

Future technologies seen having potentially large impact on the US military include nanotechnology, for



Staff photo by Guy Aceto

War in cyberspace is already being fought. Intelligence, Surveillance, and Reconnaissance systems will get a boost, as the US military embraces network-centric warfare.

very small devices and ISR systems; extreme stealth; advanced, high-speed computers; biometrics for tracking adversaries and identifying people for security purposes; and commercial satellite imagery.

Base Closure Coming

Rumsfeld’s QDR also serves notice on Congress that more base closures will be sought. DOD wastes up to \$4 billion a year by keeping unnecessary bases open, the report contends. The QDR forecasts the joint use of military bases by more than one service or other government agencies.

Emphasis is also placed in the QDR on retaining people, deemed the most critical military asset. The QDR underlines the need to revitalize dilapidated facilities for personnel and their families and to make sure they are not pressed past their limits.

The Defense Department “should not expect its people to tolerate hardships caused by inequitable or inappropriate workloads within the force, aging and unreliable equipment, poor operational practices, and crumbling infrastructure,” according to the report.

Jumper said he was heartened that the QDR did not become a cost-cutting exercise.

“As we got into [previous] reviews it became evident very quickly that the idea was to reduce force structure. This QDR does not.”

He’s also happy that the QDR did

not become a turf battle between the services. “I’m very pleased to say that the services did not fall into that trap this time, as opposed to the last Quadrennial Defense Review, where the services were pretty much at each other’s throats.” There has been a realization, he said, that “there’s a profound requirement for each of the specific skills that each of the services bring, and they’re not always used in equal proportions, but that doesn’t mean that they won’t be used next time.”

Jumper said, “We are ... finally past this stage we went through in the last QDR, of trying to describe how each [service] would go win the war all by ourselves. ... Nobody ... in any of the leadership thinks any one of us is going to do it alone.”

In his foreword to the QDR document, Rumsfeld insisted that it is critical for America to invest more money in defense.

“The loss of life and damage to our economy from the attack of Sept. 11, 2001, should give us a new perspective on the question of what this country can afford for its defense,” Rumsfeld asserted. “It would be reckless to press our luck with false economies or gamble with our children’s future. This nation can afford to spend what is needed to deter the adversaries of tomorrow and to underpin our prosperity. Those costs do not begin to compare with the cost in human lives and resources if we fail to do so.” ■

Allied military forces attack terrorists in Afghanistan.

The War on Terror



USAF photo by 95Sgt. Shane Curry

A large B-1B bomber aircraft is shown on a tarmac. The aircraft is white with dark markings. A large, dark, cylindrical JDAM bomb is being loaded into the cavernous bomb bay of the aircraft. The bomb is suspended by a crane or hoist. The aircraft's wings are spread wide, and the tail section is visible. The ground is a light-colored, paved surface. In the background, there are some trees and a clear sky. The overall scene is one of military operations.

Photography by DOD photographers

A 2,000-pound JDAM destined for Taliban and al Qaeda targets is loaded into the cavernous bomb bay of a B-1B on Diego Garcia in the Indian Ocean. The B-1B can carry 24 such bombs, which add the element of high precision to the Lancer's all-weather capability. In Operation Enduring Freedom, big bombers are dropping more than 80 percent of the bomb tonnage but account for only 11 percent of the sorties flown.

These F-15Es, from the 48th Fighter Wing at RAF Lakenheath, UK, are headed to an undisclosed air base in Southwest Asia. The F-15Es have proved valuable for their long range, speed, and ability to carry some of the larger precision guided weapons.



USAF photo by SSgt. William Greer

USAF photo



These EC-130 Commando Solo aircraft are flying TV and radio studios. They broadcast to the Afghan people the US message about why we're fighting terrorism and the Taliban. All Commando Solos are in the Air National Guard, based at Harrisburg, Pa.



The famine relief in Afghanistan goes on. Above, humanitarian daily rations are loaded aboard a C-17 for the flight from Ramstein AB, Germany. At right, the loadmaster personally delivers the one-millionth meal dropped.

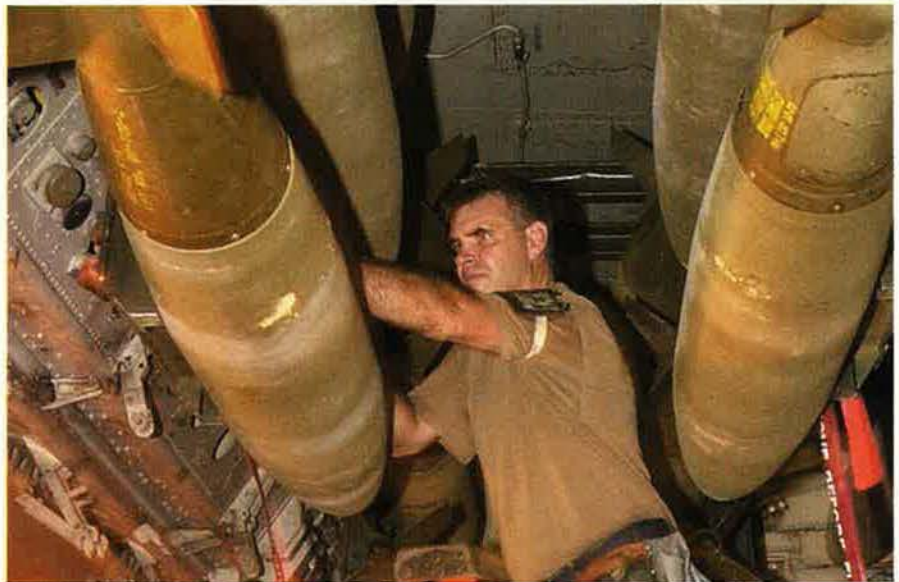


USAF photos by Marnie Garcia



In late October, there was a shift from exclusively precision guided munitions to more area attacks. Top, rows of "dumb" bombs are lined up for their one-way ride on the hulking and venerable B-52 to a Taliban army target.

Above, ground crews of the 28th Air Expeditionary Wing remind themselves and the intended recipients what all this is about and get a chance to personalize their retribution. The big BUFFs are 40, or older, but still pull their share of the weight in the direct air attack. The ramp at Diego Garcia is a bustling place, as attacks continue both day and night.



A Taliban barracks and training complex near Kabul. The Air Force is going after Taliban armor, troops, command-and-control facilities, and airfields, as well as al Qaeda terrorist training sites and camps throughout Afghanistan.



In this poststrike image, most of the military facilities are completely destroyed or severely damaged, but a historic fort nearby has been left untouched.



With hundreds of sorties being flown over a volatile region, strict airspace management is the rule for AWACS aircraft deployed to Enduring Freedom. At right, SrA. Shana Reeves and Canadian Master Cpl. Tim Rice operate a Joint Tactical Information Distribution System, helping keep straight who's who over Afghanistan.





USN photo by Cmdr. Brian G. Gawne

USAF photo by SSGT. Ken Bergmann



The air campaign simply would not be possible without constant and comprehensive support from Air Force tankers. Top, Navy F/A-18s and an F-14 fill up from a KC-10. The carrier-based aircraft may hook up to the tanker six times or more on a typical mission.

SSgt. Jeffrey Richards opens an access panel on a KC-10 operating out of the island of Sicily.

Above middle, an ANG tanker crew briefs a mission at Moron AB, Spain. An air bridge between the continental US and Southwest Asia ensures a constant flow of airplanes, supplies, rations, spares, and bombs to the theater.

And at home (right) a KC-135 tanks up an F-16 flying nighttime combat air patrol over New York.



USAF photo by SSGT. Pamela J. Farlin

USAF photo by Carlos Cintron



Special operations doesn't just mean ground troops. They have to get there. Below, an MH-53 Pave Low is loaded onto a C-17 for transport to the war zone. At right, a Pave Low tanks up during a mission. The helicopter excels at getting special ops troops into and out of their operations.



USAF photo by TSgt. Scott Reed

USAF photo by SSgt. Cecilio Ricardo



USAF photo by TSgt. Scott Reed



USAF photo by SSgt. Mitch Fuqua

At left, a Combat Talon MC-130 readies for a night run. The modified Hercules transport performs lights-out, low-altitude, white-knuckle refueling, mainly of helicopters. Above, a crewman keeps watch as a chopper takes on gas.

Also called to the war are the AC-130 gunships, which have the ability to put prodigious and continuous amounts of firepower on a point target. Aircraft like this keep the Taliban awake at night.



USAF photo



USAF photo by TSgt. Cedric H. Rudisill



Top, a B-1B refuels over the Indian Ocean. The Air Force still plans to reduce the size of the B-1B fleet to pay for upgrades of the remainder. Rising defense budgets, and the understanding that the war on terrorism will be a long one, may allow the Air Force to rethink the plan.



USAF photos by SSgt. Shane Cuomo

Above and right, JDAMs are loaded onto the "Bones" at Diego Garcia. Quick consumption early in the conflict worried many that the JDAM supply would run out, but production has been stepped up.

USAF photo by SSgt. Larry A. Simmons



Not long ago, few could have imagined that the US would enter a conventional war in the heart of Asia, using carrier-based aircraft, big bombers—some of which fly in from as far away as Missouri—and fighters staged in former Soviet states. Enduring Freedom sharply illustrates both the unpredictability of warfare and the challenges of access in the 21st century. ■

Verbatim Special: War on Terror

By Robert S. Dudley, Executive Editor

Individuals quoted herein issued remarks in a variety of ways—speeches, impromptu statements, testimony, briefings, press interviews, and so forth. Where possible, we cite the original venue and the date. Otherwise, we provide a prominent media source of the quotation. Date of media publication does not necessarily indicate the date of the actual utterance.

"On my orders, the United States military has begun strikes against al Qaeda terrorist training camps and military installations of the Taliban regime in Afghanistan. These carefully targeted actions are designed to disrupt the use of Afghanistan as a terrorist base of operations and to attack the military capability of the Taliban regime."—**President Bush, address to the nation, 10-7-01.**

"More than two weeks ago, I gave Taliban leaders a series of clear and specific demands: Close terrorist training camps; hand over leaders of the al Qaeda network; and return all foreign nationals, including American citizens, unjustly detained in your country. None of these demands were met. And now the Taliban will pay a price."—**Bush, address to the nation, 10-7-01.**

"Our military action is ... designed to clear the way for sustained, comprehensive, and relentless operations to drive them [bin Laden terrorists] out and bring them to justice."—**Bush, address to the nation, 10-7-01.**

"Today, we focus on Afghanistan, but the battle is broader. Every nation has a choice to make. In this conflict, there is no neutral ground. If any government sponsors the outlaws and killers of innocents, they have become outlaws and murderers themselves. And they will take that lonely path at their own peril."—**Bush, address to the nation, 10-7-01.**

"To all the men and women in our military, ... I say this: Your mission is defined; your objectives are clear; your goal is just. You have my full confidence, and you will have every tool you need to carry out your duty."—**Bush, address to the nation, 10-7-01.**

"The effect we hope to achieve through these raids ... is to create conditions for sustained anti-terrorist and humanitarian relief operations in Afghanistan. That requires that, among other things, we first remove the threat from air defenses and from Taliban aircraft."—**Defense Secretary Donald Rumsfeld, DOD briefing, 10-7-01.**

News Media Abbreviations Used

<i>Christian Science Monitor</i>	CSM
<i>Inside the Air Force</i>	ITAF
<i>International Herald Tribune</i>	IHT
<i>Los Angeles Times</i>	LAT
<i>New York Times</i>	NYT
<i>Wall Street Journal</i>	WSJ
<i>Washington Post</i>	WP
<i>Washington Times</i>	WT
<i>USA Today</i>	USAT

"In Kuwait, in northern Iraq, in Somalia, Bosnia, and Kosovo, the United States took action on behalf of Muslim populations against outside invaders and oppressive regimes. The same is true today."—**Rumsfeld, DOD briefing, 10-7-01.**

"To say that these [US] attacks are in any way against Afghanistan or the Afghan people is flat wrong. We support the Afghan people against the al Qaeda, a foreign presence on their land, and against the Taliban regime that supports them."—**Rumsfeld, DOD briefing, 10-7-01.**

"You cannot defend at every place, at every time, against every conceivable, imaginable—even unimaginable—terrorist attack."—**Rumsfeld, DOD briefing, 10-7-01.**

"Terrorism is a cancer on the human condition, and we intend to oppose it wherever it is."—**Rumsfeld, statement, 10-7-01.**

"The fact is in this battle against terrorism there is no silver bullet. There is no single thing that is going to suddenly make that threat disappear. Ultimately they're going to collapse from within and they're going to collapse from within because of the full combination of all of the resources from all of the countries that are brought to bear on these networks. That is what will constitute victory."—**Rumsfeld, statement, 10-7-01.**

"I want to remind you that while today's operations are visible, many other operations may not be so visible. But visible or not, our friends and enemies should understand that all instruments of our national power, as well as those of our friends and allies around the world, are being brought to bear on this global menace."—**Gen. Richard Myers, Chairman of the Joint Chiefs of Staff, DOD briefing, 10-7-01.**

"There is no doubt in my mind, nor in the mind of anyone who has been through all the available evidence, including intelligence material, that these attacks were carried out by the al Qaeda network masterminded by Osama

bin Laden. Equally, it is clear that his network is harbored and supported by the Taliban regime inside Afghanistan.”—**British Prime Minister Tony Blair, press conference, 10-7-01.**

“It is more than two weeks since an ultimatum was delivered to the Taliban to yield up the terrorists or face the consequences. It is clear beyond doubt that they will not do this. They were given the choice of siding with justice or siding with terror, and they chose to side with terror.”—**Blair, press conference, 10-7-01.**

“We’re in a war against terrorism. It’s not going to be short, and we’re not going to move away from the battlefields until we’ve won it. And that means totally. And that includes states and others that harbor terrorists, that support terrorists. So I think if we’re sincere about that, we can’t stop with bin Laden and the Taliban. But we’ve got to go on to some of these other groups, including Hezbollah, which incidentally has been implicated in a couple of major attacks against American targets that have resulted in the death of Americans.”—**Sen. Joseph Lieberman, Fox TV’s “Fox Sunday Morning,” 10-7-01.**

“The crucial ingredient of any Western-Islamic conflict [is] their quite distinctively different ways of making war. Westerners fight face to face, in stand-up battle, and go on until one side or the other gives in. They choose the crudest weapons available, and use them with appalling violence, but observe what, to non-Westerners, may well seem curious rules of honor. Orientals, by contrast, shrink from pitched battle, which they often deride as a sort of game, preferring ambush, surprise, treachery, and deceit as the best way to overcome an enemy. ... On Sept. 11, 2001, it [the Oriental tradition] returned in an absolutely traditional form. Arabs, appearing suddenly out of empty space like their desert raider ancestors, assaulted the heartlands of Western power, in a terrifying surprise raid and did appalling damage. ... Westerners have learned, by harsh experience, that the proper response is not to take fright but to marshal their forces, to launch massive retaliation, and to persist relentlessly until the raiders have either been eliminated or so cowed by the violence inflicted that they relapse into inactivity.”—**Military historian John Keegan, London’s Daily Telegraph, 10-8-01.**

“I gave them fair warning.”—**Bush, remarks to a small group of White House aides, WSJ, 10-8-01.**

“[War on terror] undoubtedly will prove to be a lot more like a cold war than a hot war. If you think about it, in the Cold War it took 50 years, plus or minus. It did not involve major battles. It involved continuous pressure. It involved cooperation by a host of nations. It involved the willingness of populations in many countries to invest in it and to sustain it. It took leadership at the top from a number of countries that were willing to be principled and to be courageous and to put things at risk; and when it ended, it ended not with a bang, but through internal collapse.”—**Rumsfeld, Time, issued 10-8-01.**

“There is a whole new level of insecurity in people, but most of them believe we have to try to destroy this enemy, or it will destroy us.”—**Lieberman, WP, 10-8-01.**

“The size and scope of this challenge are immense. ... The task before us is difficult but not impossible.”—**Tom Ridge at swearing-in ceremony as director of homeland security, 10-8-01.**

“We are using every possible avenue to disrupt, interrupt, defer, delay, impede, impair, prevent terrorism in any number of settings.”—**Attorney General John D. Ashcroft, press briefing, 10-8-01.**

“America is lying when it propagates the aims of its attacks against Afghanistan to be a struggle against terrorism. But this is not a struggle against terrorism. Why do they lie to the people of the world? Why don’t they express the true aim—power and domination.”—**Iran’s spiritual leader, Ayatollah Ali Khamenei, NYT, 10-9-01.**

“We may find that our self-defense requires further actions with respect to other organizations and other states.”—**US ambassador to the UN, John Negroponte, in letter to the Security Council, NYT, 10-9-01.**

“We’re so conditioned as a people to think that a military campaign has to be cruise missiles and television images of airplanes dropping bombs, and that’s just false. This is a totally different war. We need a new vocabulary. We need to get rid of old think and start thinking about this thing the way it really is.”—**Rumsfeld, CBS’ “Evening News,” 10-9-01.**

“I have got definite assurances that this operation will be short.”—**Pakistan President Pervez Musharraf, NYT, 10-9-01.**

“Well, OK, he [bin Laden] praised the acts that took place in New York. So did half the population here. Does that mean we all did it? Of course we’re upset that so many died in New York, but at the same time, we’re in awe of what happened.”—**A young Egyptian woman in Cairo, WP, 10-9-01.**

“Defections are going to be a big measurement of the success. What we don’t want to do is leave a significant element of the Taliban that can go up to the mountains and say, ‘We survived against the superpower and we are the center of power.’”—**Unnamed Pentagon official, NYT, 10-9-01.**

“Bin Laden used to come to us when America—underline, America—through the CIA and Saudi Arabia, were helping our brother mujahideen in Afghanistan, to get rid of the communist secularist Soviet Union forces. Osama bin Laden came and said ‘Thank you. Thank you for bringing the Americans to help us.’ At that time, I thought he couldn’t lead eight ducks across the street.”—**Prince Bandar bin Sultan bin Abdul Aziz, Saudi ambassador to US, NYT, 10-9-01.**

“We’re not running out of [fixed] targets. Afghanistan is.”—**Rumsfeld, DOD briefing, 10-9-01.**

“America must know that the storm of airplanes will not stop, and there are thousands of young people who look forward to death like the Americans look forward to life.”—**Al Qaeda “spokesman” Sulaiman Abu Ghayth, videotaped statement aired on the al Jazeera television station, WP, 10-10-01.**

“They [senior members of al Qaeda] are dead. They just don’t know it yet.”—**Unnamed US official, NYT, 10-10-01.**

“Much depends, in this whole process, on the Pakistanis. It’s a question of going in with the right incentives. When

[Pashtun leaders] see the Taliban is a losing proposition, they will be looking for new allies. I'm pretty optimistic about driving the Taliban into the ground."—**Jack Devine, a former head of CIA's Afghan task force, WP, 10-10-01.**

"We support all measures taken by the United States to resist terrorism because we suffered from terrorism before."—**Egyptian President Hosni Mubarak, WP, 10-10-01.**

"We are going to disrupt these people thru pre-emptive attack. ... We will deceive them. We will run psyops on them. ... At selected points and times, they will be killed suddenly, in significant numbers, and without warning. Tomahawk missiles, 2,000-pound laser-guided weapons dropped from B-2s or F-22s at very high altitude, remote-control booby traps, blackmail, and at places, ... small groups of soldiers or SEALs will appear in total darkness, ... blow down the doors, and kill them at close range with automatic weapons and hand grenades. We will find their money and freeze it. We will arrest their front agents. We will operate against their recruiting and transportation functions. We will locate their training areas and surveil or mine them. We will isolate them from their families. We will try to dominate their communication function and alternately listen, jam, or spoof it. We will make their couriers disappear. If we can find out how they eat, or play, or receive rewards, or where they sleep, ... we will go there and kill them by surprise."—**Retired US Army Gen. Barry McCaffrey, in a Sept. 19 e-mail message to a West Point cadet, WSJ, 10-10-01.**

"I think President Musharraf is very secure and stable."—**Secretary of State Colin Powell, NBC's "Today Show," 10-10-01.**

"Four simple words describe our mission: global strike, precision engagement. It's exactly on the other side of the globe from Missouri. It's a long way."—**Brig. Gen. Anthony F. Przybyslawski, commander of B-2 force at Whiteman AFB, Mo., NYT, 10-11-01.**

"[It is a] new kind of struggle that we have to win. These terrorists are not 10 feet tall. They are not insuperable. They are not unvanquishable. But we are. And we certainly will win."—**NATO Secretary General George Robertson, The Times of London, 10-11-01.**

"We really didn't think we had much of an al Qaeda presence inside the US. Now we know there is an al Qaeda presence, but we don't know the extent of it."—**John Lewis, former head of FBI national security division, WSJ, 10-11-01.**

"The truth of the matter is, in order to fully defend America, we must defeat the evildoers where they hide. We must round them up, and we must bring them to justice. And that's exactly what we're doing in Afghanistan."—**Bush, White House press conference, 10-11-01.**

"I gave them ample opportunity to turn over al Qaeda. I made it very clear to them, in no uncertain terms, that, in order to avoid punishment, they should turn over the parasites that hide in their country. They obviously refused to do so. And now they're paying a price."—**Bush, White House, 10-11-01.**

"If you want to join the coalition against terror, we'll welcome you in. ... All I ask is for results. If you say you want to join us to cut off money, show us the money. If you say you want to join us militarily, ... do so. ... If you're interested in sharing intelligence, share intelligence."—**Bush, White House, 10-11-01.**

"My focus is bringing al Qaeda to justice and saying to [the Taliban], 'You had your chance to deliver.' Actually, I will say it again: If you cough him up, and his people, today, we'll reconsider what we're doing to your country. You still have a second chance. Bring him in and bring his leaders and lieutenants and other thugs and criminals with him."—**Bush, White House, 10-11-01.**

"I'm asked all the time, ... 'How do I respond when I see that in some Islamic countries there is vitriolic hatred for America?' I'll tell you how I respond: I'm amazed. I'm amazed that there is such misunderstanding of what our country is about, that people would hate us. I am, I am—like most Americans, I just can't believe it, because I know how good we are, and we've got to do a better job of making our case."—**Bush, White House, 10-11-01.**

"In the missions ahead for the military, you will have everything you need, every resource, every weapon, every means to assure full victory for the United States and the cause of freedom."—**Bush, remarks at Pentagon memorial service, 10-11-01.**

"There will be times of swift, dramatic action. There will be times of steady, quiet progress. Over time, with patience and precision, the terrorists will be pursued. They will be isolated, surrounded, cornered, until there is no place to run or hide or rest."—**Bush, Pentagon, 10-11-01.**

"I don't get up in the morning and ask myself where he is. I am interested in the problem of terrorists and terrorist networks and countries that harbor them all across the globe. And if he were gone tomorrow, the al Qaeda network would continue functioning essentially as it does today. He is certainly a problem; he is not the problem."—**Rumsfeld, DOD briefing, 10-11-01.**

"At times like this one, we must address some of the issues that led to such a criminal attack. I believe the government of the United States of America should re-examine its policies in the Middle East and adopt a more balanced stance toward the Palestinian cause."—**Saudi Prince Alwaleed bin Talal, 10-11-01 press release following his presentation of a \$10 million aid gift to New York City, Associated Press, 10-12-01.**

"There is no moral equivalent for this attack. The people who did it lost any right to ask for justification when they slaughtered 5,000 [or] 6,000 innocent people. Not only are those statements wrong, they're part of the problem."—**New York City Mayor Rudolph Giuliani, statement upon rejecting Alwaleed's donation, AP, 10-12-01.**

"For all the fabled fighting qualities of the Afghans, they've never had to deal with a modern air campaign."—**Unnamed US official, WP, 10-12-01.**

"Osama bin Laden has become a symbol of defiance. Whoever stands in defiance of American arrogance will

be seen as a local hero.”—**Jamal Khashoggi, Saudi journalist, CSM, 10-12-01.**

“If we don’t use this as the moment to replace Saddam [Hussein] after we replace the Taliban, we are setting the stage for disaster.”—**Former House Speaker Newt Gingrich, NYT, 10-12-01.**

“Obviously, anthrax is a very serious matter. ... We are treating this as a criminal matter and are investigating it with great care.”—**Ashcroft, CNN interview, NYT, 10-12-01.**

“There’s a professional responsibility to remain strongly independent, to keep your skepticism, if not cynicism, intact and to remain wary anytime the government seeks to influence editorial decisions in inappropriate ways.”—**CBS News anchor Dan Rather in response to White House concerns about unedited and repeated airings of al Qaeda videotapes by US broadcast media, WP, 10-12-01.**

“You have no choice, but in your own self-defense, to be pre-emptive, to go after the terrorists where they are.”—**Rumsfeld, NYT interview, 10-12-01.**

“I believe that it’s very unlikely that all of those individuals that were associated with or involved with the terrorism events of September the 11th and other terrorism events that may have been pre-positioned and preplanned have been apprehended.”—**Ashcroft, NBC’s “Meet the Press,” 10-14-01.**

“I think we want to kill all 22 guys [on Bush’s publicly released terrorist list]. We probably don’t want to have any more guys in orange jumpsuits.”—**Unnamed former high-ranking CIA officer, WP, 10-14-01.**

“Turn him [bin Laden] over. Turn his cohorts over. Turn any hostage they hold over. Destroy all the terrorist camps. ... There’s no need to discuss innocence or guilt. We know he’s guilty. Turn him over.”—**Bush, remarks to reporters, WP, 10-15-01.**

“It’s hopeless. We will not get a hearing [in Islamic countries]. I think we are deeply alienated from these societies, in the extreme. ... Our sins are very evident. ... Our good deeds are never really taken in, never factored in.”—**Fouad Ajami, director of Middle East studies, Johns Hopkins University’s School of Advanced International Studies, WP, 10-15-01.**

“This mythology emerges that these people are fabled guerrilla fighters. In fact they were modest at best. The Russians could deal with them, but they didn’t have enough [Special Forces].”—**Bard O’Neill, National War College, CSM, 10-15-01.**

“If Bush and his monkeys want to destroy Islam, we will chase them to their grave. If they send in troops, I will abandon my MBA and go for martyrdom.”—**Shayar Khan, 23, a business student in Pakistan, WP, 10-15-01.**

“Until this crisis ends, Musharraf will be living week to week.”—**Rifaat Hussain, a professor of strategic and defense studies at Quaid-i-Azam University in Pakistan, WP, 10-15-01.**

“This is not a banana republic. We have a professional army. They are 100 percent behind the chief. ... If any-

one wants to try [to overthrow me], let them try.”—**Musharraf, USAT, 10-15-01.**

“[The US must eliminate] the center of gravity [Mullah Mohammed Omar]. In Iraq, the center of gravity was Saddam. You didn’t take him out and look what happened.”—**Musharraf, USAT, 10-15-01.**

“What would have become of us had the United States adopted the same hesitant position towards us that we have adopted of late?”—**Sheik Saud Nasser al-Sabah, Kuwait’s former oil and information minister, NYT, 10-15-01.**

“God help us from Satan. You [Osama bin Laden] are a rotten seed like the son of Noah, ... and the flood will engulf you like it engulfed him.”—**Prince Turki al Faisal, former head of Saudi intelligence, writing in *Shark al-Awsat*, WP, 10-15-01.**

“Mistaken policy or accident of history—take your pick. The stability of Afghanistan seemed a bigger concern than the presence of bin Laden. When the Taliban received him, they indicated he would be absolutely prevented from taking any actions. We had unequivocal promises.”—**Saudi Foreign Minister Prince Saud Faisal, WP, 10-15-01.**

“[The Taliban] use their land to harbor, arm, and encourage ... criminals. [The Taliban] defame Islam and defame Muslims’ reputation in the world.”—**Official Saudi government statement upon severing relations with Afghanistan, WP, 10-15-01.**

“On occasion, there will be people hurt that one wished had not been. I don’t think there is any way in the world to avoid that and defend the United States from the kinds of terrorist attacks which we’ve experienced.”—**Rumsfeld, DOD briefing, 10-15-01.**

“They were not cooking cookies inside those tunnels. I mean, let’s face it, you do not spend that kind of money, and dig that far in, and store that many weapons and munitions that it would cause that kind of sustained secondary explosions unless you have very serious purposes for doing it.”—**Rumsfeld, DOD briefing, 10-15-01.**

“We do not have information that validates [Taliban claims of heavy civilian casualties]. Indeed, some of the numbers are ridiculous. ... I think that we know of certain knowledge that the Taliban leadership and al Qaeda are accomplished liars.”—**Rumsfeld, DOD briefing, 10-15-01.**

“We worry about Saddam Hussein. We worry about his weapons of mass destruction that he’s trying to achieve. ... But for now, the President has said that his goal is to watch and monitor Iraq. And certainly, the United States will act if Iraq threatens its interests.”—**National Security Advisor Condoleezza Rice, interview on al Jazeera TV, USAT, 10-16-01.**

“Get Mullah Omar, and Osama won’t be able to operate. He’ll be on the run. You must take out the center of gravity. That’s what I would do if I were running this campaign.”—**Musharraf, remarks to CBS Radio and *USA Today*, London’s *Daily Telegraph*, 10-16-01.**

“What I have said is very, very clear. Islam as a religion prevents anyone, forbids anyone, to harm any civilians,

any innocent people around the world.”—**Palestinian Authority President Yasser Arafat, NYT, 10-16-01.**

“After eight days of bombing, it’s definitely necessary to take a pause here.”—**Claudia Roth, a leader of the German Green Party, NYT, 10-16-01.**

“You can’t export them [members of the Taliban]. You can’t send them to another country. You can’t ethnically cleanse Afghanistan after this is over, but you can certainly get rid of this particular regime that has driven this country to such devastation.”—**Powell, remarks in Islamabad, Pakistan, 10-16-01.**

“I think the series of strikes we’ve conducted over the past nine days have had a fairly dramatic effect on the Taliban. ... I think ... the combat power of the Taliban has been eviscerated.”—**Marine Corps Lt. Gen. Gregory Newbold, JCS director of operations, DOD briefing, 10-16-01.**

“The whole world has been turned upside down. We have to re-examine our entire capability to withstand a terrorist attack.”—**Richard Meserve, chairman of the Nuclear Regulatory Commission, WSJ, 10-17-01.**

“[The letter contained] a very strong form of anthrax, a very potent form of anthrax that was clearly produced by someone who knows what he or she is doing.”—**Sen. Tom Daschle, WP, 10-17-01.**

“We have decided to be with the coalition in the fight against terrorism and whatever operation is going on in Afghanistan. To this extent, we will certainly carry on cooperating as long as the operation lasts. ... But one really hopes that the operation is short.”—**Musharraf, WP, 10-17-01.**

“They [Afghanis] don’t like being ordered around by foreigners ... especially in military uniforms. The United Nations can’t go everywhere, and it must select the place that it goes with care. I very firmly said that the United Nations—and this is as a consequence of discussion with the secretary general this morning—is definitely not seeking anything of that sort.”—**Lakhdar Brahimi, United Nations envoy to Afghanistan, WP, 10-18-01.**

“I think this war is going to give you the revolution in military affairs.”—**Eliot Cohen, Johns Hopkins University, WP, 10-18-01.**

“It [the chance terrorists could acquire smallpox virus] is impossible to quantify, but I would assess it to be quite low.”—**Jonathan B. Tucker, bioterrorism expert, NYT, 10-18-01.**

“[The quality of the anthrax] certainly raises a high level of attention that this wasn’t just some weirdo. When you start seeing professional signs, you start seeing signs of organization. We’re dealing with something that was targeted [and] reasoned. The methods were not haphazard, and apparently, the quality of the agent was more than just a layman could come up with.”—**Rep. Porter Goss, chairman of the House Intelligence Committee, WSJ, 10-18-01.**

“We have had one death from this stuff and three other confirmed cases. Two of those three are a milder form of

the disease. More people have been struck by lightning in the last 10 days, I’ll bet, than have contracted anthrax. The country badly needs to settle down.”—**Sen. John McCain, NYT, 10-18-01.**

“The good news is that there are many agencies working on all of these issues. The bad news is that there are many federal agencies working on all of these issues.”—**Sen. Fred Thompson, NYT, 10-18-01.**

“We are confronted with a big infidel. This is a test. The people are suffering, but this is a test we shall pass, God willing. ... We will succeed whether we live or die. Death will definitely come one day. We are not worried about death. We should die as Muslims. It does not matter whether we die today or tomorrow. The goal is martyrdom.”—**Mullah Muhammad Omar, radio address to Taliban troops, NYT, 10-18-01.**

“Whatever happens in the United States, someone would raise his finger and point to Iraq. We don’t like this kind of agitation against Iraq. These are cheap, baseless, ridiculous accusations. How can we do these things? Why?”—**Iraqi Deputy Prime Minister Tarik Aziz, LAT, 10-18-01.**

“From time to time, I see references in the press to ‘the coalition’—singular. Let me reiterate that there is no single coalition in this effort. This campaign involves a number of flexible coalitions that will change and evolve as we proceed through the coming period.”—**Rumsfeld, DOD briefing, 10-18-01.**

“I firmly believe that this is the most important tasking the US military has been handed since the second World War. They passed the weapons of mass destruction barrier on September 11th for sure, at least in my mind, and it’s global in scale, and it’s going to be a tough fight.”—**Myers, DOD briefing, 10-18-01.**

“We can’t deal with it [terrorism] through defense. The only defense against terrorism is offense. You have to simply take the battle to them because ... every advantage accrues to the attacker in the case of a terrorist. The choice of when to do it, the choice of what instruments to use, and the choice of where to do it, all of those things are advantages of the attacker. That means that we simply must go and find them.”—**Rumsfeld, DOD briefing, 10-18-01.**

“We’re seeing some people as part of the Taliban starting to decide that they’d prefer not to be part of the Taliban any more.”—**Rumsfeld, DOD briefing, 10-18-01.**

“Nobody’s calling us unilateral anymore. ... We’re so multilateral it keeps me up 24 hours a day checking on everybody.”—**Powell, address to Shanghai business leaders, 10-18-01.**

“The calculations of the crusade coalition were very mistaken when it thought it could wage a war on Afghanistan, achieving victory swiftly.”—**Mohammed Atef, al Qaeda’s military commander, statement given to Reuters, WP, 10-19-01.**

“When you decide to surrender, approach United States forces with your hands in the air. Sling your weapon across your back, muzzle towards the ground. Remove

your magazine and expel any rounds. Doing this is your only chance of survival.”—**US message to Taliban fighters, WP, 10-19-01.**

“We’re going to do everything we can to manage this thing, but we’re in a brand-new situation, so buckle your chin straps.”—**Myers, radio address to US troops, LAT, 10-19-01.**

“We don’t have just any old security measures; we work closely with the World Health Organization and follow all of the WHO’s recommendations. There definitely haven’t ever been attempts to steal smallpox.”—**Sergei Netesov, deputy general director of the Vektor research institute in Novosibirsk, Russia, WSJ, 10-19-01.**

“You accomplish an amazing feat each time a B-2 bomber lifts off from the plains of Missouri and crosses oceans and continents, undetected, to deliver justice from the skies above Afghanistan. The terrorists thought they could strike fear in the American heartland. Through you, the American heartland strikes back.”—**Rumsfeld, remarks to the 509th Bomb Wing, Whiteman AFB, Mo., 10-19-01.**

“With self-defense today, you have to take the fight to them. Some people think this is something you can start or stop, but the fact is that you don’t have a large margin for error when you’re talking about nuclear weapons. I don’t think you have a choice.”—**Rumsfeld, Chicago Tribune interview, 10-19-01.**

“There is no place for any element of current Taliban leadership in a new Afghanistan. But at the same time, there are many people within the Taliban movement in a leadership position who have not been active and who may well want to become part of a new Afghanistan.”—**Powell on CNN, 10-21-01.**

“I think the chance of a biological attack against the US in the next year is extremely high and of a nuclear attack maybe five percent.”—**Unnamed defense expert, WP, 10-21-01.**

“This is a very complex area. I mean, Afghanistan makes Bosnia look homogeneous, OK?”—**Unnamed “senior Defense Intelligence Agency official,” Time, issued 10-22-01.**

“This is going to sound partisan, and I try not to be partisan on this matter, but the fact is that the Clinton Administration was not very interested in our Intelligence Community, did not spend very much time worrying about, or using it, or investing in it. It’s impossible not to go there if you really do an anatomy of why we are where we are today.”—**Goss, NYT, 10-22-01.**

“There’s no question in my mind. The idea that this [the anthrax attack] is the work of a lone nut, that’s wishful thinking. The big question is, is Iraq cooperating [with the terrorists] or not? If they are, I think there is ample reason to worry.”—**Richard Spertzel, bioterror consultant, CBS’ “Face the Nation,” WP, 10-22-01.**

“God loves us because Europe is in our hands. Now we are mujaheddi—muhajirun [fighting immigrants]. This is our duty that we have to carry on with honor. ... We have to be like snakes. We have to strike and then hide.”—**Lased Ben Heni, Libyan member of al Qaeda overheard on a wiretap in March (he was arrested in Germany last month), WP, 10-22-01.**

“It [fitting a nuclear weapon in a suitcase] is not particularly probable, but it’s possible. The difficulty is that we are dealing with a wide range of low-probability cases. We can’t be afraid of any one, but we have to be concerned about all of them.”—**Anthony Cordesman, former senior DOD official, Time, issued 10-22-01.**

“History is replete with instances where Muslim nations have fought among themselves or with other countries during various important holy days for their religion, and it has not inhibited them historically.”—**Rumsfeld, DOD briefing, 10-22-01.**

“This is not a linear war; this is not a sequential war. ... We have a notion of things we would like to happen, but it’s not in the sequential sense or this linear sense that our brains tend to work in.”—**Myers, DOD briefing, 10-22-01.**

“It is ... vital that Defense Department employees, as well as persons in other organizations that support DOD, exercise great caution in discussing information related to DOD work, regardless of their duties. Do not conduct any work-related conversations in common areas, public places, while commuting, or over unsecured electronic circuits. ... Much of the information we use to conduct DOD’s operations must be withheld from public release because of its sensitivity. If in doubt, do not release or discuss official information except with other DOD personnel.”—**Deputy Undersecretary of Defense Paul Wolfowitz, in Oct. 18 memo to senior Pentagon officials, WT, 10-23-01.**

“One would hope and wish that this campaign comes to an end before the month of Ramadan, and one would hope for restraint during the month of Ramadan, because this would certainly have some negative effects in the Muslim world.”—**Musharraf, CNN’s “Larry King Live,” WP, 10-23-01.**

“We are accepting the fact that you have to win this militarily and deal with the political mess afterward. There is no way this can be in sync. ... The problem with post-Taliban Afghanistan is that it could be like pre-Taliban Afghanistan.”—**Cordesman, USAT, 10-23-01.**

“Who stands behind this terrorism and who carried out this complicated and carefully planned terrorist operation? Osama bin Laden and those with him have said what indicates that they stand behind this carefully planned act. We, in turn, ask: Are bin Laden and his supporters the only ones behind what happened or is there another power with advanced technical expertise that acted with them?”—**Prince Sultan bin Abdul Aziz, Saudi Defense Minister, in As Seyassa newspaper in Kuwait, IHT, 10-23-01.**

“My concern is generally that we’ll bend ourselves into pretzels to avoid civilian casualties, and as a result, we end up prolonging the war.”—**Ken Pollack, Clinton Administration security official, USAT, 10-23-01.**

“It doesn’t matter whether a democratic society finds out [about a special operation] three weeks late or 48 hours late. Breaking the news has no value to a democratic society. Analyzing the news does. If it’s a choice between American casualties and this strange, we-have-to-know-it-now intimacy, the player is more important than the sports fan.”—**Cordesman, WP, 10-23-01.**

“There are too many things, too many examples of sto-

len identities, of cleverly crafted documentation, of coordination across continents and between states ... to stray very far from the conclusion that a state, and a very well-run intelligence service, is involved here.”—**Former CIA director James Woolsey, WP, 10-24-01.**

“Osama bin Laden does not represent the Arabs and Muslims. He does not speak on their behalf. He is a man with his own policy that is not the Arab or Muslim policy. ... [Arab countries] consider America as one of our best friends—we want to have the best of relations with America. What is poisoning the relationship is Israel’s policy towards the Arabs.”—**Amr Moussa, head of the Arab League, WT, 10-24-01.**

“We have before us a [Fiscal 2002] defense bill that is a peacetime defense bill. We ain’t at peace no more.”—**Rep. David Obey, member of the House Appropriations Committee, 10-24-01.**

“We have contacts with the Iranians at an interesting level, and we are receiving signals, and we will explore opportunities with them.”—**Powell, WP, 10-25-01.**

“Musharraf is riding a tiger. I am very concerned about the stability of his regime.”—**Former National Security Advisor Brent Scowcroft, USAT, 10-25-01.**

“We will not forget that those who now are in their caves and burrows, they are the ones who do harm to the kingdom, and unfortunately, Muslims are being held accountable for them although Islam is innocent. ... The body has diseases and some organ could be diseased. So the diseased organ must be removed.”—**Prince Nayef bin Abdul Aziz, Saudi interior minister, NYT, 10-25-01.**

“[The long US bombing campaign] plays into every stereotypical criticism of us, [that] we’re this high-tech bully.”—**Sen. Joseph R. Biden Jr., speech to Council on Foreign Relations, WT, 10-25-01.**

“[Biden’s comments were] completely irresponsible. The last thing our country needs right now is Senator Joe Biden calling our armed forces ‘a high-tech bully.’ ... After losing close to 5,000 fellow citizens to terrorist attacks over the last month and a half, the American people want us to bring these terrorists to justice. They do not want comments that may bring comfort to our enemies.”—**House Speaker Dennis Hastert, WT, 10-25-01.**

“I don’t know that I’ve come to any conclusions about how long the bombing should take place. I think the President is doing exactly the right thing. I support [the President’s] effort. I think it is important for us to do as much as possible from the air to avoid casualties on the ground. I think he’s doing that, for good reason.”—**Daschle, WT, 10-25-01.**

“Until you have him [bin Laden], you do not have him—so what is progress? Until he is no longer functioning as a terrorist, he is functioning as a terrorist. There isn’t any ‘progress.’ You either have him or you don’t.”—**Rumsfeld, DOD briefing, 10-25-01.**

“This is proceeding according to our plan. ... Success is yet to be determined, but we think we’re having some success.”—**Myers, DOD briefing, 10-25-01.**

“I think we’re going to get him. How’s that?”—**Rumsfeld, DOD briefing, 10-25-01.**

“The President noted that he is very pleased with the kingdom’s contributions to the [anti-terror] efforts, and he said that press articles citing differences between the United States and Saudi Arabia are simply incorrect. ... There’s been a suggestion that Saudi Arabia is not acting as a good partner with the United States, and the President could not more strongly disagree.”—**White House Press Secretary Ari Fleischer, press briefing, 10-25-01.**

“The vicious campaign being waged against the kingdom in the Western media is nothing but the manifestation of a deep-rooted hatred directed against the course of Islam and the kingdom’s adherence to the book of God and the Sunnah of his Prophet.”—**Saudi government statement, WP, 10-26-01.**

“War is a miserable business. Let’s get on with it.”—**McCain, WSJ, 10-26-01.**

“We’re going to have to put troops on the ground. We’re going to have to put them in force, and although they will not be permanent, they are going to have to be very, very significant.”—**McCain, CBS’ “Face the Nation,” 10-28-01.**

“It’s going to take a very big effort and probably casualties will be involved. And it won’t be accomplished through airpower alone.”—**McCain, CNN’s “Late Edition,” 10-28-01.**

“We’ve not ruled out the use of ground troops. ... There certainly is that possibility.”—**Rumsfeld, ABC interview, 10-28-01.**

“This Administration is not afraid of saying the word ‘Iraq.’ Iraq has been on the terrorist list for years. There is no question but that Iraq is a state that has committed terrorist acts and has sponsored terrorist acts.”—**Rumsfeld, ABC interview, 10-28-01.**

“[Afghanistan has] miles and miles and miles of tunnels and caves that they can hide in. ... There’s no question that we have been systematically working on the caves and on the tunnels and on their openings, and we’ve had some success. Now, the problem is there are a great many of them, so it’s going to take some time to deal with them and make them less habitable.”—**Rumsfeld, CNN’s “Late Edition,” 10-28-01.**

“We haven’t yet really gotten serious about this conflict. ... Everybody in Afghanistan ought to know we’re coming in and hell’s coming with us.”—**Former National Security Advisor Robert McFarlane, CBS’ “Face the Nation,” 10-28-01.**

“It [the military operation in Afghanistan] is not a quagmire at all. It’s been three weeks that we’ve been engaged in this.”—**Rumsfeld, remarks to reporters, 10-28-01.**

“[Americans must] steel ourselves to see this war to the finish by pursuing and defeating all those who target terror at us. After bin Laden and the Taliban, Saddam is at the top of that list.”—**Lieberman, WSJ, 10-29-01.**

"A time comes when peoples and nations part. We are at a crossroads. It is time for the United States and Saudi Arabia to look at their separate interests. Those governments that don't feel the pulse of the people and respond to it will suffer the fate of the Shah of Iran."—**Saudi Crown Prince Abdullah bin Abdul Aziz, Aug. 27 letter to Bush, WSJ, 10-29-01.**

"Ramadan is very important. Emotions will run high. ... Some governments could be toppled. ... Pakistan, Indonesia. We worry about civil war in Pakistan. The impact would be dramatic."—**Prince Turki as-Sudairi, member of Saudi royal family and the publisher of *Al Riyadh* newspaper, WSJ, 10-29-01.**

"We are in the driver's seat. We are proceeding at our pace. We are not proceeding at the Taliban's pace or al Qaeda's pace. We can control that. And we are controlling it in a way that I think is right along with our plan."—**Myers, DOD briefing, 10-29-01.**

"There's no question but that Taliban and al Qaeda people, military, have been killed. We've seen enough intelligence to know that we've damaged and destroyed a number of tanks, a number of artillery pieces, a number of armored personnel carriers, and a number of troops. Are there leaders mixed in there? Yes. At what level? Who knows? ... But to our knowledge, none of the very top six, eight, 10 people have been included in that number."—**Rumsfeld, DOD briefing, 10-29-01.**

"Our goal is not to reduce or simply contain terrorist acts, but our goal is to deal with it comprehensively, and we do not intend to stop until we've rooted out terrorist networks and put them out of business, not just in the case of the Taliban and the al Qaeda in Afghanistan, but other networks as well. ... As we've said from the start of the campaign, this will not happen overnight. It is a marathon, not a sprint. It will be years, not weeks or months."—**Rumsfeld, DOD briefing, 10-29-01.**

"Let's be clear: No nation in human history has done more to avoid civilian casualties than the United States has in this conflict."—**Rumsfeld, DOD briefing, 10-29-01.**

"Our national interests lie with antagonizing the Great Satan. We condemn any cowardly stance toward America and any word on compromise with the Great Satan. Our foreign policy, constitution, religion, and people reject any compromise with oppressor America. Those who speak of relations with America are not speaking for this Muslim nation."—**Ayatollah Mahmoud Hashemi Shahroudi, Iran's judicial chief, WP, 10-30-01.**

"We should destroy the Taliban as rapidly as possible. I, frankly, am mystified that we have the capacity in the north to destroy the Taliban forces in the front lines, and we're not using it. And I do not understand the strategy of being slow in blocking the defeat of the Taliban by not applying our power."—**Gingrich, WT, 10-30-01.**

"[The terrorists] have one hope—that we are decadent, that we lack the moral fiber or will or courage to take them on; that we might begin but we won't finish; that we will start then falter; that when the first setbacks occur we will lose our nerve. They are wrong."—**Blair, speech to Welsh Assembly, 10-30-01.**

"The new thinking is to take those cities that are within reach of Northern Alliance forces without waiting any

longer to be sure we can control in advance all the risks of postwar factional rivalries. ... The military track has been held up waiting for progress on the political track. We had to get rid of the idea—or rather the illusion—that we could micromanage the political future [of postwar Afghanistan]."—**Unnamed "Bush Administration official," IHT, 10-31-01.**

"Tell me why you would want to do that [insert large numbers of US ground forces]. It's exactly what the other side wants."—**Unnamed "senior official," LAT, 10-31-01.**

"We want to conduct this operation on our time line, and I think we're on that time line. In my view, it is not at all a stalemate. My boss, the Secretary of Defense, and the President have not indicated to me any frustration with the pace."—**Army Gen. Tommy Franks, CENTCOM commander in chief, press conference in Tashkent, Uzbekistan, *European Stars and Stripes*, 10-31-01.**

"[It] seems perverse to focus too much on the casualties or hardship in Afghanistan. ... As we get good reports from Taliban-controlled Afghanistan, we must redouble our efforts to make sure we do not seem to be simply reporting from their vantage or perspective. We must talk about how the Taliban are using civilian shields and how the Taliban have harbored the terrorists responsible for killing close to 5,000 innocent people."—**CNN Chairman Walter Isaacson, memo to international correspondents, WP, 10-31-01.**

"I discussed this issue [effective government control of Pakistan's nuclear weapons] with President Musharraf when I was in Islamabad, and I am confident that he understands the importance of ensuring that all elements of his nuclear program are safe and secure. And he knows that if he needs any technical assistance on how to improve that security level, we'd be more than willing to help in any way that we can."—**Powell, NYT, 11-1-01.**

"It's just not feasible or realistic to think you're playing an organ where you're doing politics with the left hand and military with the right. ... There's a lot of disarray. This is Afghanistan. It's become clearer in the last week that we've stopped trying to calibrate the military and the political. ... Let's do what we need to do. Let's get on with it and get it over with."—**Unnamed "senior official," WP, 11-1-01.**

"Had these people had ballistic missile technology, there's not the slightest doubt in my mind that they would have used it. ... If they could couple that with a weapon of mass destruction, nuclear or whatever, and dropped it on lower Manhattan, as tragic as the destruction of the World Trade Center was, the loss of lower Manhattan or any comparable place would obviously be a lot worse."—**John Bolton, undersecretary of state, IHT, 11-1-01.**

"Today was good. The big plane was very good."—**Arif, a Northern Alliance commander, referring to an attack by USAF's B-52 bomber, NYT, 11-1-01.**

"Pakistan has cut itself free of its Taliban connections. Some will suggest, 'Well, there's still some things going on,' but I can tell you that ... President Musharraf and his other leaders, they've cut themselves free."—**Powell, WSJ, 11-1-01.**

"I actually don't have an opinion on that [whether the

Pentagon was a legitimate military target for the Sept. 11 terrorists], and it's important I not have an opinion on that, as I sit here in my capacity right now. The way I conceive my job running a news organization, and the way I would like all the journalists at ABC News to perceive it, is there is a big difference between a normative position and a positive position. Our job is to determine what is, not what ought to be, and when we get into the job of what ought to be, I think we're not doing a service to the American people. I can say the Pentagon got hit. I can say this is what their position is, this is what our position is, but for me to take a position this was 'right' or 'wrong'—I mean, that's perhaps for me in my private life. ... But, as a journalist, I feel strongly that's something that I should not be taking a position on."—**David Westin, president of ABC News, in remarks at Columbia University journalism school, WP, 11-1-01.**

"I was wrong. ... Under any interpretation, the attack on the Pentagon was criminal and entirely without justification."—**Westin, backtracking from earlier statement, WP, 11-1-01.**

"In other American wars, enemy commanders have come to doubt the wisdom of taking on the strength and power of this nation and the resolve of her people. I expect that somewhere in a cave in Afghanistan there's a terrorist leader who is at this moment considering precisely the same thing."—**Rumsfeld, DOD briefing, 11-1-01.**

"We are not just dealing with the possibility of governments diverting nuclear materials into clandestine weapons programs. Now we have been alerted to the potential of terrorists targeting nuclear facilities or using radioactive sources to incite panic, contaminate property, and even cause injury or death among civilian populations. The willingness of terrorists to commit suicide to achieve their evil aims makes the nuclear terrorism threat far more likely than it was before Sept. 11. ... While we cannot exclude the possibility that terrorists could get hold of some nuclear material, it is highly unlikely they could use it to manufacture and successfully detonate a nuclear bomb."—**Muhammad el-Baradei, director general of International Atomic Energy Agency, NYT, 11-2-01.**

"Supporters of Islam: This is your day to support Islam. ... The heat of the crusade against Islam has intensified, its ardor has increased, and the killing has multiplied against the followers of Muhammad."—**Osama bin Laden, letter to news organizations, NYT, 11-2-01.**

"He [bin Laden] is fully aware, I'm sure, that the world would like to see more of him, in person, and have an opportunity to locate him. But he is careful, as are all the senior leaders in al Qaeda. They've been spending a lot of time in caves and tunnels and moving frequently, and I think that the reports are probably as much wrong as right, from time to time, but they are always late."—**Rumsfeld, en route to Moscow, 11-2-01.**

"I think we are making great progress. I'd characterize our progress as effective because we're doing our work on our time line. We're doing our work on the basis of our initiative—an initiative which we have and we intend to keep."—**Franks, ABC's "This Week," 11-4-01.**

"We're going to prosecute this war right through the

winter. ... We're setting in for the long haul."—**Myers, NBC's "Meet the Press," 11-4-01.**

"I think we do have substantial fights ahead of us. In some ways they have been eviscerated, but not in all ways. So we are pretty much where I think I said we are. We have the initiative, the Taliban do not."—**Myers, NBC's "Meet the Press," 11-4-01.**

"[Bin Laden has] been trying to take advantage of Islam, distort Islam, to take on moderate regimes in the Middle East, to take on civilized society in the West, and in different parts of the world. But it's a distortion. I don't agree with the argument. Islam has nothing to do with what he is propagating."—**Nabil Fahmy, Egypt's ambassador to the US, CBS' "Face the Nation," 11-4-01.**

"There really is not a government to speak of in Afghanistan today. As a military force, they [the Taliban] have concentrations of power that exist. They have capabilities that remain. They have tanks and anti-aircraft. They undoubtedly have some Stinger surface-to-air missiles [but they] are not making major military moves. ... They are pretty much in static positions."—**Rumsfeld, press conference in Pakistan, 11-4-01.**

"The reality is that the threats of additional terrorist acts are there. ... They are credible, they are real, and they offer the prospects of still thousands of more people being killed."—**Rumsfeld, press conference in Pakistan, 11-4-01.**

"I do not personally believe that there is a risk with respect to nuclear weapons of countries that have those weapons. I think those countries are careful and respectful of the dangers they pose and manage their safe handling effectively."—**Rumsfeld, press conference in India, 11-5-01.**

"We are going to eradicate al Qaeda from Afghanistan and we're going to take away the Taliban's ability to support terrorists. And there isn't anything that's going to deter us from that mission."—**Stufflebeem, DOD briefing, 11-5-01.**

"The religious edicts issued by [bin Laden] are the main evidence [for his guilt] because they call for attacking American soldiers and civilians. Only those people devoid of feelings will still ask for evidence. ... Those who still call for evidence are closing their eyes to the facts and are searching for justification of [bin Laden's] acts."—**Turki al Faisal, interview on Saudi TV, WSJ, 11-5-01.**

"Do I think Afghanistan will take years? No, I don't."—**Rumsfeld, press conference in India, 11-5-01.**

"Al Qaeda operates in more than 60 nations. ... These terrorist groups seek to destabilize entire nations and regions. They are seeking chemical, biological, and nuclear weapons. Given the means, our enemies would be a threat to every nation and, eventually, to civilization itself. So we're determined to fight this evil, and fight until we're rid of it. We will not wait for the authors of mass murder to gain the weapons of mass destruction. We act now, because we must lift this dark threat from our age and save generations to come."—**Bush, remarks to Warsaw Conference on Combating Terrorism, 11-6-01.**



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megatons in explosive power. When Soviet air defenses improved, the B-52 broke new ground by carrying Hound Dog stand-off missiles designed to suppress enemy defenses.

However, when Soviet surface-to-air missiles downed the U-2 spyplane piloted by Francis Gary Powers, the B-52 was given new tactics; it was to evade enemy radar by skimming over the terrain at altitudes of 300 feet or less. Almost intolerable stresses were placed on the airframe and the crews in this flight regime, but the rugged B-52 just flexed its wings and pressed on with its nuclear mission.

Along the way, the B-52 was tasked with many missions that had not been envisioned, including photoreconnaissance of Soviet shipping and carriage of systems ranging from anti-ship missiles to high-speed reconnaissance drones.

The Vietnam Shift

The Vietnam War brought another significant change to the bomber. Part of the B-52 force was serving as Strategic Air Command's long rifle aimed at the heart of the Soviet Union. However, in Southeast Asia, the big bombers became flying artillery, backing up ground forces whenever needed. Crews who had been trained in long-range nuclear penetration tactics now became the arbiters of the battlefield, called on by commanders for close—very close—air support.

After the Vietnam War, the B-52 was modified to handle new weap-

ons, including sophisticated air-launched cruise missiles and precision guided munitions, but it retained its legendary power to flatten enemy ground forces with tons of World War II-type bombs. The B-52's defensive capability received comparable upgrades so that, even in the age of stealth, it serves a major combat role.

In great part, the B-52's longevity and the versatility resulted from the actions of Gen. Curtis E. LeMay, both before and after he became the SAC commander in chief (and later USAF Chief of Staff). At the dawn of the Cold War, defense budgets were tight and long-range missiles were seen as the coming thing. However, LeMay altered the calculus. When offered a modified B-47 design that met most of the requirements for the proposed B-52 mission at far lower cost, LeMay declined angrily, insisting that he wanted an aircraft large enough to accommodate later developments, particularly in electronic countermeasures equipment.

In essence, LeMay had defined a new age in airpower, when aircraft were to be seen as "platforms" able to be modified over the years to take the systems that new weapons and new missions demanded. There were the usual protests at the time over high unit cost of the prototypes, but no one could have guessed that the costs would be amortized over no fewer than five and possibly as many as seven decades.

The BUFF's first mission was one for the ages. LeMay made it the linchpin of the American strategy to deter war by making SAC so strong that the Soviet Union would not dare launch a first strike on the United States or its allies. The quick response capability of the B-52 and the undeniable skill of its flight crews were made obvious to Soviet military and political leaders by means of its constant exercises and record-setting flights.

Nikita's Case of Nerves

SAC and the B-52s succeeded in that mission, and never more memorably, during the October 1962 Cuban Missile Crisis. As revealed by Soviet Premier Nikita Khrushchev in his memoirs, the presence of nuclear-armed B-52s on orbit outside the borders of the USSR made him think twice and then again about the wisdom of challenging the United States. Eventually, Moscow backed down.

Roger Ferguson, a B-52 navigator during the crisis, recalls that the mission briefings were deadly serious and that plans called for B-52s to enter Soviet airspace at a given point every 12 minutes. Security was suffocating. When Ferguson's crew raced out to their loaded B-52 to launch, they were forced to hit the deck, spread-eagled, by an eager rifle-toting airman. The BUFF commander had forgotten the counter-sign. It was funny—but not until much later.

There are many apocryphal stories about aircraft being designed on the back of envelopes, but it is absolutely true that the original design for what became the B-52 was created over one weekend in the Van Cleve Hotel in Dayton, Ohio.

On Thursday, Oct. 21, 1948, a group of highly talented Boeing engineers, including George Schairer, Vaughn Blumenthal, and Art Carlsen, were gathered to present the latest version of a straight-wing turboprop bomber design to Col. Henry E. "Pete" Warden, a project officer at Wright-Patterson AFB, Ohio. Unknown to them, acting on his own authority, Warden had been urging Pratt & Whitney to build the J57 jet engine. Warden suggested to the Boeing engineers that they scrub the turboprop bomber and come up with a swept-wing pure jet engine aircraft using the J57.



Initial details for the B-52 that went to production were worked out one weekend in a Dayton, Ohio, hotel room by Boeing engineers, including (from left) Schairer, Blumenthal, Pennell, Wells, and Carlsen.

The Boeing engineers were not exactly starting from scratch. They had learned much from the six-jet-engine, swept-wing Boeing B-47 and were aware that there would soon be major improvements in in-flight refueling systems, including what would become the KC-135 jet tanker and the Boeing flying boom in-flight refueling system.

The team members notified Warden that they would be ready with a presentation on Monday morning. Their boss, Edward C. Wells, arrived from Seattle, and with two other Boeing employees, H.W. Withington and Maynard Pennell, in town on other business, they worked continuously, with plenty of telephone calls to Seattle, and succeeded. In addition to three-view drawings and a 35-page proposal, they presented to Warden a silver balsa wood model of the new bomber, carved by Wells himself.

The proposed aircraft bristled with advances over the B-47. The earlier aircraft had a thin, narrow-chord wing, bicycle landing gear, and a structure designed using World War II criteria. The B-52's huge wing featured 4,000 square feet of wing area, but it was flexible enough to deflect through a 32-foot arc. It had an ingenious and top secret crosswind main landing gear that allowed landing in a direct crosswind of 43 knots. It also made use of the most modern construction techniques available.



Members of a SAC B-52 combat crew race for their bomber. During the Cold War, the airplanes were kept "cocked" and ready. An experienced crew could have their BUFF taxiing within five minutes.

Boeing built two prototypes—first the XB-52 and then the YB-52. The second prototype was actually the first to fly because the XB-52 had suffered damage in a full pressure test of its pneumatic system. The test ripped out the wing's trailing edge. Production approval preceded the first flight, however, and the first batch of 13 B-52As were ordered in February 1951. These differed from the prototype aircraft in a number of ways, the most obvious being the change from the B-47-style tandem cockpit layout to conventional side-by-side seating for the pilots. Only

three B-52A models were built, the remaining 10 being completed as RB-52Bs. (The RB-52 was a dual-role aircraft, designed to have a reconnaissance capability gained from a two-man pressurized capsule in the bomb bay.) The third of the A models, #52-003, would have a distinguished career as a mother ship for the North American X-15 and many other test vehicles. Designated NB-52A, it served until 1968 and is now at the Pima Air and Space Museum in Tucson, Ariz.

The Coming of the BUFF

The first operational aircraft was an RB-52B, delivered to the 93rd Bomb Wing at Castle AFB, Calif., by its commander, Brig. Gen. William E. Eubank Jr., on June 29, 1955. The 93rd transitioned from B-47s to B-52s and at the same time established the 4017th Combat Crew Training Squadron for B-52 crew training.

The sight of the first operational B-52 coming in to land brought mixed emotions. It was a beautiful airplane, but qualifying for even a copilot position required a minimum flying time of 1,000 hours. As partial compensation, junior pilots often flew a Lockheed T-33 as chase aircraft on early B-52 missions. During one of these, the right outrigger gear of a landing B-52 failed to extend. After exhausting all the in-flight emergency procedures, the tip gear stayed up and the BUFF came in to land. Determined that no incident would



Only three A model B-52s were produced. One—designated NB-52A—served as the mother ship for the X-15 research aircraft and other test vehicles until 1968. After that a B model—NB-52B—took over.



now the only BUFF in active service.

It still demonstrates the versatility of the basic design. The B-52H has been modified to accept the new AGM-154 Joint Standoff Weapon and AGM-158A Joint Air-to-Surface Standoff Missile, upgraded AGM-86C/D Conventional Air Launched Cruise Missiles, and an offensive avionics system fitted with new computers. The old Inertial Navigation System is being upgraded with the Ring Laser Gyro INS, and the electronic countermeasures equipment is getting color touch-screen technology.

The buildup in numbers of the B-52 came as SAC was in a period of profound transition. In 1958, the B-47s

occur, Eubank was driven in a jeep alongside the landing aircraft and personally grabbed the wingtip to make sure that it did not touch the ground.

The B-52C, D, E, and F models followed in quick succession. These were similar in external appearance and differed primarily in the engine series, fuel capacity, and the bomb-navigation and fire-control systems.

During the first years of the Vietnam War, the Air Force deployed only B-52Fs to the theater. The B-52Fs could carry 51 of the standard 750-pound bombs—27 internally and 24 on pylons. In time, the demand for B-52 bombing sorties became so great that the entire B-52D fleet was prepared for conventional warfare by means of a high-density bombing system modification called “Big Belly.” This increased the bomb bay capacity to 42 separate 750-pound bombs or 84 500-pound bombs. It could still carry 24 bombs externally, for a maximum bomb load, internal and external, of 108. The nuclear bombing capability was retained.

The B-52 G and H models differed significantly in appearance from their predecessors, having a shorter vertical fin and rudder. The G was designed especially for flight at low levels and was considered by pilots to be more difficult to fly than others in the series because the ailerons had been removed and lateral control was by spoilers only. Unlike all previous models, which used conventional fuel bladders, both the G and the H models had wet-wing fuel tanks, greatly



Above, BUFFs line up for takeoff circa 1969. Here, during Linebacker II in 1972, a poststrike photo of the Kinh No rail yard, about seven miles north of Hanoi in North Vietnam, shows the destructive power of the B-52s.

increasing their internal capacity. This was a disadvantage in combat; during Linebacker II operations in 1972, nine Ds were hit by SAMs but were still able to land. More vulnerable because of the wet wing, all but one of the six B-52Gs hit by SAMs crashed.

More Power

The H model was modified to be easier to control and was easily distinguished by powerful new TF33 turbofans. Compared to power plants on the G models, these offered about 30 percent more power. The 744th and last B-52, an H model, was delivered Oct. 26, 1962. The B-52H is

had reached a peak with about 1,360 in operation, but their numbers declined rapidly thereafter, and most were out of operational use by late 1965. While original plans had called for a fleet of only 282 B-52 aircraft, the demand built steadily, and by 1962, the Air Force had deployed no fewer than 639 operational B-52s.

As B-47 and B-36 units converted to B-52s, there were some unusual personnel problems. Some combat crews with years of service together, many with individuals who had earned spot promotions, were broken up and spot promotions lost. Some especially skilled crew members had “spots on spots”—two spot promo-

tions. When the spots were taken away, lieutenant colonels became captains overnight.

As a result, there were often unseemly scrambles among aircraft commanders to select the best talent for their new crews. In SAC, promotions depended in great part upon crew performance, and every new B-52 crew wanted the best people at each of the six positions—aircraft commander, pilot, radar/navigator (essentially, the bombardier), navigator, Electronic Warfare Officer, and gunner. (A great and honorable tradition ended in 1991 when USAF eliminated the B-52 gunner's position, a victim of new technology that made aerial gunnery passé.)

Introducing the B-52 entailed far more than teaching crews how to fly a new aircraft. The wingspan of 185 feet and a gross weight reaching 488,000 pounds on later models meant that new runways, taxiways, hangars, refueling facilities, and maintenance docks had to be provided at many bases. The planning problem was increased in 1957 when the threat of Soviet missile attack made it imperative to disperse B-52s to a larger number of bases to complicate Soviet targeting.

On Alert

By Oct. 1, 1963, there were 42 B-52 squadrons stationed at 38 bases. The dispersal made it easier for SAC to try to reach its goal of having one-third of its force on ground alert at all times, but the new situation imposed severe problems on training, maintenance, and logistics.

SAC was without question the most influential component of United States armed forces, and it routinely received a large share of the military budget. But even a large budget and good management could not solve all the problems, and the usual last resort was to take a solution out of the hides of the crews. The alert system was one of these last resorts, intended to solve the problem of maintaining a large proportion of the force instantly ready for war.

While the alert system was undeniably effective, it was also cruel to family life. The ordinary working week lasted 60 to 80 hours, and there were lots of temporary duty separations. The alert system added to these hardships. Sometimes the stress of life in SAC became too much and



Staff photo by Guy Aceto

The Cold War meant 24-hours-a-day alert for B-52 crews, who were required to be in the air within 15 minutes of a go order. These crews are "relaxing" in the dining area of an alert facility.

divorces resulted, but for the most part, wives and children pulled their "tours of duty" with the same courage as did the crew members.

The alert concept was introduced on Oct. 1, 1957. Under its terms, B-52s were required to get airborne within 15 minutes of the order to take off. At the time, it was widely accepted that the USSR had a great advantage in ballistic missiles that could strike US targets within 30 minutes of launch. With immediate warning, a 15-minute alert meant that the B-52s would just have time to get off to retaliate for the missile attack.

Crews on alert status were expected to remain together and be close enough to meet the 15-minute demand. Aircraft were "cocked," that is, ready for engine start, and experienced crews could have the engines running within two minutes of an alarm and be taxiing within five minutes.

The alert plan contained an unacknowledged problem that was unique in warfare: a warrior's family was in greater danger than the warrior himself. The chances were that the warrior would return from a combat mission only to find that he had lost his family to the enemy attack. There were evacuation plans, but civil defense was never really embraced by the United States as it had been in the Soviet Union. Tension remained high throughout the Cold War despite the frequency of training alerts,

for the crews never knew which one might be the real thing.

The routine and schedule of alert duty varied from base to base and over time, but a crew might expect to pull one week of alert out of the month, in addition to all their other many training requirements. In the early days, the "alert shacks" were improvised, but later they were well-built and relatively comfortable. In their "free" moments the crews could use the usually Spartan recreational facilities or work on correspondence courses, but much of the time was spent in studying their Positive Control Procedures and their specific war plan mission. The crews had to be as concerned about Positive Control Procedures and the associated paperwork as they were about the war plan mission, for any failure with the procedures—or loss of the paperwork—meant serious disciplinary action.

The B-52 did not go to war for nearly 10 years after it entered service, but its entry into the Vietnam War would have a drastic impact on SAC's ability to maintain a substantial percentage of its force on alert.

First Blood

The BUFF entered combat from Andersen AFB, Guam, on June 18, 1965. Some 27 B-52Fs of the 7th and 320th Bomb Wings were ordered to attack Viet Cong forces about 40 miles north of Saigon. It was the first Arc Light operation.

When a BUFF Went Down

The story of Linebacker II has been told many times, but the cold statistics conceal the human drama faced by every bomber crew on every mission. Lt. Col. George Larson provided the following excerpt of an interview with Maj. John Wise, 28th Bomb Wing, to give some insight into just how demanding these missions were and how harrowing they could be. All six crew members of Ash 02 survived.

"I flew my 295th combat mission on Dec. 27, 1972. We were to attack the Van Dien Supply Area. We were Ash Cell. I flew Ash 02, aircraft No. 56-05999, not a good position to be in, because the North Vietnamese were using the lead aircraft to set up on the following cell's aircraft.

"At the IP [Initial Point], I believe there were five to six SA-2s fired at us. At bombs away, we were level for dropping our bombs, which were salvoed in 1.5 seconds. I put the B-52D into a 90-degree wingover when—wham!—we were hit in the left side [wing]. All four engines on that side were finished. There were lights blinking all over the cockpit. We were later told by USAF intelligence that the fatal hit was from SAM Site VN 549.

"All the crew was OK. We had no engine power on the left side. It was 250 miles to reach friendly territory. Aircraft control was terrible, trying to make course on an exit heading to U Tapao. We were at 30,000 feet, and as the aircraft slowed, I would dive down, picking up speed, slowly climbing, but not making up all lost altitude. I could only steer a course of 190 degrees, but we were getting out of the North by using this roller coaster maneuver. However, we were slowly losing precious altitude.

"We crossed the 15,000-foot-altitude bailout decision point, but I looked down and there were lights. These lights were coming from a firefight below between Communist troops and US backed forces in Laos. I decided we would not jump into the middle of a war. We crossed the Mekong River at 12,000 feet, all the time keeping in constant communications with the Air Force rescue helicopters then airborne.

"We had been in the air nearly 45 minutes after being hit by the SAM and it was time to bail out. I called the gunner to go first. However, unknown to me at the time, the gunner did not go out on the first try, requiring a second attempt. The gunner eventually went. The navigator attempted to go, trying to blow the hatch below, but it did not open, probably jammed from the SAM hit in the left wing. The radar navigator ejected. I told the navigator to jump out the open radar navigator's hatch. The EWO then ejected.

"Well, the navigator's microphone pulled loose as he jumped and I did not know he had gone. I told the copilot to eject and—boom—he was gone, filling the cockpit with insulation. I kept calling the navigator. I was not going to eject until I knew he had gone safely out of the wounded bomber.

"At 3,000 feet, I heard the Air Force rescue boys indicate that it was time for me to get out of the aircraft. Well—boom—the hatch above me was gone and then I squeezed the ejection handle. Then, up and out I went. I was uncertain if I would separate from the seat. However, once in the wind, the seat was gone and I was floating free. The chute opened with a jerk. I looked down to see the bomber hit the ground with a huge fireball, turning night into day."

The results were tragically disappointing. Two B-52s were lost in a midair collision during a 360-degree timing adjustment turn. Eight crew members lost their lives. A third aircraft was diverted. The remaining BUFFs dropped their bombs on an area that the Viet Cong had just vacated.

Despite the inauspicious beginning, the Arc Light campaign proved to be so valuable that the demand for sorties went up from an initial rate of 300 per month at the beginning of 1966 to a peak of 3,150 per month in 1972, in the successful effort to contain the North Vietnamese spring offensive. The effectiveness of the force was enhanced with the introduction of the B-52D as the standard bomber and the introduction of the Combat Skyspot radar-assisted ground-directed bombing system.

U Tapao Royal Thai Air Base was brought into operation, enabling the Air Force to conduct B-52 missions with greatly reduced en route times. Sorties were extended beyond Vietnam to Laos and Cambodia. The strategic nuclear bomber had been turned into a flexible, on-call tactical bomb delivery system.

The B-52 distinguished itself many times during the Vietnam War, but two efforts stand out above all. The

first is the battle of Khe Sanh, where new tactics devastated the North Vietnamese besiegers in 2,548 sorties that dropped 59,542 tons of bombs and, in the words of Army Gen. William Westmoreland, "broke their [the enemy's] back."

The second was Operation Linebacker II, when in 11 days of bombing, B-52s smashed the defenses of Hanoi and Haiphong and forced

North Vietnam to negotiate peace in Paris. The B-52s flew 729 out of 741 planned sorties and dropped 15,000 tons of bombs. Fifteen BUFFs were lost—about two percent of the force. The action proved that the B-52, supported by tactical air assets, could meet and defeat the enemy. The results have caused many to wonder what the world might be like if the B-52s had been unleashed in 1965,



As large as the B-52 is, crew stations, like the offensive and defensive positions here, are cramped. To keep BUFFs viable after Vietnam, they were modified for new precision weapons and enhanced defensive capability.

Photo by Paul Kennedy



when the target areas were virtually undefended.

All told, the BUFF force flew 126,615 sorties during eight years of Arc Light. The B-52, initially a desperation weapon thrown in when there was nothing else available, grew to become the final instrument of the war.

After Vietnam, the B-52s returned to service in the Cold War. As the years passed, attrition and economics pared the B-52 fleet down until, by 1991, only B-52Gs and Hs remained in service, with the exception of an NB-52B serving as mother airplane at Edwards Air Force Base in California.

Desert Duty

Operation Desert Storm called the old warrior into action once more, with about 80 B-52Gs operating from the United States and four overseas locations. History was made on Jan. 17, 1991, when seven B-52Gs from the 2nd Bomb Wing at Barksdale AFB, La., completed what was then the longest combat mission in history—35 hours. The bombers flew from their US base to attack Iraqi targets with 35 AGM-86C Conventional Air Launched Cruise Missiles. Poststrike reconnaissance revealed that 33 CALCMs found their target.

The B-52 missile attack was followed up with the first low-level



After Desert Storm the B-52G, the last with a tail gun, was retired. The B-52H (here and above), which was introduced in 1962, continues to serve, and during Allied Force B-52H crews flew 270 sorties, dropping 11,000 bombs. They are heavily engaged once again in the War on Terror.

attack in SAC history. After three decades of practice, B-52s swept in at less than 300 feet above the ground to bomb four Iraqi airfields and an important highway. Then, after these glamorous forays, it was back to textbook duties from the Vietnam War era, with three-ship cells of B-52s bombing from above 30,000 feet. The B-52s would put down about 150 bombs in a tight, devastating pattern that killed troops in the tar-

get area and demoralized those adjacent to it. The B-52s were assigned other missions as well, but the main thrust of their attacks was the decimation of Iraqi troops with conventional M117 750-pound bombs and cluster bomb units. All told, the BUFFs flew more than 1,600 sorties and dropped more than 25,000 tons of ordnance. No B-52s were lost to enemy action, but one crashed in the Indian Ocean on its way back to Diego Garcia, with the loss of three crew members.

The BUFF, now a hardened combat veteran, returned to war in February 1999, in Operation Allied Force. Aircraft were sent first from Barksdale and later from Minot AFB, N.D. Combat operations be-

gan in late March, with six B-52s launching CALCMs. Heavy raids by B-52s on Yugoslav army units in Kosovo were one factor in Belgrade's decision to throw in the towel. B-52s had flown 270 sorties and dropped 11,000 bombs.

After 50 years and hundreds of thousands of sorties, B-52 crews have lots of tales to tell, some hair-raising (landings with four engines out on one side, for example). No matter what the subject, however, the story is always filled with affection for an airplane that just keeps going on, year after year, decade after decade, always taking on new tasks, and always on the first team. ■

Walter J. Boyne, former director of the National Air and Space Museum in Washington, is a retired Air Force colonel and author. He has written more than 400 articles about aviation topics and 30 books, the most recent of which is The Best of Wings. His most recent article for Air Force Magazine, "The Early Overflights," appeared in the June 2001 issue.

Both the QDR and Sept. 11 point to new directions for the defense industry.

The Changing Business of Defense

By Richard J. Newman

THE Sept. 11 attacks forced US stock markets to shut down for days. When they reopened for business on the following Monday, Sept. 17, many of the nation's corporate stocks immediately experienced dramatic plunges.

Many, but not all.

Take, for example, Northrop Grumman. Its stock closed on Sept. 10 at about \$82. On Sept. 17 it closed at nearly \$95, a whopping 16 percent gain on a day when the overall Dow Jones Industrial Average fell by more than seven percent.

Meanwhile, Lockheed Martin's share price in that one day rose 15 percent. Even Raytheon, whose management woes have caused it some difficulties on Wall Street, had a banner day. Its share price skyrocketed by some 27 percent. Other examples, large and small, abound.

The trend was obvious: With war talk in the air, and the general economy roiled by worry, pure defense firms suddenly seemed to be a safe bet. In effect, hardened investors were signaling their view that the US defense industry was back, big time. (Boeing, a major defense

player, slumped because of problems in civil aviation.)

"Defense," wrote a group of Credit Suisse First Boston analysts, was "a 'no-brainer' investment."

Many officials in Washington agree. Even before terrorists unleashed the attack that brought national security back to the top of the nation's agenda, defense firms had been on a roll. The expectation that President Bush would boost defense spending combined with the relative stability of defense contractors pushed defense stocks up.

Open Spigot?

Now, with the United States embroiled in "a new kind of war," as Bush put it, Congress is waving through major increases in defense funding, with virtually no dissent. Not surprisingly, this turn of events has turbocharged the defense industry.

What will the industry be called upon to do?

The first big batch of post-attack funding went to "intelligence," broadly defined. The question of exactly what it will buy won't be answered until the Bush Adminis-

tration presents its Fiscal 2003 budget in February. However, the Quadrennial Defense Review, hastily reworked after the attacks and delivered to Congress on Sept. 30, provides some clues.

For instance, it called for more spending on unmanned Intelligence, Surveillance, and Reconnaissance platforms. Counterterrorism efforts would also get more funding under the QDR strategy.

The document highlighted other priorities that have long been cited by Defense Secretary Donald Rumsfeld: missile defense, cyber-warfare weapons and defenses, space operations equipment, and covert strike platforms such as huge submarines bristling with accurate cruise missiles.

Since the QDR was unveiled, a hot war has commenced, and experts note that it will aggravate many pre-existing problems in defense hardware accounts. Two weeks into the conflict, a senior USAF officer warned that wartime operations are "burning up" aircraft, many of which are old and in need of replacement. At the same time, he said, critical new types of munitions are in short supply.

The munitions problem appears certain to generate procurement on a substantial scale.

"We don't know what munitions we are going to expend," said Undersecretary of Defense Dov Zakheim, the Pentagon comptroller. "What I am concerned about is that I not be the stumbling block, that people don't come to me and say, 'My God! We've run out of munition X and munition Y.' My job is to ensure that they have what they need, when they need it, and that the process supports that to the fullest extent possible."

Overall, analysts expect that there will be enough new spending to give a lift to the whole industry. But some companies will benefit more than others.

One contractor in a strong position is Northrop Grumman, which as much as any other firm, has transformed itself from a manufacturer of flashy, high-profile platforms to a diversified supplier of the kinds of electronics, avionics, and ISR systems that many experts expect to be the backbone of America's future military.

In 1990, the B-2 bomber accounted



USAF photo by MSgt. Mark Savage

Contractors who have diversified into electronics and other high tech areas may reap the biggest bonanza. Here, MSgt. Doug Williams with the Utah Air National Guard inspects a computer circuit card.

for half of Northrop's sales. Since then, the company has diversified its programs such that no one system accounts for more than five percent of the company's revenues.

The evolution has occurred partly by necessity. Congress, for instance, cut the B-2 procurement from 132 to 75 and finally to 21. In 1991, Northrop lost out in the competition to become the prime contractor for the USAF F-22 fighter. The story was the same with the Joint Strike Fighter in 1996.

Diversifying

Northrop's response? Since 1994, it has purchased a dozen other contractors, including several with expertise in the fields of radar, jammer equipment, and software. Among them were big names such as Grumman, Westinghouse, and Litton Industries, including electronics and shipbuilding.

Today, the closest thing Northrop Grumman has to a showcase weapon is the DDG-51 destroyer, which recently acquired Litton (Ingalls Shipbuilding) has been building for years. However, the company has a portfolio that looks tailor-made for the kinds of reforms Rumsfeld has in mind for America's new war. The biggest line item on the company's income statement, for example, is electronics, which includes the key components for intelligence systems and other weapons. That accounts for slightly more than one-third of

the company's projected earnings for 2001, according to Merrill Lynch.

Northrop builds the Global Hawk unmanned spyplane, which could end up an unlikely hero of a war in which intensive ISR is likely to back the bombs and bullets that will be expended.

The \$12 million-per-copy Global Hawk is designed to loiter at altitudes up to 65,000 feet. That makes it much harder to shoot down than the Predator Unmanned Aerial Vehicle, which flies at about 25,000 feet. Global Hawk can stay airborne about 36 hours. It can be outfitted with a variety of sensors able to see through clouds and camouflage and track moving targets. The UAV isn't due to be fielded until 2003, but accelerating the Global Hawk program—and buying more of them—are widely considered to be among the Pentagon's new priorities.

"Clearly, there is tremendous visibility right now to the UAV," said Zakheim. "And the possibilities that these systems offer are limitless. You can hang all kinds of equipment on them. They will go places that manned aircraft would only go at exceedingly high risk. They can get you information that, again, could only be acquired at high risk by manned systems. They get it to you in real time. They allow you to completely restructure the way you operate on the battlefield, and so those are very high priorities. ... These



The General Atomics Predator UAV, shown here, was used early over Afghanistan for reconnaissance. The higher flying Northrop Grumman Global Hawk, which wasn't due to be fielded until 2003, got its deployment orders Nov. 2.

UAVs, we are doing our best to accelerate.”

Whether new technology will ultimately make a difference in the war against terrorism remains to be seen. There certainly are skeptics who believe that more spending on intelligence hardware will leave gaping holes, such as a lack of human intelligence and an outdated intelligence structure.

The QDR proposed to “expand procurement of the same data collections systems that failed to find tactical targets, such as armored vehicles, in Kosovo,” says one critical defense staffer on Capitol Hill. “Now we are being told they will find terrorists in Afghanistan. We shall see.”

The Pentagon is seizing the moment to accelerate projects that senior military leaders have had in mind for some time. The QDR makes the case plainly: “The loss of life and damage to our economy from the attack of Sept. 11, 2001, should give us a new perspective on the question of what this country can afford for its defense,” wrote Defense Secretary Rumsfeld in the foreword. “This nation can afford to spend what is needed to deter the adversaries of tomorrow and to underpin our prosperity. Those costs do not begin to compare with the cost in human lives and resources if we fail to do so.”

If Congress goes along, as it seems inclined to do, the Administration’s high-priority missile defense program will be a major winner, along

with the companies that build the systems.

Cold Storage

Opposition to missile defense has evaporated or at least gone into cold storage. In the aftermath of the terror attacks, Congressional amend-

ments designed to delay or kill spending for missile defense were dropped. Congress approved \$7.5 billion for the program this year. While Carl Levin, Senate Armed Services Committee chairman, vowed that the debate over missile defense “has not gone away,” most analysts consider the prospects for missile defense to be brightening rapidly.

The timing couldn’t be better for Boeing, which as lead system integrator for the Pentagon’s national missile defense program, gets half of every dollar spent on the system. Boeing could use the money. The company’s stock fell by about 18 percent on the first trading day after Sept. 11, as struggling airlines rapidly cut back orders for commercial aircraft. It suffered another big hit in October when Lockheed Martin won the dearly sought contract for the Joint Strike Fighter program, worth as much as \$200 billion.

Missile defense, by contrast, could be Boeing’s salvation. In the week after the September attacks, one analyst rated Boeing stock as a “strong buy” and predicted its price in the next 12 months would rise above its highs for the prior year.

Defense Giants

Contractor	2001 Defense Revenue	Major Programs
Boeing	\$19.3 billion	F-15 fighter F/A-18 fighter C-17 transport Missile defense Satellites Helicopters
Lockheed Martin	\$17.6 billion	F-22 fighter F-16 fighter C-130 transport Satellites Munitions
Raytheon	\$14.6 billion	Tomahawk missile Other munitions
Northrop Grumman	\$12.0 billion	DDG-51 destroyer E-8 Joint STARS Avionics Electronics
General Dynamics	\$8.5 billion	M1 battle tank Submarines Naval ships
TRW	\$4.0 billion	Ballistic missiles Satellites

Source: Merrill Lynch, July 2001.

Other contractors will be called on to assist the missile defense effort. Raytheon, which builds the kill vehicle and other components, earns about 30 percent of every dollar spent on the program. Lockheed Martin builds booster rockets and TRW produces the electronics. Even if opposition to a missile umbrella over the United States heats up again, the need to protect overseas bases from missiles should keep spending revved up, since there is broad consensus on the need for it.

Economic Stimulus?

Other spending priorities in the wake of the Sept. 11 attacks are less predictable, except for the general theme that there will be more money for everything. Beyond that, defense spending also counts as a fiscal stimulus that could help bounce the nation out of a sudden recession.

The combination could be irresistible, with some analysts expecting the overall defense budget to soar from \$329 billion in 2002 to close to \$400 billion in 2003. Much of the increase will go to new defense procurement, they say.

The QDR highlighted capabilities that Rumsfeld believes will be key to fielding the force of the future.

In the Army, for instance, the QDR endorsed the interim armored vehicle the Army has begun to field—a boon for General Motors and General Dynamics Land Systems, which build it. But the document was more enthusiastic about the Future Combat System the Army is designing to replace the interim armored vehicle and ultimately the tank.

The Army's plan calls for fielding the Future Combat System throughout the force over the next 30 years. But one top defense official says Rumsfeld would like to speed up the program, with full deployment in 10 to 15 years. There's no contractor yet for the system which in theory would be a set of sensors and vehicles that gather targeting data in one location and relay them to a firing platform someplace else.

Another Rumsfeld priority—power projection. Rumsfeld is seeking a greater capability to rapidly strike



The Pentagon's 2001 QDR places a priority on moving forces faster. The emphasis could mean more orders for Boeing C-17s and Lockheed Martin C-130Js, seen above in the defense giant's Georgia production facility.

distant targets and swiftly move troops to faraway war zones, even when an adversary is working hard to deny access.

An emphasis on moving troops faster would probably be an extra bonus for Boeing, which builds the C-17 transport. It could also mean Lockheed Martin, the biggest defense contractor, would build more of its C-130J transports.

There may also be the beginning of a race to develop a new bomber. The QDR review teams pondered the question of whether the Air Force's plans would lead to a shortage of long-range aircraft not dependent on vulnerable bases close to the combat theater. "There was no movement to kill tacair," says a defense official, "but maybe scale it back." In addition, he says, Rumsfeld has tasked the Air Force with developing plans for new long-range strike platforms.

Lockheed Martin is involved in so many projects that it is destined to benefit from increased defense spending, even if much of it goes to programs on which Lockheed is not the prime contractor. For starters, Lockheed will get a boost from winning the Joint Strike Fighter deal, along with subcontractors Northrop Grumman and BAE Systems. And it gains from the Pentagon's plans to go ahead with the

F-22, which was in some doubt during the QDR deliberations. Other Rumsfeld priorities should fall in Lockheed's lap. He has singled out space systems as worthy of attention, not surprising since in 2000 Rumsfeld chaired a Congressionally appointed commission on the subject. Lockheed builds military satellites and launch systems and should do well in that business.

An enhanced emphasis on cyberwarfare and information security will play to Lockheed's systems divisions. And while defense contractors worldwide are eagerly eyeing a rising Pentagon budget, Lockheed also has a vigorous export business going. It has orders for enough F-16s, for example, to keep its lines going for several years.

The war on terrorism could have immediate impact on certain US companies. The Predator UAV, for instance, is likely to be deployed in considerable numbers. General Atomics builds the aircraft, but Lockheed and Northrop provide major components.

And if DOD indeed begins to think more expansively about national defense, the largesse could accrue to other firms that don't routinely sell to the Pentagon.

In the end, officials believe the defense buildup will be long and sustained, like the US war effort now under way.

"The [spending] slope is positive," said Zakheim. "We are clearly pointing upward." ■

Richard J. Newman was for years the Washington-based defense correspondent and senior editor for US News & World Report. He now is based in the New York office of US News. His most recent article for Air Force Magazine, "The Chinese Sharpen Their Options," appeared in the October issue.

The Air Force is divided into “tribes,” each of them focused on its own occupational specialty.

Developing Aerospace Leaders

By John T. Correll, Editor in Chief

THE Air Force is the most technological of the services, and thus the most specialized. Technology and specialization bring strengths, but also problems. Its people become entrenched in their occupational specialties and identify with them strongly.

Over the years, for example, Air Force officers have evolved into some 40 occupational “tribes.” They tend to define themselves by their specialty first: fighter pilot, maintenance officer, navigator, personnel officer, and so on.

The phenomenon can be seen in organizational “stovepipes.” In *The Icarus Syndrome* (1994), Carl H. Builder noted that staff officers often take their policy cues from their functional counterparts at higher headquarters rather than from their local commander.

The problem of most concern, however, is that the middle and senior ranks of the force are increasingly populated with officers who are overly specialized, and that there are too few broad-gauge aerospace leaders.

Several years ago, the Air Force decided it had to grow more officers who understood and could apply a full range of aerospace capabilities and who could explain those capabilities to other military services, elected leaders, and the public.

Work began in 1999 and the Developing Aerospace Leaders program office was formally established in Washington in March 2000.

Retired Maj. Gen. Charles D. Link was chosen to head DAL. Link is a former 3rd Air Force commander and former commandant of Air Command and Staff College and the Air War College. He was the Air Force's point man during the first Quadrennial Defense Review and, since his retirement, has been a noted champion of airpower.

Link says that all of the Air Force officer tribes—including the pilot tribe—need to develop leaders with greater depth and breadth. Obviously, the present system does produce some such leaders. Career broadening is not a new idea.

"But," says Link, "we don't do it in an institutional and purposeful way, so the outcome is not predictable. And predictability is pretty important when we look at trying to prepare the Air Force for the future."

DAL was originally intended to be a temporary program, but the Air Force announced in September that it will be permanent, with a DAL support office and advisory board reporting to the Chief of Staff.

The Rise of the Tribes

"The Air Force was born out of technology, focusing initially on airplanes," Link says. "Technological excellence rested on highly developed specialties. An early Air Force

decision was not to form the specialties into 'corps,' as the Army had done. That left the specialties on their own, and over time, they developed into tribes. The first big tribe was pilots."

For many years, pilots accounted for a large part of the officer force. As recently as 1956, for example, more than 40 percent of all officers were pilots. Under the "rated supplement" policies, some of these pilots were assigned to support functions.

"As the demand for specialists in the support areas grew, the expense of training pilots to fill support requirements led to an increase in the number of nonflying support officers," Link says. "Still, the majority of the senior leadership positions were filled by pilots and navigators in order to keep flying personnel in the chain of command over flying operations."

Concurrently, the percentage of pilots in the officer force was decreasing—it is down to 17 percent today—and a system of specified career path "gates" kept pilots in flying duties. "This resulted in more pilots seeing themselves as 'specialists' as opposed to potential Air Force leaders," Link says.

"Overall, the emphasis on specialized competence and the lack of stated requirements for specific competence in leadership positions combined to create 'tribally' focused development constructs. Each specialty concentrated on raising its leaders as specialty leaders, resulting in officers more suited to lead at the tribal or functional specialty level than at the national or Air Force level. As the Air Force became increasingly specialized, its range of operational contributions grew to include space- and information-based capabilities. This increasing breadth of capabilities placed additional demands on the tribally developed leader."

By the beginning of the Vietnam era, Link says, Air Force operational (and to some extent, the associated support) functions were organized

into three major "tribes": bombers, tankers, and missiles in Strategic Air Command, fighters in Tactical Air Command, and airlift in Military Air Command.

The decision to rotate bomber, tanker, and airlift pilots, navigators, and support personnel through "tactical" Air Force operations in Southeast Asia helped balance the prevailing tendency to remain in one's "tribe" for an entire career. Many of the senior Air Force leaders in the 1980s were thus experienced in a range of Air Force operations during their developmental years.

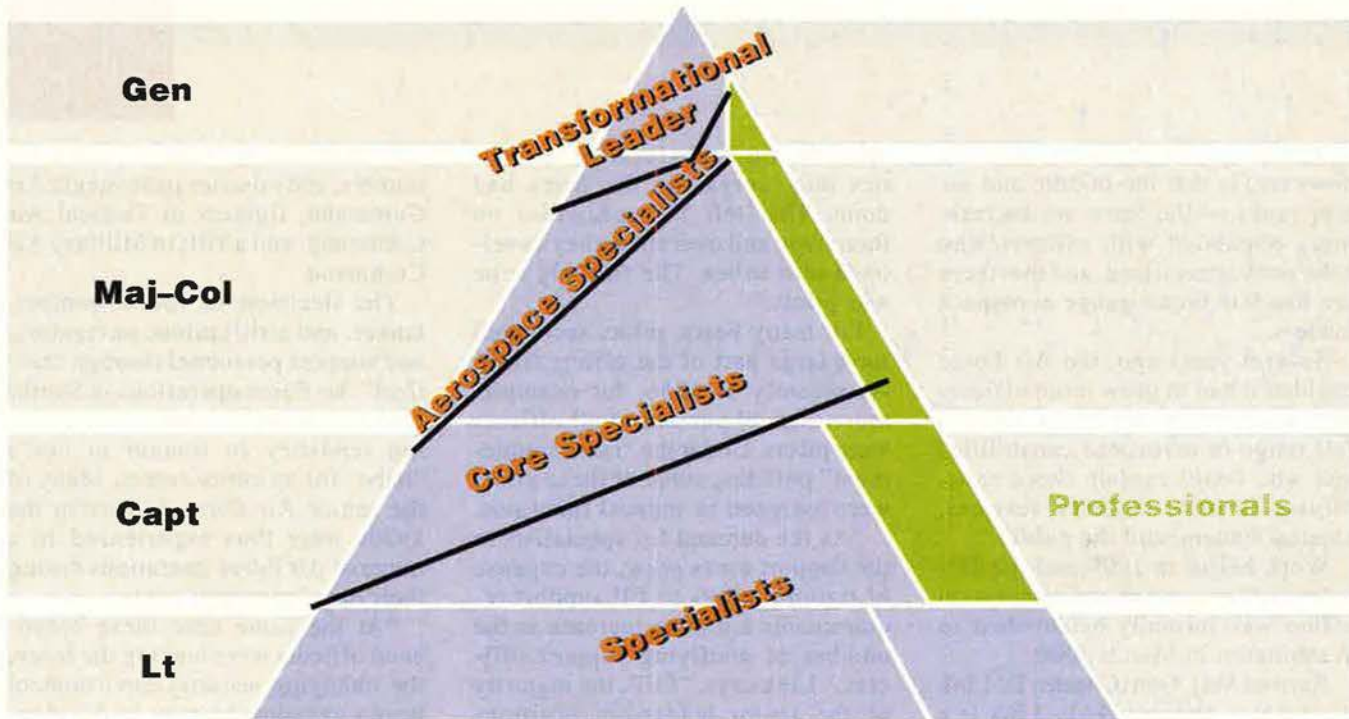
"At the same time these broadened officers were leaving the force, the changing security environment began to point the way to development of the Expeditionary Aerospace Force construct," Link says. "This construct called for leaders at several levels with the balanced depth and breadth necessary to effectively integrate the contributions of several highly developed specialized competencies. While some such officers were available, there were simply insufficient numbers to permit the kinds of selectivity necessary to support a sound and flexible personnel assignment process. Moreover, it became obvious that there was no institutionally based construct that would lead to the development of a sufficient number in the future. The looming operational capabilities in information and space operations only exacerbated the problem."

Develop to Need

That set the stage for DAL, which was initially organized as a special program office under the Deputy Chief of Staff for Personnel.

One of the early actions was a survey in 1999 of general officers. Every general then serving, as well as the immediate predecessor of each of them, was asked what competencies were desirable for officers in their positions. Since then, DAL has also gotten other opinions, including the views of enlisted people, about

The DAL Pyramid



Under the DAL concept, an officer would begin in one of the Air Force's 40 specialties, then seek certification in broader competencies, rising to "core specialist" and "aerospace specialist" levels and aspiring to the "transformational leader" level at the top. ("Professionals" on the chart are non-line officers, such as those in medical and legal fields.)

The 40 Specialties

Aircraft Maintenance
Munition & Missile Maintenance
Logistics Readiness
Civil Engineering
Services
Special Investigations
Security Forces
Air Traffic Control
Personnel Recovery
Combat Control
Air Battle Manager
Judge Advocate
Missile Combat Crew
Manpower & Organization
Personnel
Developmental Engineer
Scientific & Research
Financial Management
Contracting
Communications & Information

Public Affairs
Intelligence
Weather
Special Operations Navigator
Tanker Navigator
Satellite Command & Control
Space Surveillance
Fighter Pilot
Bomber Pilot
Airlift Pilot
Recce/Surv/Electronic Communications Pilot
Tanker Pilot
Special Operations Pilot
Helicopter Pilot
Fighter Navigator/Electronic Warfare Officer
Bomber Navigator/EWO
Airlift Navigator
Recce/Surv/Electronic Comm Navigator/EWO
Spacelift
Space Warning

Primary specialties—along with a basic grasp of aerospace power—are the building blocks of Air Force competency. Officers will spend the opening years of their careers in one of these specialties. Each specialty also has a defined relationship with one or more core competencies.

The Core Specialties

Development

- Air Operations
- Mobility Operations
- Space Operations
- Information Operations
- Command & Control Operations
- Special Operations
- Political–Military Strategy
- Systems Acquisition
- Logistics Operations
- Maintenance
- Installation Operations
- Resources Operations

Core specialists would gain depth of expertise in specialties related to their primary one. The Special Operations core specialty, for example, would be a logical progression for special operations pilots and navigators, helicopter pilots, combat control, personnel recovery, and intelligence officers.

Broadening for Aerospace Specialists

- Joint Operations
- Aerospace Operations
- Air Application
- Mobility Application
- Space Application
- Information Application
- Command & Control Application
- Plans & Programs
- Political–Military Strategy Application
- Acquisition Application
- Logistics & Maintenance Application
- Support Operations Application
- Institutional Sustainment
- Education

Core specialists become aerospace specialists by broadening into an entirely different field. Command and Control Application, for example, would be a broadening choice for any core specialist except those in Command and Control Operations.

Transformational Leaders

- Joint Leader
- Aerospace Component Commander
- Combat Operations Leader
- Mobility Operations Leader
- Information Leader
- Force Support Leader
- Materiel Leader

These are the senior leaders of the force, certified in one of seven general competency sets.

the competencies needed in aerospace leaders.

DAL's opening studies confirmed the problem of a narrow, overly specialized officer force. Correcting it calls for basic change in personnel management.

Officer development begins with yearly cohorts of second lieutenants, brought into the Air Force through various commissioning sources and then assigned, trained, and certified in the specialties the force needs.

The middle grades of the future force will be drawn from those junior officers selected for promotion, and so on up the line, with the future senior grades drawn from today's middle grades.

The promotion system, however, is blind to Air Force specialty requirements. The criterion for promotion boards is to select those "best qualified," regardless of occupational specialties and without consideration of force requirements.

That may or may not lead to the mix of capabilities, experiences, and skills the Air Force actually needs. In fact, it often doesn't.

The typical outcome is that officers move up in their tribes. The system produces many officers well equipped to lead their functional communities, but not enough broad-gauge aerospace leaders.

The Air Force would like to have at least three qualified officers to choose among when filling a senior job. At one point recently, however, there were fewer than two candidates for some leadership positions but as many as six for other positions.

DAL offers a different approach: Determine the competencies required and purposefully develop those competencies. To understand the competency requirements, begin at the top and work down, grade by grade. For example, determine the requirement for general officers, then take steps to ensure that the field of rising colonels will serve up appropriate candidates. The development and flow of rising lieutenant colonels would be managed to produce the right pool of competencies for future colonels.

The force profile will be a pyramid in all respects. Not only will there be fewer people at the top than at the bottom, as now, but there will also be fewer tribes at the top levels,

and the specialties will be much broader.

New Levels, Fewer Tribes

Officers will be assigned in their initial specialties for approximately the first six to 10 years of service, after which they develop into "core specialists," knowledgeable and capable in a family of related skills. Later on, some of them will acquire competencies and familiarities outside that original family of skills to become "aerospace specialists." At the most senior ranks—the "transformational leaders"—officers will have evolved into the generalists desired in most senior positions.

Link described the objective for PACAF News Service last summer. "For example," he said, "in Space Command, we will first develop a good 'space officer' who can represent Space Command across the force. Then in order for that officer to be a good senior leader, we will need to bring them through an experience that makes them comfortable with air and information operations."

Advancement to core specialist and aerospace specialist will require certification by an appropriate general officer. DAL officials anticipate a transition period in which officers serving in intermediate and senior ranks would be "grandfathered" at those levels. The certification requirement would apply to those who come after them.

■ **Specialists.** Lieutenants and junior captains will continue to serve as specialists, in some 40 areas ranging from aircraft maintenance officer to fighter pilot to civil engineer to personnel officer. As these officers move toward the middle of their careers, they will begin to branch out and broaden.

"What we are trying to do is create a smaller number of larger tribes in which we take advantage of similar competencies," Link says. "This is not unlike what happens naturally throughout the Air Force every day. A young officer specialist manifests exceptional talent and diligence and, as a result, is placed in a position to lead a group of specialists in the same family of skills. We want to take advantage of these natural processes."

■ **Core Specialists.** These are middle grade officers certified as competent to lead others in a broader specialty related to their primary

specialty. At the core specialty level, there will be 12 tribes rather than 40.

Pilots, for example, might broaden into the air operations or the mobility operations core specialty. Or they might evolve into one of the "open" core specialties—suitable for any primary specialty—such as political-military strategy.

An aircraft maintenance officer might move toward the broader maintenance core specialty, which also encompasses munitions, missile, and other maintenance. Alternatively, a maintenance officer might broaden into installation operations, resource operations, or an open core specialty.

"The key here is the emphasis on core competence as a prerequisite to broadening," Link says. "We envision a rigorous certification process to ensure the depth of core competence is achieved."

■ **Aerospace Specialists** would typically be colonels or senior lieutenant colonels, who are core specialists certified in at least one of 14 specified areas of broadening, with some familiarity in other areas.

At this level, for example, a space operations core specialist might broaden into air application or command and control application. An officer would not be allowed to broaden from a core specialty into the corresponding broadening area. A mobility operations core specialist must broaden into an area outside of mobility application.

"Broadening does not necessarily convey core specialty competence in the broadening area," Link says. "On the other hand, it could make the officer more suitable for a No. 2 or No. 3 position in the associated core specialty. Broadening an info ops specialist into air application would not automatically qualify the individual for command of air operations, but it would increase that individual's utility and assignability throughout the air operations area. It would also make the officer more useful in almost any position because of broader knowledge of aerospace power."

■ **Transformational Leaders.** These are general officers (and perhaps some senior executive service members) certified for depth in envisioning, developing, planning, and employing aerospace capabilities. There will be only seven categories of transformational leader, but even

so, several paths to the top may be open. A space operations core specialist, for example, has more than one possible future. One might ultimately become a combat operations leader. Another might become a materiel leader.

Broader and Deeper

As officers move up in the ranks, their competencies will become steadily deeper and broader. Occupational development into core competencies gives depth. Broadening gives breadth.

"We believe that the emphasis on core specialty competence combined with the identification of specific broadening experiences (informed by the requirements process) will strike the best balance between functional depth and the breadth we would like to see in future leaders," Link says.

Along implementation lines, the Air Force human relations system will need to keep track of occupational competencies and certification. This may result in adjustments to the Air Force Specialty Code and classification systems used today. However, Link points out, "The DAL construct reviews issues in a 360-degree way, deliberately thinking through second- and third-order effects and works to minimize turbulence to the force at large."

Whereas DAL intends for occupational competencies to define "what we do," there will be institutional emphasis on universal competencies to create a new level of understanding and appreciation for "who we are." Universal competencies (such as leadership and integrity, as well as various levels of understanding of the application of aerospace power) are relevant to all airmen, regardless of their occupational competence and will be the institutional guide for curriculum development in training and education.

"The Air Force has a good reputation for taking care of its people," Link says. "The DAL construct will provide a rational basis and a set of tools for more purposeful development of Air Force members over the time they spend with us. Fact-based personnel decisions informed by Air Force needs will lead to a stronger Air Force populated by people with realistic and attainable aspirations and skills and talents purposefully developed to improve their utility to serve." ■

In times of distress, the Air Force Aid Society is there for airmen and their families.

Their Mission Is To Help

FOLLOWING the sudden terrorist attacks on New York and Washington, the wife of a USAF airman first class was stranded in Chicago with her three young children. They had been traveling from Hawaii to Germany when the FAA grounded all commercial flights. Meanwhile, in Alaska, a group of airmen on temporary duty wound up in a similar fix. When their flight was canceled, they couldn't find quarters on base and had to go to downtown hotels.

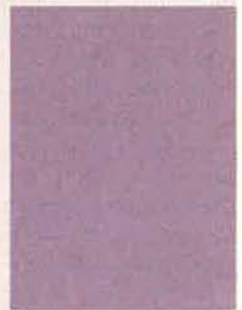
These were among the thousands of American travelers who, on Sept. 11, were caught far from home, short of cash, or both. Many were on their own, but those with military connections were able to turn to their services for help.

For Air Force members and their families that help came from the Air Force Aid Society. AFAS stepped in to help them pay for lodging, meals, and other necessities. It also issued 100 prepaid phone cards to the newly created Pentagon Family Assistance Center established Sept. 12 for the families of victims of the Pentagon attack and stood ready to do whatever else it could to ease the impact of the assaults.

Within a few days, AFAS had activated 15 contingency sections in Reserve Family Readiness Centers to support any reservists who might be called up. Drawing on lessons learned from Operation Desert Storm, it began to shape plans to meet whatever other needs might arise as the services geared up to strike back at the terrorists.

In answer to those who called to ask what they could do to help, AFAS created a "Sept. 11th Attack on

By Bruce D. Callander



America Fund." All contributions go to assist Air Force members and family members who had been or may be affected by the terrorist actions. Details are available on the society's Web site (www.afas.org) or by calling 703-607-3073 or 800-769-8951.

The day after the attacks, retired Lt. Gen. Michael D. McGinty, AFAS executive director, sent a message to Family Support Centers worldwide, reminding them that the AFAS job is to "help Air Force members and their families wherever, whenever, and however."

Keeping that promise could be a daunting task in today's world. One of the aftereffects of the terrorist attacks has been its impact on an already faltering economy. AFAS, which relies on investments for the bulk of its income, now faces the challenge of doing more with less.

History of Helping

This is not an altogether new experience for the society, which was born in wartime and has survived some lean periods. It has a 60-year history of helping members and their families cope with unexpected emergencies, educate their children, and get through hard times.

Last year, for example, AFAS spent more than \$24.5 million to assist about 30,000 people. About half of the beneficiaries received emergency help with basic living expenses, emergency travel, medical care, funeral costs, moving expenses, and other similar problems. More than 90 percent of the emergency assistance money went to members and their families in grades E-6 and below.

Those able to repay received interest-free loans amounting to \$11 million. The rest were given outright grants totaling \$1.6 million.

The same year, the society awarded \$8.94 million through its education programs. Most went to the 5,000 spouses and children who received \$1,500 each in college grants. The rest of the money supplied tuition assistance for 3,550 spouses of members overseas or went to short-term job training for spouses.

A third category of assistance, community enhancement, claimed more than \$3 million in AFAS funds. The money went for purposes such as child care, vehicle preventive maintenance, help for new parents, phone calls for members on deploy-

ments, and employment skills training for teenagers.

This whatever-it-takes approach has typified the society's actions from its beginnings in 1942. World War II was barely under way when Army Air Forces Chief Gen. H.H. "Hap" Arnold and his wife saw the need for an organization for airmen to supplement coverage provided by the Army Emergency Relief.

McGinty said, "The Arnolds worried specifically about taking care of airmen during the war. They wanted to provide assistance to the families and to make sure that the children of airmen who were lost in the war had educational opportunities."

Rickenbacker Connection

An incident in World War II also gave the society its first and longest-serving president, Capt. Eddie Rickenbacker, the top US ace of World War I.

Rickenbacker was serving as the head of Eastern Airlines when officials at the War Department asked him to visit overseas installations to boost morale and report on the quality of pilot training. He was touring Pacific bases when his B-17 strayed off course, ran out of fuel, and ditched. The survivors spent about three weeks on a life raft before being rescued. When *Life* Magazine asked Rickenbacker to recount the experiences in a three-part series, he donated his fee to AFAS. Rickenbacker became president of the society's board of trustees in 1947 and served for 26 years.

From these roots, the society in the postwar years grew to embrace a broad range of programs, particularly in the education area. From 1945 to 1979, the society's Education Fund provided more than \$31 million in direct educational loan assistance to 19,000 Air Force families. Then, to increase coverage, AFAS phased out its internally managed loan plan and affiliated with the Department of Education's Guaranteed Student/Parent Loan programs.

For a time, the arrangement worked well, but as DOE's "needs tests" became more restrictive, fewer Air Force dependents could qualify. In 1988, the society began to supplement the government programs with its own scholarships. Then, in 1993, it broke with DOE and re-established a fully independent education program.

"We had just been guaranteeing student loans," said McGinty, "and by then you could do that a lot of different ways. It really wasn't helping much. So with the education history we had, the board decided that what they really wanted to do was to create some really motivational scholarships."

However, instead of making or guaranteeing loans, the society's Gen. H.H. Arnold Education Grant Program provides direct need-based grants of \$1,500 per year to full-time college undergraduates who are dependent children of USAF active duty, selected reserve, retired, and deceased USAF members. The Arnold Fund also covers spouses and surviving spouses in the 48 contiguous states.

This school year, the eligibility was broadened to cover sons and daughters of additional reservists, including retired reservists, with 20-plus qualifying years. A second fund, the Gen. George S. Brown Spouse Tuition Assistance Program, offers similar help to spouses who accompany members overseas (includes Alaska and Hawaii).

"Since 1989," said McGinty, "some \$85 million has gone to young people and spouses to encourage them to get at least a start on higher education. It goes all the way back to the Arnolds' concern about the education part of this."

Emergency Assistance

Impressive as its statistics are in the education field, however, the bulk of the society's activity still is in the emergency assistance area. Here, AFAS makes some outright grants or provides other forms of direct aid as it did in the aftermath of the terrorist attacks. However, most of the money is disbursed in repayable, interest-free loans. This approach has two advantages. For the recipients, it removes the stigma of accepting charity. For AFAS, it stretches the available dollars. Since some 96 percent of the loans are repaid, it can reuse the money to help other members.

McGinty said, "For years, the theme of the Air Force's annual Assistance Fund Drive was something like, 'Give a couple bucks today because all those dollars are going to help somebody, and tomorrow, you may be the one.' The slogans change but that's still the philosophy."

Over the years, the society has not

only encouraged members to ask for help but streamlined the process of approving it.

"One of the great benefits of the AFAS," said the general, "is that we are not bound by a bunch of Air Force regulations. We have guidelines to follow and approval levels for different kinds of assistance. But we let our people in the field be flexible. We also have four caseworkers here to handle unusual cases quickly. We get calls every day and we consider any request. The most important point is to get people to ask."

In most cases, approval is available locally. Base AFAS officers can approve loans up to \$2,000 and grants up to \$500. Staff advisors, who normally head base Family Support Centers, can approve loans up to \$3,500 and grants up to \$500 or, for funeral expenses, up to \$3,500. Local commanders can authorize the same levels of help.

"You can do all that at the base level," said McGinty, "as long as it is within the general guidelines. If it's not, you make one phone call and the folks here will say 'yea' or 'nay.' There is no chain up through command levels. It has to be that way to be responsive."

While the bulk of the AFAS help goes to active duty members, the society has expanded its assistance to other groups that previously were ineligible. McGinty said, "The amount of time required for reservists to be on active duty before they qualify for aid has been lowered from 30 down to 15 days. We just opened up the education grants to them, and they received about \$150,000 worth of education grants this year."

AFAS also has approved 80 or so emergency assistance cases this year for the Guard and Reserve. Example: When an Army aircraft carrying a RED HORSE Air National Guard outfit from Virginia crashed in Georgia, AFAS provided \$15,000 worth of grants to bring family members from across the country to memorial services.

"This fall we're also finishing a one-year test of the needs of the Guard and Reserve overall," said McGinty. "They have been called on to fill a much greater role, and they are sharing a lot of the active duty load and will be taking on more to counter terrorism. So we are trying to figure out what our relation-

ship should be with them. They still have to be on some form of duty with the active forces, but we encourage them just to ask. We don't have hard and fast rules. If there is a significant need, they are going to get help."

More for Retirees

The society has been making a similar study of retirees.

"There are 660,000 Air Force retirees," said McGinty, "and I'm trying to figure out what our relationship with them should be. We can't afford to help all of them, but which ones do we help and how do we decide? There are people who have just left active duty so their support system is still pretty much Air Force. Then, there are people who have been retired 30 years who went on to a second career and have established themselves in neighborhoods. They probably don't need the same level of help. But I'm looking at the full spectrum."

While AFAS is an unofficial entity, it is recognized as the charity of the Air Force and thus has a presence at most Air Force installations around the world. With a salaried staff of only 24, it relies at base level on a corps of military members and Air Force civilians who serve as Aid Society officers.

"We would prefer that all AFAS offices be under the base Family Support Center," said McGinty, "but where there is no center, bases at least make sure there is an AFAS person somewhere. We have some 500 people who can sign our AFAS checks, and we never have had an abuse of that."

Almost 80 bases participate in the Bundles for Babies program for expectant mothers. Under it, Family Services gives the classes and AFAS supplies a starter kit including everything from booties and blankets to a stuffed animal wearing a T-shirt with the AFAS logo. Later, other AFAS programs kick in to cover such things as the cost of renting breast pumps, child care for families packing for permanent change of station moves, and longer-term child care (up to

\$1,000 per month) for volunteers who work with on-base agencies.

Other Helping Hands

Nor must members always be on or near an Air Force base to receive emergency help underwritten by AFAS. McGinty said the society has reciprocal agreements with the Army Emergency Relief, the Navy-Marine Corps Relief Society, and the American Red Cross.

"So, if an airman is traveling ... and [is] not near an Air Force base, he or she can go to the nearest Army, Navy, or Marine Corps facility or to the American Red Cross and receive help," said McGinty. "We reimburse those agencies, and where we help a member of another service, that service reimburses us."

Maintaining such programs doesn't come cheaply, however, and AFAS officials have been keeping a close eye on the state of the nation's economy. The society receives contributions from annual Air Force Assistance Fund drives and benefits from direct contributions and bequests. But the bulk of its money comes from investments. Contributions cover only about 25 percent of the cost of emergency assistance. The rest, plus the society's operating costs and all of its education programs, are paid for from investment income.

The AFAS board of trustees develops overall investment plans and commercial managers handle day-to-day business decisions. One manages bonds, another handles equity funds, and a third does value investing.

"One of my challenges [is] to do some serious planning for the future," said McGinty. "Our programs were structured to endure two years of bad markets or even three years. Well, now we are coming to the end of our second year of a bad market and we're having to take a look at what options we have. Of course, we will never, ever reduce emergency assistance. Whenever there is a valid need for it, that's going to be met with a loan or a grant. Hap Arnold would turn over in his grave if we refused somebody emergency assistance." ■

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 Recruiters and the Schools," appeared in the October issue.

Over the next 20 years, the services will probably field a whole family of operational lasers.

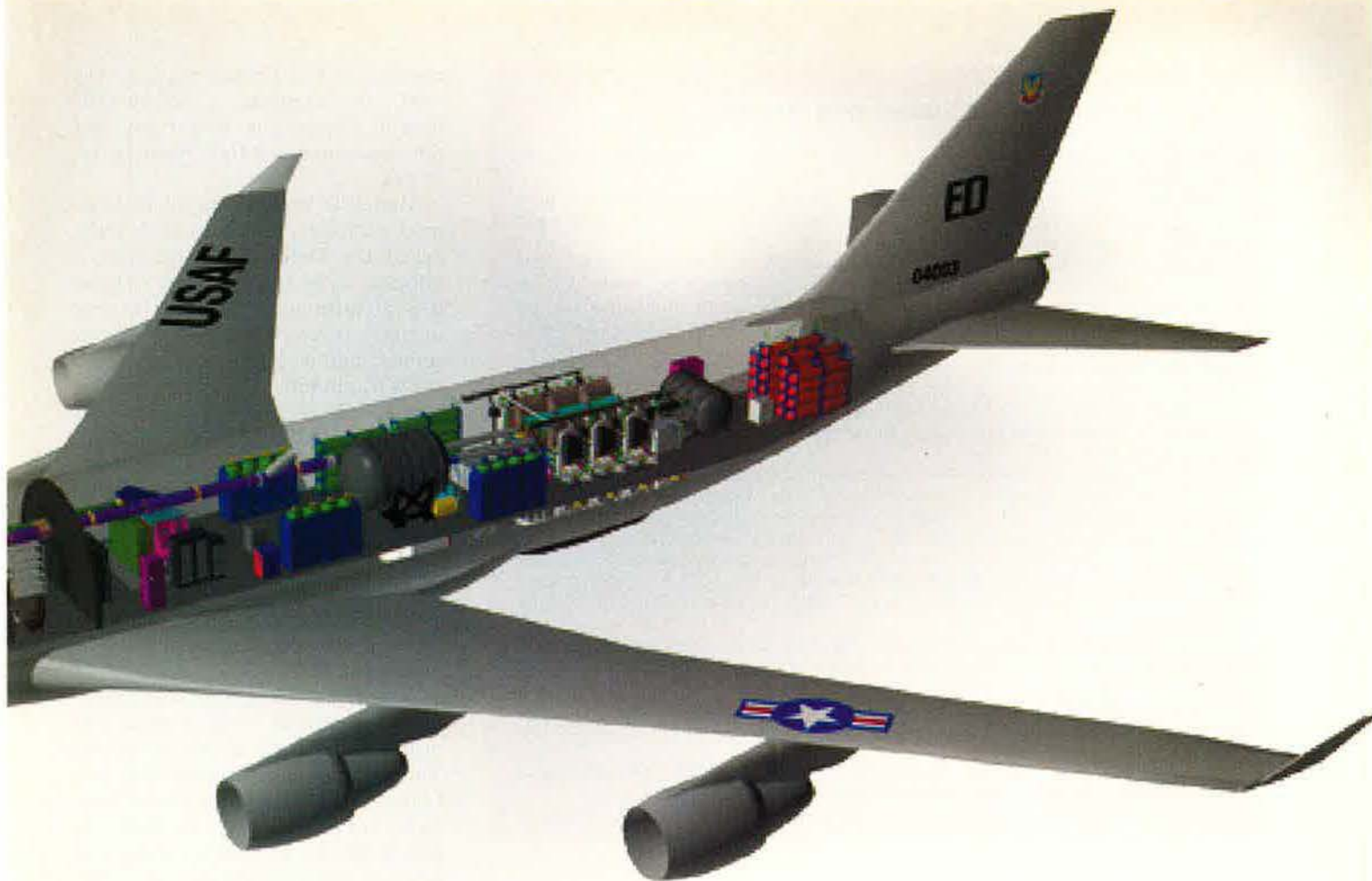
The Promise and Problem of Laser Weapons

By Catherine MacRae



ARTISTS' conceptions of laser weapons typically portray sharp beams of neon green or purplish light that always hit their targets. The images are plastered onto posters, mouse pads, and military briefing charts and are handed out at defense conferences like cotton candy at a fair.

Some day, a laser beam may well streak across the sky to blast megawatts of energy into flying missiles, but it won't look like neon light. Most lasers being developed by the military are invisible to the naked eye. These weapons of the future will pump megawatts of energy into



targets, forcing their charred bits to fall back onto the launching enemy, scientists say, but you are unlikely ever to see the beam.

More importantly, there is uncertainty about whether unfinished research will get sufficient funding and attention to make these weapons useful to warfighters in the next 10 or 20 years.

The technology certainly is promising, far exceeding its current use for target designation to improve the accuracy and performance of costly precision bombs. Defense scientists say that new laser weapon systems could be mounted on warships, large aircraft, fighters, tanks, land vehicles, and even on space vehicles.

A recent report from DOD's top scientific advisors has concluded that weapons based on the power of the laser will prove to be faster, more precise, and cheaper than any now in the US inventory. "High-power la-

sers have the potential to change future military operations in dramatic ways," the report said.

The report went on, "The United States is in a position to exploit current high-energy laser technology to take advantage of speed-of-light engagement, precisely controlled effects, deep magazines, low cost per shot, and reduced logistics footprint."

"21st Century Arsenal"

It concluded lasers, "appropriately developed and applied, ... can become key contributors to the 21st century arsenal."

A Defense Science Board task force on high-energy lasers completed the study in the summer, releasing it this fall. It said that lasers can melt the skin of a target missile in as few as 10 seconds, and even more quickly if internal pressure increases significantly. Pressurized fuel tanks and aerodynamic control

surfaces offer vulnerable spots for a laser's blast.

The success of existing service laser programs over the last two or three years has prompted renewed focus on such systems and a renewed Pentagon commitment in the way of cash and senior-level management. USAF's Airborne Laser is on track to shoot down a Scud-type missile sometime in 2003, according to program officials. Meanwhile, the Army's Tactical High-Energy Laser, a joint program with Israel, has performed so well against Katyusha rockets that both partners agreed to pursue a mobile variant. In 2000, progress on ABL and THEL sparked the Navy's first expressed interest in lasers since the mid-1990s.

DOD recently created the Joint Technology Office to revitalize high-energy laser science and technology throughout the Defense Department and to function as a clearinghouse for new science and technology ini-

The Challenges Ahead

DSB's laser task force said basic research should be focused on a handful of challenges. The board wanted action on:

Lethality. DOD must examine whether short-pulse lasers would be more damaging to a target than systems firing a long steady beam. Fire control and battlespace management are key lethality areas.

Atmospheric Propagation and Compensation. A fired laser encounters turbulence, scintillation, and other hurdles in the atmosphere that must be compensated for in order to deliver a solid beam to the target. Compensation now comes primarily through optics such as deformable mirrors. The DSB recommends expanding research efforts.

Modeling and Simulation. Better fidelity is required in this area for lasers, beam control, propagation, lethality, and overall performance.

Deployable Optics. The Pentagon should start a new technology development program in large, lightweight, deployable optics for high-power space-based applications.

Solid-State Lasers. Jack up the level of research in four key areas, combining laser beams, designing and manufacturing reliable diode pump lasers, thermal control of laser media, and scaling the output power weapon systems.

Chemical Oxygen-Iodine Laser. COIL and other iodine-based lasers need to be made lighter and given enhancements for better space and tactical operations.

Hydrogen Fluoride and Deuterium Fluoride. DOD needs to demonstrate a nearly diffraction-free beam at high power (either uncorrected or with adaptive optics).

Beam Control. Research should include long-range looks for novel beam control methods such as phased-array, electronic beam steering, and "nonlinear phase conjugation."

Optical Components. Overall system performance needs improvement via a major increase in technology development. This would also help bolster the "fragile manufacturing base."

Free-Electron Lasers. This technology area needs a boost with a focus on scaling down a system's size while increasing its power.

tiatives. In January, DOD moved the JTO from the Pentagon to Kirtland AFB, N.M. The Air Force Directed Energy Directorate and Airborne Laser program office are located at Kirtland, and the Army's High-Energy Laser Systems Test Facility is situated not far away at White Sands Missile Range, N.M.

Former DOD acquisition chief Jacques S. Gansler called for DSB's study late last year. The reason, he said, was that THEL's progress suggested laser weapons may have matured enough to begin integration into operational forces.

Barriers

Given the successes, proponents tend to portray the fielding of operational lasers almost as a forgone conclusion. So what's holding them up?

A major challenge is how to integrate laser systems into weight-sensitive aircraft, ships, and land vehicles that already are bursting with radar, network, and fire-control equipment. Lasers, in some cases, derive their energy from interactions within large vats of chemicals. Nonchemical lasers offer some ben-

efits in the way of reduced storage and safety requirements, but so far it isn't enough.

The developing Airborne Laser provides an example of the integration challenges. Scientists long ago demonstrated the chemical oxygen-iodine laser designed for ABL. Now, however, engineers are working overtime trying to find ways to install it on a modified Boeing 747 airframe. The 14,000-pound nose turret, which is being built by Lockheed Martin to aim the laser, is more complex than originally thought, program officials say. For example, many interfaces between laser and aircraft need perfecting to ensure the credibility of ABL performance.

Getting a solid laser beam delivered to its target is another major challenge. This requires compensating for atmospheric turbulence that otherwise absorbs and diffuses light energy.

"The impact of the environment—in the atmosphere, over land, over water, and in space—on system performance can be significant," the DSB reported.

Adaptive optics offer an answer to the beam control problem, ac-

ording to the DSB's experts. On ABL, for example, a deformable mirror inverts the distortion and delivers a compact light beam to the target.

Money is the biggest obstacle to laser weapons, scientists said. They urged the Defense Department to allocate an additional \$100 million to \$150 million per year indefinitely to basic research into laser-related science and technology.

"Without this investment, the potential of high-energy laser weapon systems is unlikely to be realized," wrote retired Air Force Gen. Larry D. Welch and General Dynamics executive Donald C. Latham in a cover letter to the task force report.

Welch, a former USAF Chief of Staff, and Latham chaired the DSB laser task force, which spent eight months reviewing the progress of current laser programs and interviewing experts to determine the potential military utility of lasers. The task force concluded that potential laser missions include "ballistic missile defense, air defense, attack against ground and maritime targets, space control, and urban operations."

The task force strongly recommended that DOD establish a departmentwide laser technology program and provide sustained investment.

Despite the challenges, the task force concluded that it would be feasible to develop and field a "family" of operational laser weapons over the next 20 years. The weapons would include land, sea, air, and space applications. This family could include ABL, THEL, and the Air Force's Space Based Laser, plus a few budding concepts that DSB said look promising.

The DSB study said, for example, that an airborne "Advanced Tactical Laser (ATL) is an emerging concept for a family of compact, modular, high-energy laser weapon systems." A standoff capability would lessen its vulnerability to small-arms fire or shoulder-launched anti-aircraft missiles. "In fact, it could be far enough away that its action is almost covert," the task force concluded.

The key to the ATL is a roll-on and roll-off design that makes it independent from any particular platform. The laser could be added to or removed from several tactical plat-

forms such as ground combat vehicles, fighters, or rotorcraft, according to the report.

The ATL is in a four-year, advanced concept technology demonstration phase approved by the Defense Department's Joint Requirements Oversight Council in Fiscal 2001.

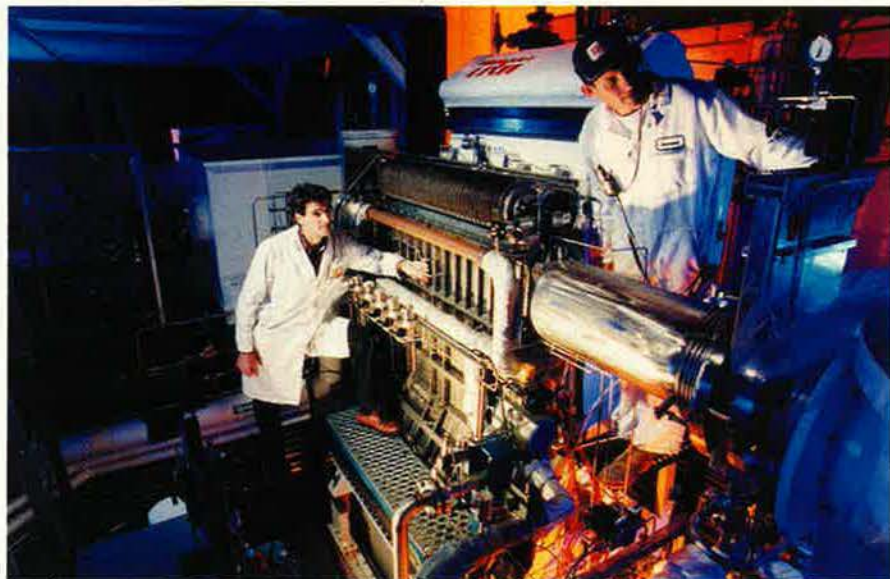
Space Control

The report said ground-based lasers could be useful in achieving space control, while offering theater support via laser communications and illumination and designation. Ground-based lasers would also be easier and less costly to maintain than space-based lasers, the task force said. However, they would have a more limited capability to propagate through atmospheric turbulence.

One postulated spaced-based laser system, dubbed Evolutionary Aerospace Global Laser Engagement System, could provide global, 24-hour coverage of missile launch sites. Such a system would cost "tens of billions of dollars" and take decades to develop and deploy but is worth considering, the report said. Air Force Research Laboratory has allied itself with industrial concerns and academia to pursue capabilities necessary to the EAGLE concept. These include a space-based mirror system that could relay and redirect high-energy laser beams.

The DSB members concluded that an airborne tactical laser capability is a logical step to come after the Airborne Laser. They said that a Tactical High-Energy Laser Fighter would offer great flexibility to US military forces. In addition to speed-of-light engagement in air-to-air combat, cruise missile defense, and neutralization of enemy air defenses, a fighter aircraft armed with a high-energy laser weapon could provide surveillance, identification of targets, and damage assessments after a conflict.

In the view of the DSB task force, the Army's high-profile Future Combat System shapes up as another good prospect for laser weaponry. The FCS is a top-priority weapon system for the Army's so-called Objective Force, which should be fielded a decade or more hence. Some FCS requirements, including countersurveillance, active protection, air defense, and mine clear-



Staff photo by Guy Aceto

TRW technicians work on a high-energy laser. The DSB maintains that laser weapons may be ready to field. The issue is how to integrate them into aircraft, ships, and land vehicles already weighed down with high tech equipment.

ance, fit well within potential laser applications, the report said.

The DSB study noted the reality that, if US access to foreign theaters continues to decline, long-range aircraft such as bombers will probably be tapped for strike operations. Without tactical air support, these aircraft will likely need a self-defense capability, and their larger size and payload make them an easier fit for a laser-based defensive system.

Chemical lasers are the most advanced. The level of power that they produce is measured in megawatts, but chemicals must be stored and mixed on board the aircraft, a factor that would create safety hazards for all concerned. It was the level of risk associated with the storage of chemicals on ships that prompted the Navy to drop out of the laser business some years ago. The advance of electric-drive ships kick-started the Navy's new laser roadmap, which held that the ship's power could be used not only to drive the vessel but also to power the laser.

The Dark Horse

The proposed solution is called a solid-state laser. It's electrically powered and more compact than chemical lasers, making it a better choice for ground combat vehicles and tactical aircraft. Another option is the all-electric free-electron laser, which the DSB task force called "a dark horse competitor to the solid-state laser."

The free-electron laser has a high-optical quality but uses only water and electricity, which reduces its logistics tail. The laser is based on technology called "superconducting radio-frequency accelerators" and departs "significantly from other solid-state, chemical, and diode technologies," the report said.

The laser could be "very compact and rugged" and small enough to provide portable kilowatt power levels. But the laser is also suitable for a larger platform such as an electric-drive ship and at megawatt levels.

In sum, the DSB advised that the Defense Department develop a "coherent," defensewide, high-energy laser investment program. "The strategy should be based on determining top-level systems needs, assessing critical technology barriers to meeting those needs, and funding the research needed to overcome the barriers," the report stated. "In the face of funding pressures, the practice of providing inadequate funding to a wide variety of programs should be replaced with focused, sequential developments funded at the level of effort needed to make real progress." ■

Catherine MacRae is the managing editor of Inside the Pentagon, a Washington-based defense newsletter. This is her first article for Air Force Magazine.

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NORTH CAROLINA (Asheville, Charlotte, Fayetteville, Goldsboro, Kitty Hawk, Raleigh, Wilmington): **Gerald V. West**, 4002 E. Bishop Ct.,

Wilmington, NC 28412-7434 (phone 910-791-8204).

NORTH DAKOTA (Fargo, Grand Forks, Minot): **James M. Crawford**, 1720 9th St. S.W., Minot, ND 58701-6219 (phone 701-839-7268).

OHIO (Cincinnati, Cleveland, Columbus, Dayton, Mansfield, Youngstown): **Fred Kubli**, 823 Nancy St., Niles, OH 44446-2729 (phone 330-652-4440).

OKLAHOMA (Altus, Enid, Oklahoma City, Tulsa): **Don Johnson**, 309 Camino Norte, Altus OK 73521-1183 (phone 580-482-1387).

OREGON (Eugene, Klamath Falls, Portland): **John Lee**, P.O. Box 3759, Salem, OR 97302 (phone 503-581-3682).

PENNSYLVANIA (Allentown, Altoona, Beaver Falls, Coraopolis, Drexel Hill, Harrisburg, Johnstown, Lewistown, Philadelphia, Pittsburgh, Scranton, Shiremanstown, Washington, Willow Grove, York): **Bob Rutledge**, 295 Cinema Dr., Johnstown, PA 15905-1216 (phone 724-235-4609).

RHODE ISLAND (Newport, Warwick): **Wayne Mrozinski**, 90 Scenic Dr., West Warwick, RI 02993 (phone 401-621-5438).

SOUTH CAROLINA (Charleston, Clemson, Columbia, Myrtle Beach, Sumter): **Roger Rucker**, 112 Mallard Pt., Lexington, SC 29072-9784 (phone 803-359-5565).

SOUTH DAKOTA (Rapid City, Sioux Falls): **Ronald W. Mielke**, 4833 Sunflower Trail, Sioux Falls, SD 57108 (phone 605-339-1023).

TENNESSEE (Chattanooga, Knoxville, Memphis, Nashville, Tullahoma): **Joseph E. Sutter**, 5413 Shenandoah Dr., Knoxville, TN 37909-1822 (phone 423-588-4013).

TEXAS (Abilene, Amarillo, Austin, Big Spring, College Station, Commerce, Dallas, Del Rio, Denton, Fort Worth, Harlingen, Houston, Kerrville, San Angelo, San Antonio, Wichita Falls): **Dennis Mathis**, P.O. Box 8244, Greenville, TX 75404-8244 (phone 903-455-8170).

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WEST VIRGINIA (Charleston, Fairmont): **Samuel Rich**, P. O. Box 444, White Sulphur Springs, WV 24986 (phone 304-536-4131).

WISCONSIN (Madison, Milwaukee, General Mitchell IAP/ARS): **Chuck Marotske**, 5406 Somers Ln. S., Greenfield, WI 53221-3247 (phone 414-325-9272).

WYOMING (Cheyenne): **Stephan Pappas**, 2617 E. Lincolnway, Ste. A, Cheyenne, WY 82001 (phone 307-637-5227).

Books

Compiled by Chequita Wood, Editorial Associate

American Eagles: American Volunteers in the RAF 1937-1943.

Tony Holmes. AIRtime Publishing, Inc., Norwalk, CT. 128 pages. \$23.95.



Consolidated B-24 Liberator: WarbirdTech Series Vol. 1.

Frederick A. Johnsen. Specialty Press Publishers and Wholesalers, North Branch, MN. 104 pages. \$16.95.



Jungle Ace: Col. Gerald R. Johnson, the USAAF's Top Fighter Leader of the Pacific War.

John R. Bruning. Brassey's, Inc., Dulles, VA. 259 pages. \$26.95.



Around the World in 175 Days: The First Round-the-World Flight. Carroll V. Glines. Smithsonian Institution Press, Washington. 34 pages. \$29.95.



The Curtiss X-Planes: Curtiss-Wright's VTOL Effort, 1958-1965. Francis H. Dean. Schiffer Publishing, Ltd., Atglen, PA. 175 pages. \$49.95.



The Origins and Technology of the Advanced Extravehicular Space Suit: AAS History Series, Vol. 24. Gary L. Harris. Univelt, Inc., San Diego. 542 pages. \$60.00.

The Best of Wings: Great Articles From Wings and Airpower Magazines.

Walter J. Boyne. Brassey's, Inc., Dulles, VA. 248 pages. \$27.50.



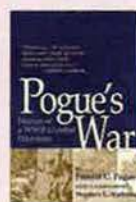
An Eagle's Flight: A Biography of Brigadier General Ernest K. Warburton, US Air Force.

James P. Coyne. Dorrance Publishing Co., Pittsburgh. 218 pages. \$15.00.



Pogue's War: Diaries of a WWII Combat Historian.

Forrest C. Pogue. The University Press of Kentucky, Lexington, KY. 411 pages. \$29.95.



Boeing B-17 Flying Fortress: WarbirdTech Series Vol. 7. Frederick A. Johnsen. Specialty Press Publishers and Wholesalers, North Branch, MN. 104 pages. \$16.95.



The Enterprise of Flight: The American Aviation and Aerospace Industry. Roger E. Bilstein. Smithsonian Institution Press, Washington. 280 pages. \$19.95.



Rockets' Red Glare: Missile Defenses and the Future of World Politics. James J. Wirtz and Jeffrey A. Larsen, eds. Westview Press, Boulder, CO. 352 pages. \$28.50.

Boeing F/A-18 Hornet: WarbirdTech Series Vol. 31.

Brad Elward. Specialty Press Publishers and Wholesalers, North Branch, MN. 104 pages. \$16.95.



Forever Remembered: The Fliers of WWII.

Irv Broughton. Eastern Washington University Press, Spokane, WA. 573 pages. \$24.95.



Tactical Air Command: An Illustrated History, 1946-1992.

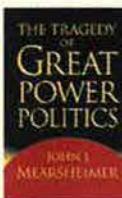
Michael Hill and John Campbell. Schiffer Publishing, Ltd., Atglen, PA. 194 pages. \$49.95.



Combat: The Great American Warplanes. Jim Wilson. Hearst Books, New York, NY. 192 pages. \$30.00.



The Hat in the Ring Gang: The Combat History of the 94th Aero Squadron in World War I. Charles Woolley. Schiffer Publishing, Ltd., Atglen, PA. 271 pages. \$49.95.



The Tragedy of Great Power Politics. John J. Mearsheimer. W.W. Norton & Co., Inc., New York, NY. 555 pages. \$27.95.

By Frances McKenney, Assistant Managing Editor

AFA National Officers Elected

On Nov. 2., the Air Force Association announced the results of elections for four national officers and six national directors. Re-elected for second terms were Thomas J. McKee, Fairfax Station, Va., National Chairman of the Board, with John J. Politi of Sedalia, Mo., National President, Daniel C. Hendrickson, Layton, Utah, National Secretary, and Charles A. Nelson, Sioux Falls, S.D., National Treasurer.

Elected to the Board of Directors were Roy A. Boudreaux, Venice, Fla., Eilly M. Boyd, Columbus, Miss., David R. Cummock, Daytona Beach, Fla., Eugene M. D'Andrea, Warwick, R.I., Edward I. Wexler, Savannah, Ga., and Robert M. Williams, Omaha, Neb.

Because the September national convention was canceled, AFA conducted this election by mail. In a process developed and approved by the Board of Directors and explained to the Region and State Presidents, mail-in ballots went to the heads of state delegations, for voting in accordance with the allotted strength of each state.

John H. Breslin of Miami, Dennis R. Davoren of Beale AFB, Calif., and Ronald E. Thompson of Beaver Creek, Ohio, had been elected last summer as Leadership Development Directors, with terms to begin at the same time as the other elected officers and directors.

Ten new Region Presidents had earlier been elected in the field: Michael J. Peters (Far West Region), Bruce E. Marshall (Florida Region), James E. Fultz (Great Lakes Region), David T. Buckwalter (New England Region), Karl Miller (Northeast Region), Steven R. Lundgren (Northwest Region), Craig E. Allen (Rocky Mountain Region), Frederick A. Zehrer III (South Central Region), Rodgers K. Greenawalt (Southeast Region), and William A. Lafferty Jr. (Southwest Region).

AFA's Aerospace Education Foundation also conducted its election without a meeting. Following the approval of an election procedure, the AEF Board of Trustees voted by mail, re-electing the following officers: Jack



Gen. Richard Myers, Chairman of the Joint Chiefs of Staff, and his wife, Mary Jo (both at center), are flanked by AFA National Chairman of the Board Thomas McKee and his wife, Trisha, at the official welcome ceremony for Myers and JCS vice chairman, Marine Gen. Peter Pace. President Bush and Defense Secretary Donald Rumsfeld were also at the Oct. 15 ceremony at Ft. Myer, Va.

C. Price, Pleasant View, Utah, Chairman of the Board; Richard B. Goetze Jr., Arlington, Va., President; Charles P. Zimkas Jr., Colorado Springs, Colo., Vice President; Victoria W. Hunnicutt, Gray, Ga., Secretary; and Mark J. Worrick, Denver, Treasurer.

Newly elected as AEF trustees are L. Boyd Anderson, Ogden, Utah, William D. Croom Jr., San Antonio, Tex., Frank G. Mitchell, Wichita, Kans., and Robert G. Stein, Colorado Springs, Colo.

AEF Auction on eBay

The Aerospace Education Foundation held its annual silent auction in a new venue this year: on the World Wide Web's site eBay, the online marketplace for the sale of goods and services from individuals and businesses.

This was the second year for the auction. It was originally part of the Air Force Association's National Convention activities but was rescheduled because of the convention's cancellation.

More than 60 silent auction items were offered for sale through eBay between Oct. 11 and Nov. 9. They included donations from individuals, AFA organizations, and Industrial Associates and ranged from collectibles, clothing, and tickets to entertainment and sporting events to vacation getaways and technology tools.

According to Jack Price, AEF Board Chairman, many who donated items to the silent auction were excited about using eBay, although some asked that their contributions be held for next year's in-person auction.

AEF raised more than \$9,000 from the auction and uses proceeds to promote educational activities in science, technology, and national defense.

A POW Remembers

William H. Talley, a Prisoner of War during the Vietnam War, spoke to a combined meeting of the **Blue Ridge (N.C.) Chapter** and the North Carolina AFA Executive Committee in August.

JCS photo by Marnie M. Burke

As a USAF major, Talley was flying an F-105G on May 11, 1972, when he was shot down on his 13th mission over Hanoi. He spent the next 10 months in the POW complex nicknamed the Hanoi Hilton.

In his remarks to the AFA meeting, Talley spoke of the sacrifices made by the POWs. He described the leadership example set by fellow prisoners Lt. Col. Robinson Risner, who was a Korean War ace and survived more than seven years as a Vietnam War POW, and Michael D. Christian, who endured six years of captivity. Christian had been a Navy lieutenant junior grade flying an A-6A when captured.

Talley today is a retired colonel, living in North Carolina.

Also at the AFA meeting, Gerald V. West, state president, congratulated the state's national level AFA award recipients (listed in the November 2001 issue) and state level awardees Larry E. Fowler, named Member of the Year, and Mike Hunsucker, selected as Chapter President of the Year. Fowler is the Blue Ridge Chapter's vice president; Hunsucker is the chapter's president.

Doolittle Raider in South Carolina

Retired Lt. Col. Horace E. Crouch, a member of the Doolittle Raiders, spoke at the quarterly dinner of the **Columbia Palmetto (S.C.) Chapter** at the Ft. Jackson NCO Club in late September.

As part of the group led by then-Lt. Col. Jimmy Doolittle in the first attack on the Japanese home islands, Crouch spoke with firsthand knowledge about the planning and execution of the raid conducted on April 18, 1942.

He was the navigator-bombardier on the 10th of 16 B-25s that took off from USS *Hornet* for the raid. His aircraft bombed a precision instrument factory in Japan, shook off a dozen Japanese fighters, and—not having enough fuel to return to the *Hornet*—headed for China. The bomber ran out of gas just before reaching a Chinese airfield, forcing the crew to bail out over land. They all survived. The airplane hit the side of a mountain.

Anniversary Ball

The **Wright Memorial (Ohio) Chapter** held its annual Air Force Anniversary Ball and Wright Brothers Heritage Benefit at the US Air Force Museum on Wright-Patterson AFB, Ohio, in September.

As part of the entertainment, the Air Force Band of Flight, based at Wright-Patterson, wore World War

II-era uniforms and presented a musical tribute to Big Band leader Glenn Miller.

Lt. Gen. Richard V. Reynolds, commander of Aeronautical Systems Center at Wright-Patterson, was among the honored guests.

In award presentations, Zoe Dell Nutter received the Ambassador Award, as recognition for her promotion of the aviation industry and her support of the National Aviation Hall of Fame. Charles D. Metcalf, director of the US Air Force Museum, received the Heritage Award.

Reynolds also presented superior performance awards to 11 base personnel: Maj. David Biros, SSgt. Jackie A. Bradley, TSgt. Michael D. Brimmer, Capt. Artis R. Clayton, A1C Suzette R. Cordiviola, April Lewis, J.M. Olgeatz, Mary Ann Papanek, John Rumpf, Maj. David A. Tarullo, and MSgt. Timothy L. Thomas.

Through two days of events, which also included a golf outing, the chapter raised more than \$17,000 for four local charitable organizations, including the chapter's education fund and the USAF Museum.

Convention in Indiana

The **Central Indiana Chapter** hosted the Hoosier State's AFA convention in August. AFA National Treasurer Charles Nelson presented a training session on leadership development as part of the convention events.

In addition to announcing the state's national level AFA award recipients

(listed in the November 2001 issue), several local awards were presented. Lyle W. Marschand of the **Lawrence D. Bell Museum Chapter** took home the state Member of the Year award. He has served most recently as the chapter's vice president of government relations. Other local award recipients were SSgt. David A. Wood, named Recruiter of the Year; Melissa A. Harbeson, Civil Air Patrol Cadet of the Year; and Connie Glassley, Teacher of the Year. She teaches at Pleasant Center Elementary School in Fort Wayne.

During the business session, William A. Howard Jr., **Fort Wayne Chapter**, was re-elected state president. Others elected were William R. Grider, from the **Grissom Memorial Chapter**, vice president, and from the Fort Wayne Chapter, Jeanne L. Hissem, secretary, and Theodore Huff Jr., treasurer.

In Lake of the Ozarks

At the Missouri State Convention in Lake of the Ozarks, Mo., Lt. Gen. Ronald C. Marcotte was the keynote speaker. Vice commander of Air Mobility Command, Scott AFB, Ill., he spoke to the luncheon audience about the Air Force's strategic transportation assets and mission.

Missouri State President John D. Miller of the **Earl D. Clark Jr. (Mo.) Chapter** hosted the August convention, which also counted AFA National President John Politi, from Sedalia, Mo., among its special guests.



Anchorage Chapter President Gary Hoff congratulates SSgt. Gary Simonton at a Community College of the Air Force graduation ceremony at Elmendorf AFB, Alaska. Simonton received the chapter's \$250 Don Delk Scholarship, named for a late chapter member and mentor to base maintenance personnel. Simonton is an electrical environmental specialist with the 962nd Airborne Air Control Squadron.

In state level awards presentations, Patricia Snyder, president of the **Harry S. Truman Chapter**, was named Member of the Year, while her unit garnered the Chapter of the Year award. Karen Cavender, a first-grade teacher from Hawthorne Elementary School in Kansas City, received the Teacher of the Year award.

Miller retains his post as state president, as do the other three state AFA leaders: Judy K. Church, vice president, and James M. Snyder, secretary, both from the Truman Chapter, and Gary M. Young, treasurer, from the **Spirit of St. Louis Chapter**.

Convention at Scott Air Force Base

Hosted by the **Scott Memorial Chapter**, the Illinois State Convention took place at Scott AFB, Ill., in August. AFA National Secretary Daniel Hendrickson was the after-dinner guest speaker. He stressed the importance of leadership development and encouraging younger folks to join AFA.

In elections, Frank Gustine was elected state president. Currently state first vice president, he is a member of the **Heart of Illinois Chapter**. Others elected were Raymond D. Holden, Scott Memorial Chapter, vice

president; and John D. Bailey and Eunice L. Bailey, both from the **Chicagoland-O'Hare Chapter**, secretary and treasurer, respectively.

After the convention, one of the attendees, Walter W. Pollick Jr. of the Scott Memorial Chapter, traveled by Amtrak train to Vancouver, Canada. He was delighted to discover that the conductor was a fellow AFA member, Malcolm L. Campbell, former secretary for the **Greater Seattle (Wa.) Chapter**.

Convention in Pennsylvania

In October, the **Altoona (Pa.) Chapter** hosted the 53rd annual Pennsylvania State Convention, built around the theme of aerospace education.

Col. Alan E. Thompson, a professor of aerospace studies at AFROTC Det. 730, University of Pittsburgh, and a **Greater Pittsburgh Chapter** member, was keynote speaker for the awards luncheon. SMSgt. Philip M. Brumback, 111th Logistics Squadron at Willow Grove ARS, Pa., was honored as the state's outstanding Air National Guardsman. CMSgt. Brian L. Zator, 911th Airlift Wing, Pittsburgh Airport/ARS, received the award for the state's outstanding Air Force Reservist. The outstanding Air Force

recruiter was MSgt. Thomas C. Kichline from New Cumberland, Pa.

ROTC cadet Jeffery L. Downing from Pennsylvania State University's AFROTC Det. 720, AFJROTC cadet Nathalie Mardis from Marion Center High School in Indiana, Pa., and Civil Air Patrol cadet Julia Doane were the state outstanding cadets.

The evening banquet featured guest speaker Col. Steven M. Paladini, professor of aerospace studies at Penn State's Det. 720. Paladini joined State President Robert C. Rutledge in presenting AFA national level awards (as listed in the November 2001 issue) and state level awards. The Altoona Chapter was named state Chapter of the Year, while William J. Worthington, president of the **Joe Walker-Mon Valley Chapter**, received the Man of the Year award.

Hometown Hero

Former AFA National Chairman of the Board Doyle E. Larson returned to Madelia, Minn., in late September for a ceremony honoring him as a hometown hero.

Madelia Mayor Brent Christensen presented Larson with a flag that had flown over the US Capitol. A second flag was to be placed in the county historical society. Both flags were accompanied by certificates noting the 50th anniversary of Larson's enlistment in USAF, his 32 years on active duty, and AFA service that has included two years as National President (1996-98) and two as National Chairman of the Board.

The Madelia High School band and local Boy Scouts were among the groups who participated in the ceremony, held at the county historical center. Others came from the **Gen. E.W. Rawlings (Minn.) Chapter**. Chapter President Paul R. Groskreutz, an Air Force Reserve colonel, presented a flag set to the city. Kenneth O. Wofford, chapter vice president for aerospace education, spoke to the audience about the value of education, citing Larson's life experiences and his support for AFA and AEF.

In his remarks, Larson said that his upbringing in Madelia, located 25 miles from the Minnesota-Iowa border, prepared him for a life where "anything was possible." He enlisted in USAF in 1951 as a Russian linguist and earned his wings and commission two years later. He went on to serve as the first commander of Electronic Security Command.

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elected to lead the **Joe Walker–Mon Valley (Pa.) Chapter**. TSgt. David L. Dubarr was elected chapter president at a September meeting, while his father, Winfield Dubarr, was elected vice president.

The younger Dubarr has served for 18 years and is on a recruiting assignment, reports James M. Cain, the outgoing chapter president. The elder Dubarr is an Army veteran of the Korean War.

Re-elected to chapter posts were William J. Worthington, secretary, and Karen G. Hartman, treasurer.

In July, the chapter joined with a local unit of The Retired Enlisted Association in manning a booth at the Westmoreland County Air Show. Held at the Arnold Palmer Regional Airport near Latrobe, Pa., the two-day air show featured the USAF Air Demonstration Squadron—the Thunderbirds—a KC-135 flyover, a Navy F-18, and a World War II-era Yak-9.

More AFA/AEF News

The **Carl A. "Tooney" Spatz (N.Y.) Chapter** and the **Albany–Hudson Valley (N.Y.) Chapter** held a joint meeting recently, where Bob Pandis, a B-2 pilot trainer, spoke about upgrades to the stealth bomber and its use in the past year.

Dorothy L. Flanagan (1929–2001)

Dorothy L. "Dottie" Flanagan died Oct. 6 in Nevada City, Calif., after a long battle with cancer.

Ms. Flanagan was born in Otisco, N.Y., and moved to Washington in 1950. She worked for the Air Force for many years and was an AFA staff member for more than 35. She was well-known as AFA's director of protocol, retiring from that post in 1994. That year, Ms. Flanagan, who was an AFA life member, received AFA's Gold Life Member Card No. 14, in recognition of her AFA accomplishments. ■

Unit Reunions

reunions@afa.org

42nd BG (M) (WWII). May 24–26, 2002, in Huntsville, AL. **Contact:** John Balfour, 33 Millstone Rd., Randallstown, MD 21133-1518 (410-922-2840) (michar33@bcpl.net).

49th FG Assn. March 8–10, 2002, in Cocoa Beach, FL. **Contact:** Raymond O. Roberts, 435 Green Turtle Cove, Satellite Beach, FL 32937 (321-777-5137).

57th BW Assn of WWII, including all B-25 units in the Mediterranean Theater. Oct. 3–7, 2002, at the Boomtown Hotel and Casino in Verdi, NV. **Contact:** Bob Evans, 1950 Cunningham Rd., Indianapolis, IN 46224-5341 (317-247-7507).

62nd Troop Carrier/Airlift Wg Assn. June 8–12, 2002, at the Reno Hilton in Reno, NV. **Contact:** Don Guenthoer, 62nd TC/AW Assn., PO Box 4220, McChord AFB, WA 98438-0220 (253-583-0610) (Thumper@nwrain.com).

820th BS, 41st BG, Seventh AF (WWII). May 2–5, 2002, at the Sand Dunes Resort Hotel in Myrtle Beach, SC. **Contact:** William W. Childs, 3637 Patsy Ann Dr., Richmond, VA 23234-2951 (804-275-6012).

3389th Pilot Tng Sq (MAP). April 18–21, 2002, in Branson, MO. **Contact:** Chuck Davies, 1802 NE Loop 410, Ste. 6, San Antonio, TX 78217 (210-828-4481 or 210-653-1475) (cpdavies2@yahoo.com).

4080th Strategic Recon Wg, all sqs. May 23–25, 2002, at the Civic Center in Del Rio, TX. **Contact:** 4080th SRW Reunion Committee 2002, PO Box 1526, Del Rio, TX 78841-1526 (830-775-5346).

Air Force Special Projects Production Facility. Sept. 30–Oct. 3, 2002, in Branson, MO. **Contact:** Jim Grimm (352-483-3772) (patjimgr@aol.com).

Blind Bats, C-130 flare missions, Naha/Ubon. May 9–11, 2002, in Biloxi, MS. **Contact:** Ralph Krach, 1723 Thomas Jefferson Dr., Biloxi, MS 39531 (225-374-2041) (Flarebird@aol.com).

Navigator/Observer Class Ellington 52-09C, including advanced classes Ellington 52-B and Mather 52-D-26. Aug. 29–Sept. 1, 2002, in Colorado Springs, CO. **Contacts:** W. Berkman, 4340 Whispering Cir. N., Colorado Springs, CO 80917-3627 (billcs@home.com) or B. Wilkins, 3311 NW Roosevelt, Corvallis, OR 97330-1169 (bwilkins@orst.edu).

Pilot Class 45-B (all training commands). May 9–12, 2002, in Savannah, GA. **Contact:** Paul R. Wildes, 714 River Haven Cir., Hoover, AL 35244 (205-682-0467) (PRDVWILDES@AOL.COM).

Pilot Class 54-F. May 15–19, 2002, in Dayton, OH. **Contact:** Fred Huppertz, 1551 Pharrs Rd., Snellville, GA 30078-5810 (770-972-7359) (fredhupp@mindspring.com).

Pilot Class 56-P and Navigator Class 56-08C. May 1–4, 2002, at the Airport Radisson in Colorado Springs, CO. **Contact:** Roger Dilling, 8 Passage Ln., Salem, SC 29676 (864-944-1880) (rodilling@mindspring.com).

Project STAIRSTEP units, Berlin crisis (1961–62). Nov. 1–11, 2002. **Contact:** H. Ryan, 104 Water Wood Dr., Yalaha, FL 34797 (352-324-2501) (hryan1@earthlink.net).

Seeking former members of **Pilot Class 59-D** for a reunion. **Contacts:** Doug Johnson, 7343 Marsh Terr., Port St. Lucie, FL 34986 (561-595-8981) (rozndoug@aol.com) or Charles Corder (redrocchap@aol.com).

Seeking **67th SOS** personnel, RAF Mildenhall, UK (WWII), for reunions in England and Florida. **Contact:** Scott Slaton (001-44-1638544963) (Robert.Slaton@mildenhall.af.mil). ■

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.

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I certify that all information furnished on this form is true and complete. I understand that anyone who furnished false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

Pieces of History

Photography by Paul Kennedy

A Christmas Past



Some vintage items remind us of Christmas for service members in the World War II era. Packages and letters from home have been a highlight for most military personnel serving overseas for decades. This year, Pentagon officials announced that packages destined overseas may be delayed. They also issued a moratorium on mail addressed to "Any Service Member,"

instead suggesting that Americans support US troops by contributing to communities in which they live. They suggest activities such as visiting a VA hospital, volunteering to coach children's teams, or reaching out to the family of someone deployed—much like activities of a Christmas past.



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