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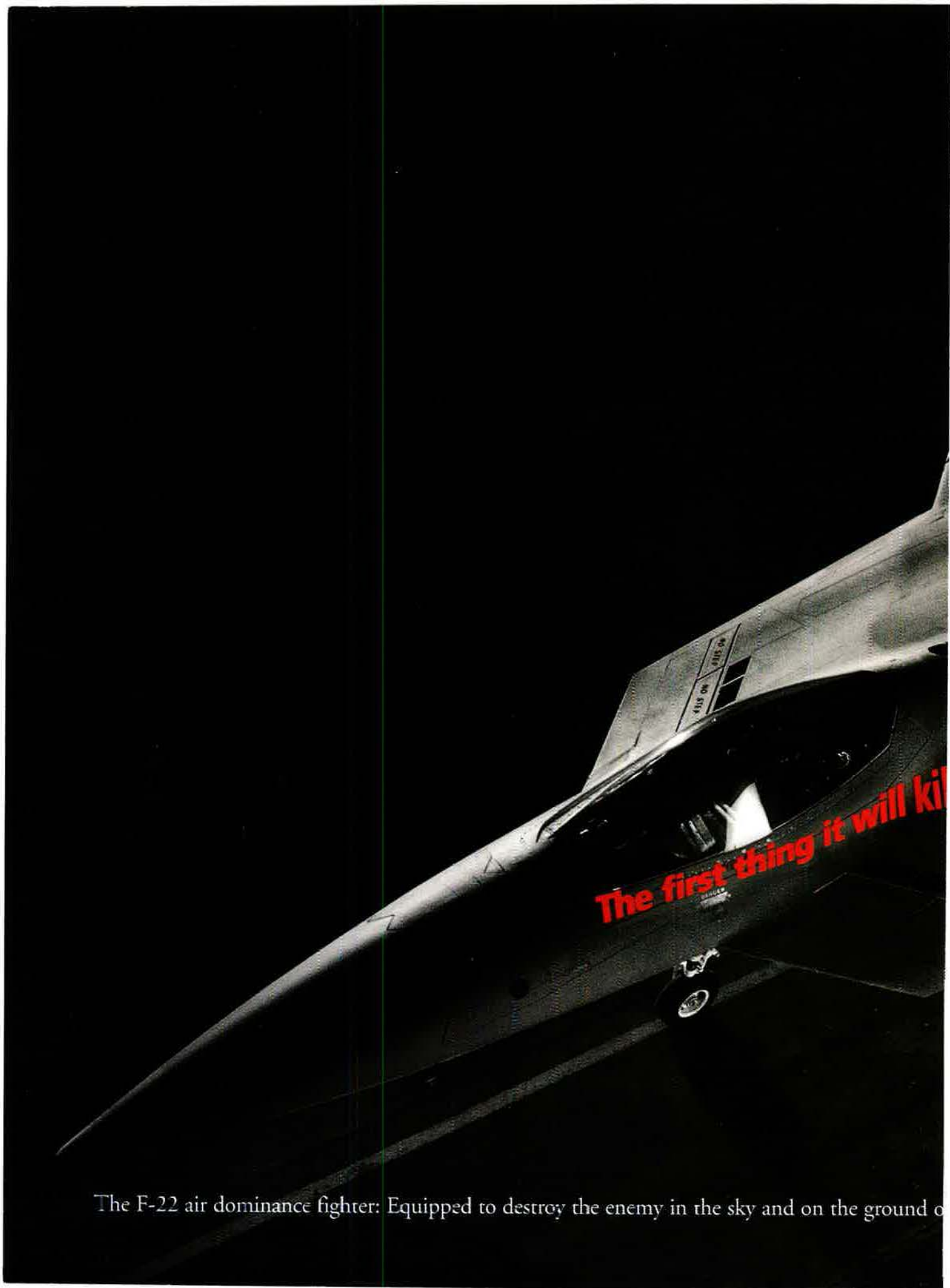
AIR FORCE

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About the cover: A1C Adam Carpenter of the 314th Security Police Squadron, Little Rock AFB, Ark., gets down and dirty during an exercise to secure a base perimeter. See "To Protect the Force," p. 30. USAF photo by MSgt. Val Gempis.

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AIR FORCE Magazine (ISSN 0730-6784) November 1998 (Vol. 81, No. 11) is published monthly by the Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Phone (703) 247-5800. Second-class postage paid at Arlington, Va., and additional mailing offices. **Membership Rate:** \$30 per year; \$75 for three-year membership. **Life Membership (nonrefundable):** \$450 single payment, \$475 extended payments. **Subscription Rate:** \$30 per year; \$25 per year additional for postage to foreign addresses (except Canada and Mexico, which are \$9 per year additional). Regular issues \$3 each. Special issues (USAF Almanac issue and Anniversary issue) \$5 each. **Change of address** requires four weeks' notice. Please include mailing label. **POSTMASTER:** Send changes of address to Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Publisher assumes no responsibility for unsolicited material. Trademark registered by Air Force Association. Copyright 1998 by Air Force Association. All rights reserved. Pan-American Copyright Convention.

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Expeditionary Aerospace Power

EVERY major study of US defense requirements in recent years has led to a recurring set of core conclusions.

- The United States has global interests and responsibilities from which we cannot and do not wish to retreat.

- The nation needs military capabilities across the full spectrum of conflict, but the emphasis for the foreseeable future will be on response to regional crises or conflicts.

- A Revolution in Military Affairs—the primary elements of which are information technology and long-range precision strike capability—has changed the nature of warfare, taking us beyond the inevitability of massive, force-on-force engagements.

- The cornerstone of our strength is the capability to project combat power rapidly and effectively to any point on the globe.

- When US forces engage in combat, our objective will be to win quickly, decisively, and with as few casualties as possible.

- The United States must dominate both air and space in wartime. We must have access to space and be able to operate freely there while denying those capabilities to an adversary.

Unfortunately, the national defense program as presently constituted is at odds with this body of conclusions. It does not provide the resources or the forces actually required. It does not capitalize on the full potential of either the Revolution in Military Affairs or aerospace power.

Technology development and force modernization have been shortchanged as money is reprogrammed away to cover readiness and daily operations. Although air and space capabilities are deemed critical to the future, aerospace power is undervalued in budgets and planning. Furthermore, joint doctrine still tends to portray airpower as principally a supporting element for ground operations.

National security demands that we fund the defense budget to actual requirements, not to wishful thinking. The Air Force Association believes it has become imperative that the De-

partment of Defense and service leaders ensure that the Administration and Congress hear and understand the needs of the force.

The Effectiveness of Airpower. The nation's top defense leaders were right in 1991 when they said that airpower had been the decisive element in the Gulf War. As impressive as airpower was in that conflict, though, it has improved enormously since then, and today attains a much

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higher standard than it did in the Gulf.

The capabilities of airpower, especially in precision attack, were further demonstrated in "Deliberate Force," the three-week air campaign in Bosnia in 1995 that was the decisive factor in bringing the recalcitrant Serbs to the peace talks in Dayton. It was another example of what airpower can accomplish when properly employed.

The Quadrennial Defense Review recognized the prime operational requirement to halt an enemy force rapidly, short of its objective, perhaps avoiding the need for a costly ground campaign to evict the enemy from captured territory. Achieving such a strategic halt is primarily a job for airpower.

Airpower can now strike directly and with great accuracy at critical

parts of the enemy's infrastructure and order of battle. Military effectiveness is no longer measured by local perspectives and battle lines on the ground.

The National Defense Panel produced a template of critical capabilities—mobility, stealth, speed, increased range, precision strike, and a small logistics footprint—that will rise in importance between 2010 and 2020. These capabilities are hallmarks of aerospace power. The Berlin Airlift—the 50th anniversary of which we observe this year—exemplified the versatility of airpower as an instrument of national power.

It is by means of aerospace power that the nation will best measure up to the objective of Joint Vision 2010 to accomplish the effects of mass, concentrating combat power at the decisive time and place, with less need than in the past to assemble a massed force in the battle area.

It has become popular to disparage airpower and to argue that it is not "decisive" in war. We do not claim that aerospace power will be decisive alone in every instance, but it is the hardest-hitting, longest-reaching, and most flexible force that the nation possesses. It is difficult to imagine a future conflict of any major scope in which land power or sea power could survive—much less be decisive—without aerospace power.

Transformation to the Aerospace Force. After the Cold War, the US Air Force reduced active duty strength by a third and cut forces stationed abroad by half. Meanwhile, its contingency deployments have increased by a factor of four.

The Air Force is no longer a forward-based Cold War garrison force, focused on containment. It has become an expeditionary force, concentrating on global reach and the projection of global power, geared to a rapid and tailored response. The force is also in transition from airpower to the larger regime of aerospace power, incorporating the integrated capabilities of the full aerospace medium from air superiority to space control.

The aerospace force retains, and

in fact, has enhanced substantially, the traditional ability to support other forces in a joint campaign. Less recognized but of equal or greater importance, aerospace forces have an unprecedented capability to achieve strategic, operational, and tactical results on their own or with land or sea forces in support.

Aerospace forces operate decisively and accurately, over long range, on short notice, while putting as few Americans in harm's way as possible. Platforms in air and space also make major contributions to information dominance and battle management for US forces and coalition allies.

Space. We are currently seeing the first wave of a massive migration into space of military, civilian, and commercial functions and dependencies. Space is an area of vital national interest, from which we can no more isolate ourselves than we can from our interests in Europe or Asia.

When our interests in space are challenged—and they will be—the nation will expect the US armed forces to be ready to protect them. We should be preparing now against that day. For political and budgetary reasons, we are not preparing adequately to fulfill those responsibilities.

The nation is nominally committed to space control, the ability of US and allies to reach space and operate freely there while denying those capabilities to an adversary. In actuality, our commitment is hedged by various policies, treaties, and commitments that restrict military operations in space. Treaties designed to protect US and Soviet populations in the Cold War now increase their vulnerabilities as weapons of mass destruction proliferate. It is time to change our national policies and plans to ensure the capabilities to defend our interests in space.

The Commitment of Force. The Air Force Association repeats its concern that the United States has progressively lowered the threshold for engaging in combat. The nation has become increasingly willing to employ the armed forces in situations where the military purposes are vague or undefined. In the confrontation with Iraq in early 1998, for example, our objectives kept shifting. Our commitment was weak and tentative, leaving both adversaries and allies uncertain about our intentions. Our approach was to use the armed forces to "send signals," but we were not prepared to take serious, relevant, and sustained action if our warnings failed.

Strategy must be based on objectives that can be specified clearly and

which we have the means and the will to accomplish. We should not commit our armed forces to combat if we do not know what our objectives are or if we are lacking in either capability or will.

Falling Short. According to the national defense strategy, US armed forces are supposed to be ready to fight and win, almost simultaneously, two major theater wars. Our present forces, weakened by one reduction after another over the years, are in no shape to carry out that strategy. They would be pressed to sustain a single conflict on the scale of the Persian Gulf War of 1991.

The defense budget is critically underfunded. The diminished force structure and resources it provides are not sufficient to cover all of the "engagement and enlargement" actions around the world, much less support wartime requirements.

The Air Force Association does not accept the assumption, prevalent in the Pentagon and elsewhere, that the best we can hope for is a "stable defense topline," meaning that it may be necessary for the armed forces to absorb further reductions but that the defense budget can never be increased.

Defense outlays have not only fallen as a percentage of the Gross Domestic Product—down by more than half from the Cold War peak—but also have decreased as a percentage of total federal outlays and net public spending. To a considerable extent, then, the decline is a matter of priorities.

The Air Force Association regards the 3.0 percent of GDP presently allocated for defense as inadequate and the 2.7 percent level projected for 2003 as irresponsible and dangerous. We believe the defense budget can be and should be increased.

Threats Old and New. The policy of sizing the armed services to fight two regional conflicts—adopted in 1993 as a rationale for reducing the defense budget from "Base Force" levels—is now coming under attack as excessive and unaffordable.

It would be a considerable risk to fall below the two-conflict standard for sizing the armed forces. The nation has a consistent history of underestimating in peacetime the forces that it will require in wartime. The Gulf War, for example, ultimately required a third more fighter forces than forecast by the strategy. Nor have we done well in anticipating the outbreak and escalation of conflict.

The standard for sizing the force must obviously be set higher than a single regional conflict. There must be a reasonable force held in reserve

and some hedge against simultaneous trouble elsewhere. Provision must also be made for the missions other than regional conflict for which the force is concurrently responsible. The two-conflict standard serves all of these necessary considerations.

We urge caution in the increasing emphasis on Military Operations Other Than War. Peacekeeping and constabulary functions are legitimate parts of the national security program, but it must be clear that they are subordinate to the assured capability to fight and win the nation's wars.

The threats are diverse and evolving. Challenges arise from more sources than in the past, and the locations are less predictable. Weapons of mass destruction are proliferating, along with the means of employing them. Much sooner than our intelligence agencies had expected, the United States will be vulnerable to attack by ballistic missiles in the hands of rogue nations. Fighter aircraft sold on the world market approach parity with the best in operational service with the US Air Force. Information from space, much of it of strategic value, is commonly available.

New regimes of conflict are emerging. Among the most important of these is the power to obtain, exploit, defend, and attack information. In the near future, information warfare will upset traditional concepts about conflict and national defense. Aerospace forces will be deeply involved and compelled to deal with both the vulnerabilities and the opportunities.

Nuclear Weapons. As the explosion of nuclear weapons by India and Pakistan reminded us, the goal of nuclear non-proliferation is idealistic and probably impossible. This example also underscores our need for national missile defense. A major obstruction to that capability, however, is the 1972 Anti-Ballistic Missile Treaty, an agreement struck under circumstances of the past with the Soviet Union, a nation that no longer exists. It is time for the United States to withdraw from the ABM Treaty and accelerate the development of a national defense against ballistic missiles.

Contrary to the rising clamor from the nuclear abolition movement, we believe that the United States must retain sufficient nuclear weapons to enforce nuclear deterrence. Their value in deterring aggression and pressures from potential adversaries has been demonstrated amply, and we should not give up on nuclear deterrence until we find something better to replace it.

Force Modernization. The Depart-

ment of Defense continues to postpone force modernization, which is long overdue and now becoming a major problem. At projected budget levels, there is little chance of realizing the Administration's own procurement funding goal.

Of special concern to the Air Force Association is the absence of any plan for long-range airpower except for upgrades and improvements to the existing bomber fleet. Time has run out on the proposal to build more B-2s. That production line is closed, and neither the Department of Defense or the Air Force has given sufficient thought to what comes next. We urge a maximum effort on the long-term bomber force structure plan that Congress has directed the Air Force to prepare and present by March 1, 1999. The bomber upgrade programs are also vital—especially the enhancement of the B-2 to its full potential—as are precision-guided munitions to arm these systems.

Among development and procurement programs on our priority list are the F-22 fighter, the Joint Strike Fighter, the Joint STARS surveillance system (a minimum of 19 aircraft), the Airborne Laser, the Evolved Expendable Launch Vehicle for space access, the Space Based Infrared System, and an additional squadron of C-17 airlifters for the Special Operations mission.

Problems in the Force. Deterioration of the force is showing up in readiness and mission capable rates as well as in morale and retention problems. The wear and tear is taking its toll on the aging fleet of aircraft and on the people who are obliged to operate and maintain them.

Too few people with too few resources are trying to cover too many deployments to operating locations in Southwest Asia and elsewhere. The difficulties affect both those who deploy and those at their home stations who cope with the suddenly increased workload left behind.

The force is overextended and strung out. Operational units miss the training they need to remain proficient. Personal problems, caused by repeated family separations and other factors, are multiplying. Hardships are compounded when the force's sense of purpose is undercut by tenuous objectives and the open-ended nature of the deployments.

The ruinous operational tempo is a big reason why the Air Force is losing some of its best people. It is not only pilots who are leaving in alarming numbers but also middle-

grade airmen with valuable experience and know-how.

We congratulate the Air Force on its initiative to regroup operational and support units to cover unplanned peacetime expeditionary operations in a way that redistributes the impact on units and people.

However, the force's underlying problem is that it has been cut too much. What it needs is more people, more resources, and more force structure.

People. The government is systematically destroying the vital relationship of trust between military members and the nation. People in uniform accept the hardships and dangers of the military profession; in return, the nation is expected to take care of mili-

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1999 Statement of
Policy, adopted by the
delegates to the Air Force
Association National
Convention, Sept. 14,
1998.**



tary members and their families and provide them a reasonable compensation and quality of life. In recent years, however, the government has defaulted on its promises, cut back on programs that directly affect people, and sought cheap solutions to cover its obligations.

Concern about health care is Issue No.1 for veterans and retirees. In the most recent opinion survey of the active force, less than half of the members found the medical care program satisfactory. The Air Force Association believes the government should face its responsibility and make a variety of options for affordable, portable, and accessible health care available to active duty and retired members and their families.

Military pay has dropped even further behind than before. It now trails

compensation in the private sector by 14 percent. Pay inequity is a rising source of dissatisfaction, especially among enlisted members of the force. We believe that Congress should approve a special increase in military pay to establish closer comparability with earnings in the private sector.

On these issues and others, the government should act now to restore the bond of confidence between the nation and the force, not only because it is the right thing to do but also because failure to act is harmful to retention and morale.

Guard and Reserve. Wherever the US Air Force is engaged—in the Balkans, Southwest Asia, or elsewhere—the Air National Guard and Air Force Reserve components are there, demonstrating continuously their ability to deploy, operate, and fight alongside the active duty component. The Air Force has made Total Force a partnership, not a competition, and in so doing has set the model to which the other services aspire.

As the Expeditionary Aerospace Force evolves and new missions emerge, we trust that the Air Guard and Reserve will take appropriate roles in them. In view of their contribution to Air Force performance, training and equipment modernization standards for the Guard and Reserve must be on a par with those of the active duty force.

The Air Force Association expresses its appreciation and regard for the support of employers of Guard and Reserve members. Without their cooperation, the strong and extended Total Force operation would not be possible.

A Force for the Strategy. We agree with the National Defense Panel Report that "there is a high premium on forces that can deploy rapidly, seize the initiative, and achieve our objectives with minimal risk of heavy casualties." The Expeditionary Aerospace Force and long range airpower fit that prescription with remarkable fidelity.

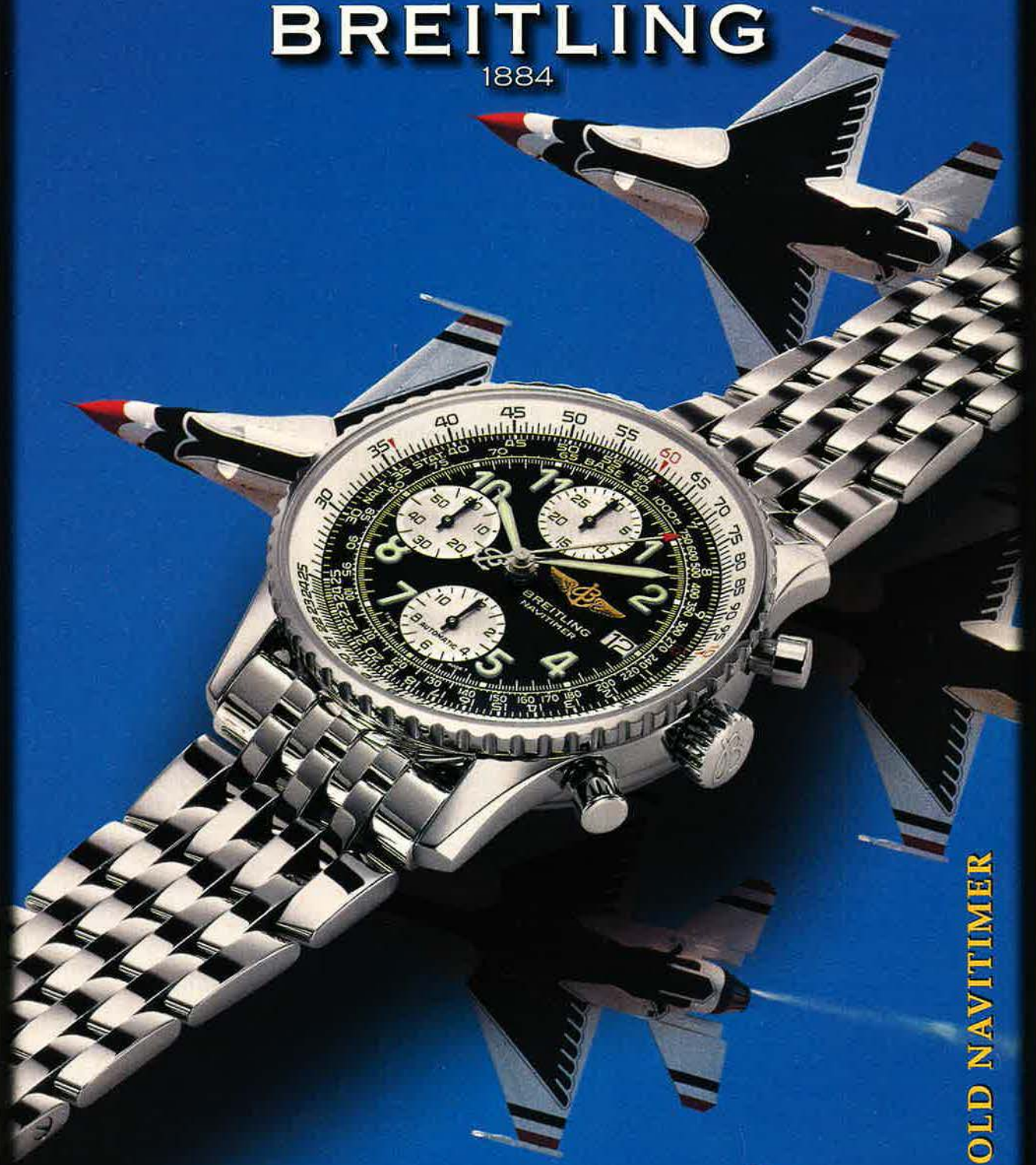
Aerospace power is the force component more likely than any of the others to amplify our advantage in theater battle and to provide the global awareness essential to the joint force in peace and war.

We believe that the nation needs a balanced force of air, land, and sea capabilities—but we are the world's leading military power primarily because of our strength in air and space. The United States is an aerospace nation, and the US Air Force is its Aerospace Force. ■



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Strung Out

Let's see if I correctly read your meaning in your September editorial [*"Strung Out," p. 4*]. First, that the past leaders of the military either lied or did not have the guts to state properly what the conditions were in their branch of service. So either way, their testimony to Congress is to be ignored.

Then we have partisan politics. [House Speaker] Newt Gingrich is to be taken as the gospel, while President Clinton has obviously caused all of the problems by cutting the military budget and using the military as part of foreign policy.

Although I strongly disagree with your politics in your editorial, I do agree with your view that the military is overworked and underpaid. But it has always been and probably will always be. That doesn't make it right.

What politician will go to his constituents in a re-election campaign and state that he deserves to be re-elected because he got the military a pay raise rather than defense contracts for the businesses in his area?

The shortages now and coming up in the future are, as has been said, *deja vu* all over again. Remember in the late 1950s when the "civilian equivalent" pay raises were to help correct the problem? Now the "conservative" politicians have cut out (to the 65 and over) the "delayed pay" of medical care promised. And some have even placed the retired military as some kind of second class citizen—[delaying] the retired military COLA but [giving] it to the retired federal [civil service].

Col. John C. Darby Jr.,
USAF (Ret.)
Stephenville, Texas

The day I received the September issue, the local paper carried a letter from a reader that seems to [reveal] a grassroots perception that ought to be of concern to decision makers. It said:

DoD wants to recruit and retain people who [have] outstanding moral character with a strong ingrained sense of ethics, who are nonsmokers, [and] who are unblemished with

tattoos or piercing. [DoD wants people] who are willing to get blown up or shot down, move any place in the world at a moment's notice, drag their families all over the world, constantly relocate their children into new schools and neighborhoods, have their belongings destroyed, lost, or stolen during shipment, endure months of separation from family and friends, commit to a career with the understanding that their government may decide to turn them out short of retirement and, in any event, won't honor government commitments.

[DoD wants people who will] act as the nation's ambassadors while serving overseas, comprehend and relate to foreign cultures, and who are able to master the most advanced technologies, grasp and execute complicated maneuvers, and still be dumb enough to accept inferior pay and a truncated retirement.

I think I have grasped the requisites now, but I am having a bit of [a] problem with the logic.

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

"Terrifying Picture"

I agree with Lt. Col. [David J.] Wallace [*"Letters," September, p. 9*] that US armed forces are misused. But the argument that the US has no vital interest in keeping Saddam [Hussein] under control is flawed. How can one possibly believe that Saddam would not go beyond the Kuwait border simply because he said he would

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not? Perhaps Wallace is too young to remember another psychopathic killer who said, "This is my last territorial demand," when he gobbled up the Sudetenland. That person was Adolf Hitler and he was just getting started.

If you couple continued conquest with the whole panoply of weapons of mass destruction that Iraq was (and is) developing, a terrifying picture unfolds—Saddam in control of most of the world's oil and willing to use nukes or anything else to further his ambitions. I see little choice but to watch this particular dictator like a hawk and protect him at the first opportunity. I mean that literally. That will take care of at least one of the current valid concerns raised by Wallace and others.

Col. Robert Downs,
USAF (Ret.)
Grass Valley, Calif.

Local Lift

Johr Tirpak does a good job with his feature, "Local Lift" [*September, p. 40*]. [However,] as he stated, this is not the first time tactical airlift has been a part of the bigger picture: once in MATS, then in TAC, then integrated into MAC, then into ACC, and finally into AMC.

It struck me that, one of these days, we are going to get this vital mission right. I would like to know how much money we have wasted on moving the ubiquitous Herk from Big MAC/MATS to TAC/ACC and back again.

Then, some AMC official said that there are still some command-and-control problems. That's probably because all the folks who were around the last time the Air Force did this in 1975 have been grazing peacefully in retired pastures. Yes sir, it was time to re-reinvent the wheel.

As to why Army guys and fighter guys can't understand theater lift, that one is easy—they don't use it. The 82d Airborne folks understand it, but I will tell you that, from my perspective as a former Tactical Airlift Liaison Officer, mechanized infantry units could not care less about tactical airlift!

In my three years as a TALO with a

now renamed "leg" division, I had to push and push the G-4 and G-3/G-3 Air to integrate theater airlift into any exercise. I do not want to recount the many memorable lines I heard during the warfighter exercises vis-a-vis theater airlift.

Remember the old saying about buying books and gnawing the edges? That, too, is an argument I have seen numerous times. In fact, the entire article struck me as—excuse me, Yogi—deja vu all over again.

B.L. Howard
McKinney, Texas

After reading "Local Lift" I would like to put the C-130 program in proper perspective. The statement that Lockheed Martin offered the airplane as a commercial buy "off the shelf" is a misconception. The C-130J is basically the same as the current C-130H structurally.

The avionics, of course, are vastly improved in the C-130J, but since the airframe is limited, the new [Allison] AE2100 [engine] had to be derated. In fact, the current T56-A-15 power plant overstresses the airframe at lower ambient temperatures. Therefore the only tangible benefits are climb rate, slightly higher cruise speed, and lower fuel consumption.

These advantages will be quickly offset by potential modifications required on AE2100 power plants now in service. The cost to repair and replace components on the AE2100 is 10 times that of the current T56. Also, since the AE2100 was developed at contractor expense, the Air Force will have no access to data. This will put the Air Force in a precarious position of being at the mercy of the contractor on every engineering decision.

If Congress is truly concerned about the US taxpayer, then upgrade the current fleet of C-130s and stop retiring C-130s which are being snapped up by foreign military users. I would also recommend that Congress suggest to Lockheed Martin to reconsider producing the C-130J configuration with the T56, or maybe the Air Force may just consider procuring the C-27 instead.

Raymond Ryan
Converse, Texas

What Type Memorial?

[There are] a few considerations that are being dismissed in support of the Air Force Memorial. [See "Letters," August, p. 4.] I believe the purpose of any memorial is to capture the hearts and minds of those who come to view [it]—the friends, parents, children, and grandchildren of

so many who have served in the Air Force and Army Air Corps. They also come to pay respect to those who sacrificed their lives for the mission.

The underlying theme of any memorial is the human being and spirit. It's amazing how we trumpet the cause, without remembering the people. A memorial has no place "symbolizing" this. You must capture the spirit of man's sacrifice and courage in peace and war. "To Fly, Fight, and Win" captures the essence of what a memorial is all about for all who have served. What would we memorialize if we had never fought—good programs and sharp uniforms?

This memorial needs to have identity and people. Weapons loaders arming munitions, crew chiefs following salutes with [a] thumbs-up, aircraft taking to the sky, and airmen watching as the aircraft depart. Lord help us if we alienate someone for choosing a T-38 over a B-25. Will a great cloud [come] upon us if a Titan IV is chosen over an OV-10? Let's end the greatest-fighter-of-all-time debate once and for all.

The point is it doesn't matter. The men and women of the Air Force family are speaking to the "committee" and saying quite clearly, "Give America something we are proud of and, in some very small personal way, identify with." The spirit and service of Rickenbacker, Mitchell, Doolittle, and Arnold should not be an artistic interpretation, representing the "idea of air and space." The men, women, and craft of our great Air Force deserve so much more than to be immortalized as "ideas" with something resembling an ashtray!

Maj. Greg Root
Osan AB, South Korea

First Loss?

The author of "The Easter Halt" [September, p. 60] mentions that an AC-130 gunship was shot down by a Strela during this offensive. He further states that "it was the first loss of its type." I served as an AC-119 aircraft commander at Da Nang, South Vietnam, and Nakhon Phanom, Thailand, in 1971-72.

Capt. Terry Courtney's AC-119 gunship was hit by a Strela with the loss of three crew members. [Courtney] stayed with the airplane until it crashed so that the remaining crew members could bail out. This was the only AC-119K gunship lost to ground fire that I am aware of, so I wonder if the author was referring to a Stinger and not the AC-130.

Lt. Col. John F.A. Kalbert,
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Midwest City, Okla.

AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION
MAGAZINE

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Lake Forest, Ill.



Circulation audited by
Business Publication Audit



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Letters

The Right Touch

Your article "The Right Touch" [*"Valor," p. 47*] in September states that SSgt. Forrest Vosler was a radio operator and that his position was in the top turret. The top turret is normally operated by the flight engineer who is right behind the pilot and copilot. The radio operator had a single .50-caliber machine gun that was behind the bomb bay and in front of two waist gunners. The radio operator-gunner's position was not a turret and was not as flexible as the waist gunner. The tail of the airplane was in the way, but he could shoot above.

Col. Robert A. Larsen,
USAF (Ret.)
Omaha, Neb.

■ *You're correct. We should not have said top turret. The radio operator's gun was situated through a hatch above the radio station.*—THE EDITORS

Thinking Aerospace

With all due respect to Frank Jennings [*"Letters," September, p. 6*], most [users] of the term "aerospace" choose to neglect the differences between the physics of atmospheric flight and the physics of spaceflight. Satellites do not "fly" from place to place; satellites travel in specific orbits for specific reasons. The closest thing we have to an "aerospace" weapon is the ICBM, which gives up powered flight and lets its warheads follow a ballistic trajectory back to Earth. The space shuttle also changes its operating parameters upon reaching the vacuum of space, and even the highly touted "aerospace plane" will give up powered flight and surrender to the laws and limitations of orbital mechanics.

Aerospace is not—and no amount of semantics will make it—a "seamless medium." Until we have vehicles capable of powered flight throughout the atmosphere and that can disregard orbital motion and move through space at will, aerospace will remain a divided kingdom—divided by natural law, not by words.

Maj. Graham W. "Gray" Rinehart,
55th Mobile Command &
Control Squadron
Offutt AFB, Neb.

Views of Retention Woes

Your article "The Views of the Force" [*August, p. 59*] was timely and reflects the true thoughts of our active duty members. We will never attain a 100 percent retention rate, but when this poll reflects that 34

percent of the officers and 27 percent of the enlisted plan on quitting, something is wrong.

It is vital that we maintain a cohesive, highly motivated volunteer force of young men and women. Notifying your congressman might be one answer; however, when I pleaded just this to my own, one who is a member of the [Senate] Armed Services Committee [and] a former enlisted Marine, I was totally and completely ignored. A Chief Master Sergeant of the Air Force, now retired, stated that it is vital for USAF to recruit and retain the best of the best. Otherwise, why have sophisticated equipment without sophisticated minds to operate it. You can't call "ghostbusters."

CMSgt. Lloyd M. Greenwell,
USAF (Ret.)
Sherwood, Ark.

Just after World War II, while in Germany one night at the Officers' Club the subject of flight pay came up. By far the opinion of the pilots present: No way would they fly without flight pay. These were all combat-type fighter pilots. Is money a possible motive to leave the service? Yes, of course. In my day, several of my friends left the service. The airlines' pay was about three times [a] captain's salary.

Lt. Col. Don Taylor,
USAF (Ret.)
Ajo, Ariz.

The question has been asked that since it [has been] seven years since the end of the Gulf War, when will these deployments end? The [Air Force Chief of Staff] has declared, "We are an expeditionary Air Force. ... That's what the nation wants of us." If the general firmly believes that, then he should go all out to see that Congress provides the funds to train and retain sufficient personnel to properly support and equip the deployment schedules now required, as well as necessary combat training.

Col. Peter E. Boyes,
USAF (Ret.)
Rancho Murieta, Calif.

The Refueling Question

I am compelled to respond to [retired Lt. Col. Donald R.] Morrison's letter in the August issue [*p. 6*]. KC-135s did refuel the F-100s on that first mission on June 9, 1964. I flew as No. 2 in a flight of eight Super Sabres attacking a Laotian gun site that I understand had shot down a US aircraft.

A few hours before engine start,

with the aircraft fully configured, we received a message requiring a change of two of the weapons on each aircraft because of political sensitivity. We were also directed not to overfly Thailand "under any conditions." Armament personnel performed yeoman's service to reconfigure the aircraft in time for departure to make our refueling rendezvous.

The tankers were professionally on time, in place. However, we were hampered by [bad weather] and [an inexperienced] mission leader, [so] our drop-off was probably 75 miles north-northwest of the planned drop-off point. The fighters had no navigation capability other than dead reckoning and map reading. A very professional navigator on the tankers at that crucial point said, "Your target is 300 degrees, 187 miles." If possible, I would have hugged him then for providing that vital information.

Sixteen years later at Whiteman AFB [Mo.], I heard Col. Richard Thoden, relating a story about the first KC-135 mission in Southeast Asia supporting a flight of F-100s. In my discussion with him, I discovered he was that professional navigator who provided the direction and distance to the target when we departed the tankers after refueling inbound. It can be a small Air Force.

Col. Lloyd K. Houchin,
USAF (Ret.)
Swansea, Ill.

Minor or Major?

[Retired] Maj. Gen. Joe L. Shosid implies ["Letters," August, p. 5] that American Overseas Airlines played a large part in the Berlin Airlift. Actually AOA and other contract carriers, such as Seaboard and Western, played a very minor role [in] the American sector. [In] the British, [they] carried about 50 percent of the cargo.

The civilian pilots got paid about twice as much as [USAF pilots] did and they carried less tonnage per trip. Their weather minimums were higher than ours. When they were not flying, their time was their own, but we had other duties. Most of our cargo was coal or flour (both dusts are explosive). Out of the 135 flights that I made from Rhein-Main [AB, Germany] to Tempelhof, I carried "clean cargo" only three or four times, and even then the dust was still all over the plane. AOA always carried clean cargo or passengers. We loaded our planes to a greater gross weight than they [did.] It made for some very interesting landings.

Maj. Eugene W. Garges Jr.,
USAF (Ret.)
Manhasset, N.Y.



Statement of Ownership, Management, and Circulation (Required by 39 USC 3685)

1. Publication Title AIR FORCE MAGAZINE		2. Publication Number 0 7 3 0 6 7 8 4		3. Filing Date October 23, 1998	
4. Issue Frequency MONTHLY		5. Number of Issues Published Annually TWELVE		6. Annual Subscription Price \$30.00	
7. Complete Mailing Address of Known Office of Publication (Not printer) (Street, city, county, state, and ZIP+4) 1501 LEE HIGHWAY, ARLINGTON, VA 22209-1198				Contact Person Robert Shaughness Telephone 703-247-5849	
8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer) 1501 LEE HIGHWAY, ARLINGTON, VA 22209-1198					
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not leave blank)					
Publisher (Name and complete mailing address) JOHN SHAUD, PUBLISHER 1501 LEE HIGHWAY, ARLINGTON, VA 22209-1198					
Editor (Name and complete mailing address) JOHN T. CORRELL, EDITOR IN CHIEF 1501 LEE HIGHWAY, ARLINGTON, VA 22209-1198					
Managing Editor (Name and complete mailing address) SUZANN CHAPMAN, MANAGING EDITOR 1501 LEE HIGHWAY, ARLINGTON, VA 22209-1198					
10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)					
Full Name		Complete Mailing Address			
AIR FORCE ASSOCIATION		1501 LEE HIGHWAY, ARLINGTON, VA 22209-1198			
11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box <input checked="" type="checkbox"/> None					
Full Name		Complete Mailing Address			
NONE					
12. Tax Status (For completion by nonprofit organizations authorized to mail at special rates) (Check one) <input checked="" type="checkbox"/> The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: <input checked="" type="checkbox"/> Has Not Changed During Preceding 12 Months <input type="checkbox"/> Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement)					
13. Publication Title AIR FORCE MAGAZINE		14. Issue Date for Circulation Data Below OCTOBER 1998			
15. Extent and Nature of Circulation		Average No. Copies Each Issue During Preceding 12 Months		Actual No. Copies of Single Issue Published Nearest to Filing Date	
a. Total Number of Copies (Net press run)		166,918		164,135	
b. Paid and/or Requested Circulation	(1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not mailed)	867		907	
	(2) Paid or Requested Mail Subscriptions (Include advertiser's proof copies and exchange copies)	153,707		151,512	
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))		154,574		152,419	
d. Free Distribution by Mail (Samples, complimentary, and other free)		1,335		1,255	
e. Free Distribution Outside the Mail (Carriers or other means)		2,676		2,339	
f. Total Free Distribution (Sum of 15d and 15e)		4,011		3,594	
g. Total Distribution (Sum of 15c and 15f)		158,585		156,013	
h. Copies not Distributed	(1) Office Use, Leftovers, Spoiled	8,358		8,122	
	(2) Returns from News Agents	0		0	
i. Total (Sum of 15g, 15h(1), and 15h(2))		166,918		164,135	
Percent Paid and/or Requested Circulation (15c / 15g x 100)		97.54		97.70	
18. Publication of Statement of Ownership <input type="checkbox"/> Publication required. Will be printed in the NOVEMBER 1998 issue of this publication. <input type="checkbox"/> Publication not required.					
17. Signature and Title of Editor, Publisher, Business Manager, or Owner <i>John T. Correll</i>					Date Oct. 23, 1998
I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes 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).					

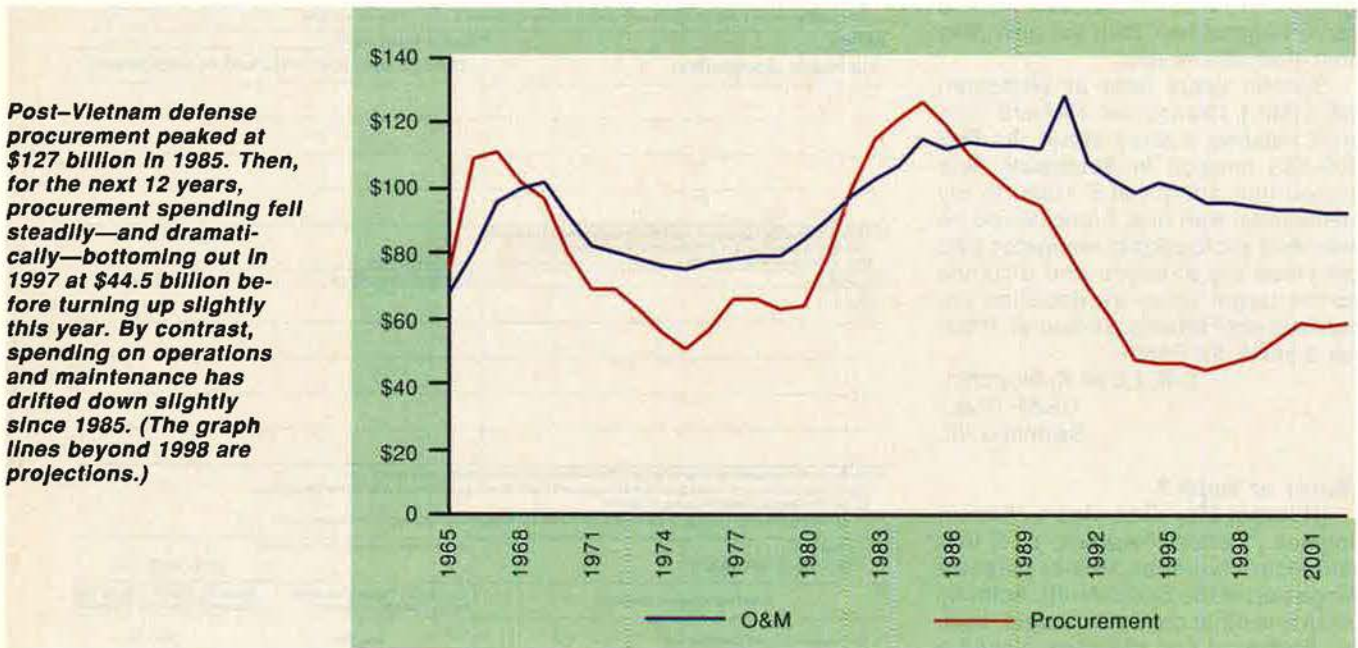
The Chart Page

By Tamar A. Mehuron, Associate Editor

How Military Procurement Went South

Comparing Procurement and O&M Accounts

(Billions of 1999 Dollars)



Funny Numbers in the Out-years

(Billions of 1999 Dollars)

FYDP	1995	1996	1997	1998	1999	2000	2001	2002	2003	Avg.	
1995-99	43.3	48.4	49.8	57.1	60.1						<p><i>The Clinton Administration's most recent budget plan calls for procurement to rise substantially from now through 2003—a claim regarded skeptically by many analysts. Earlier get-well plans have fizzled; DoD has projected grandiose numbers in the out-years but never comes close to meeting the targets.</i></p>
1996-01		39.4	43.5	51.4	54.2	62.3	67.3				
1997-01			38.9	45.5	50.5	57.7	60.0				
1998-03				42.6	50.7	57.0	60.7	68.3	68.0		
1999-03					48.7	54.1	61.3	60.7	63.5		
Total Lost		\$9.0	\$10.9	\$14.5	\$11.4	\$8.2	\$6.0	\$7.6	\$4.5	\$9.0	

Source: Department of Defense

Aerospace World

By Peter Grier

Forces Get Cash Infusion

The Pentagon will receive more money than expected in order to improve the US military's readiness to go to war.

As an immediate first step, the Clinton Administration is asking Congress to provide an additional \$1 billion, according to a letter from President Clinton to Defense Secretary William S. Cohen, made public Sept. 23.

The cash infusion would fund spare parts, training, recruitment, and other readiness factors in Fiscal 1999, which began Oct. 1.

The request comes after a low-key but concerted campaign by military leaders to focus attention on declining readiness rates.

On Sept. 15, Cohen and the Joint Chiefs of Staff met with the President and key administration figures at the National Defense University at Ft. McNair, D.C., to express their readiness concerns. That meeting preceded by only a few days Senate hearings highlighting declines in American readiness.

The \$1 billion will be tacked on to a \$4 billion supplemental package, already before lawmakers, that is meant to finance the extended Bosnia mission, Year 2000 computer fixes, and other items.

New DoD Budget Plans Coming?

At the NDU meeting Sept. 15, President Clinton told the Joint Chiefs of Staff to work up new budget plans for Fiscal 2000 and beyond, taking into account the need for extra cash for readiness.

"Although we have done much to support readiness, more needs to be done," Clinton wrote Defense Secretary Cohen.

The President's instruction did not suggest any specific budget figures for the out-years. However, the chiefs have in the past said they would need to increase their spending plans by \$10 billion to \$20 billion a year to ensure that readiness indicators such as aircraft Mission Capable Rates remain at high levels.

At the meeting with the President,



USAF photo by SrA. Erick Saks

One of six B-52 bombers from 2d Bomb Wing, Barksdale AFB, La., sent to Europe Oct. 11 as part of a NATO contingency force descends toward the airstrip at RAF Fairford, UK. The Pentagon dispatched the B-52s to take part in potential air strikes in the province of Kosovo, Yugoslavia. USAF formed four Air Expeditionary Wings to support the campaign. The AEWs included the B-52s, and F-15, F-16, A-10, EC-130, RC-135, C-130, KC-10, and KC-135 aircraft.

the chiefs said that frontline units, such as those in Bosnia and Saudi Arabia, are poised and ready for any operation, but they noted that readiness strains are showing in follow-on forces based in the US.

"In the last year or so, readiness trends have nosed down," Pentagon spokesman Kenneth Bacon declared Sept. 15. "We want to pull up on the stick before there's a nosedive."

In his letter, the President said that another round of base closings could help save money and pay for more fuel, engines, and other readiness items. Given lawmakers' reluctance to agree to another base closing commission, such savings are unlikely to occur in the short term.

Cohen, Shelton Say Readiness Is "Fraying"

American military readiness is "fraying" in second- and third-echelon units, and the US needs to "make sure [the fray] doesn't turn into a tear."

Such was the assessment of Defense Secretary Cohen and Army Gen.

Hugh Shelton, Chairman of the Joint Chiefs of Staff, as expressed in recent press interviews.

Cohen and Shelton, in an Armed Forces Radio and Television Service interview, said they had cautioned President Clinton about the problem in recent meetings in Washington.

"We assured the Commander in Chief that we have a trained and ready military force—one that is ready to carry out the national military strategy of fighting two Major Theater Wars," Shelton said. "We cautioned [President Clinton] that the risk of fighting the second one has been going up."

Shelton said the message defense leadership sent the President was that balancing readiness, quality-of-life programs, and modernization "has become a challenge that is almost insurmountable within the current [DoD budget]."

ACC Opens Rear Operations Center

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tionary USAF forces deployed overseas may now be much easier, thanks to a new Rear Operations Support Center that Air Combat Command opened Sept. 1.

The ROSC at Langley AFB, Va., is a key factor in the way that the Air Force plans to do business in the future, officials said. It consolidates four existing 24-hour operations centers at Langley into a one-stop shop intended to provide rear support functions for deployed air commanders during contingency operations.

The center will serve as operations center for an Air Expeditionary Force until its own command-and-control node is up and running at its area of responsibility.

"The ROSC will allow us to do our mission in a lighter, leaner, and more lethal way than ever before," said ACC Commander Gen. Richard E. Hawley. "We'll be able to send fewer people forward with less operations support in the forward theater, while providing improved command and control."

Making the computer-packed ROSC possible was modern communications technology. In the past, command and control for deployed forces entailed sending 2,000 people and 20 to 30 cargo airplanes of equipment to forward locations, said Hawley. The ROSC can be staffed with only 20 to 40 people in peacetime and perhaps 200 in a live combat operation.

Data networks will connect the ROSC with ACC commanders as well as such rear-echelon headquarters as Air Force Space Command at Peterson AFB, Colo., and Air Intelligence Agency at Kelly AFB, Texas.

"We'll make better-informed decisions than ever before," said Hawley.

Air Force Tests Expeditionary Muscles

At a few minutes past midnight on Sept. 15, a dozen Air Force C-141s from McGuire AFB, N.J., and McChord AFB, Wash., swept over Florida's Duke Field and disgorged a force of nearly 1,200 Army paratroopers. The paratroopers drifted down on the installation, fanned out, and set up command posts to defend against their adversary—security forces from nearby Eglin AFB.

It was all part of Expeditionary Force Experiment '98, a wide-ranging 11-day USAF command-and-control experiment. Some 80 aircraft—from airlifters to fighters and UAVs—took part in the exercise, which was meant to test the service's newly adopted deployment model.

The EFX scenario entailed a US response to a rogue nation's attack on an American ally. The effort tested about 38 new technologies and concepts.

The Air Force's new Rear Operations Support Center at Langley AFB, Va., linked up with an on-site Joint Air Operations Center Forward to help run the show. The forward center, with fewer people and less equipment than a typical contingency AOC, was at the heart of what EFX was trying to accomplish, said Lt. Col. Val Laughlin, JAOC deputy director.

"With this experiment, we learn how to become a more lethal force," he said.

Other EFX '98 tests included demonstrations of Air Mobility Command's new Mobile Microwave Landing System, all-weather precision approach hardware which can be airlifted into place by only one C-130. Existing Air Force air traffic control and landing systems can take up to seven C-130 loads and require two or three days and 33 people to set up.

A C-130 from Pope AFB, N.C., carried a medical evaluation team to EFX and, while doing so, tested AMC's new Remote Location In-Transit Visibility System. This GPS-linked communications equipment is meant to give top commanders a view of where all deployed aircraft and cargoes are, at any given time.

Army participation in EFX was not limited to the 82d Airborne Division paratroopers. An Army Unmanned Aerial Vehicle team from Ft. Huachuca, Ariz., flew a small, boxy Hunter UAV as part of an information superiority experiment. Further tests will explore the integration of Army UAV technology into the Air Force's command-and-control plan.

"It was a perfect match [for EFX], getting the UAV," said Lt. Col. Mark Hamilton, information superiority experiment project director.

U-2 Imagery Declassified

The US on Sept. 17 declassified nearly 1.5 million highly sensitive photo images acquired by U-2 spy planes during the first 20 years of the aircraft's operational lifetime.

The release, covering U-2 imagery taken from 1955 through 1974, opened a window on the early days of one of the nation's most successful classified operations.

The images are now available to the public at the National Archives. They include everything from pictures of Soviet ICBM sites to a shot of an Iraqi presidential palace near down-

town Baghdad taken by Francis Gary Powers in 1956.

Powers was shot down over Sverdlovsk, USSR, in 1960. Until that time, the American public was unaware of the very existence of the aircraft. By the time Powers was hit by a Soviet missile, the US already had flown some 24 U-2 incursions over the USSR.

The man who flew the first U-2 to penetrate Soviet airspace, Carmine Vito, appeared at the special unveiling ceremony to recall that he had been promised by the airplane's designer that Soviet defenses could not reach him. That was correct at the time. Vito flew right over downtown Moscow. Below him he could see defending Soviet fighters vainly trying to reach his 70,000-foot altitude.

"I could see them scrambling," Vito noted. "Two of them collided."

Sunlight glinting off the surfaces of these secret, high-flying airplanes caused many to mistake them for something other-worldly. Almost 70 percent of early test flights resulted in UFO reports, according to a CIA historian.

Much post-1974 U-2 imagery remains classified, as do photos from a massive China overflight project that took place in the 1960s.

T-3A Firefly Out for Two Years

Air Education and Training Command announced Sept. 10 that its fleet of T-3A aircraft will be placed in minimal maintenance status.

That means one of the Air Force's primary training aircraft will probably remain grounded for at least two years as USAF officials try to determine what caused a worrisome series of 66 uncommanded engine stoppages. The engine problems resulted in three deaths.

The T-3A was introduced into the Air Force fleet in 1994 to screen pilot candidates prior to entry into undergraduate pilot school.

The Air Force and the Federal Aviation Administration will continue flight-testing three Fireflies in Colorado Springs, Colo. The Air Force will then make modifications in the entire fleet to resolve the shut-down problem, which has been linked to the fuel supply system of the engine.

The Air Force is studying the possibility of installing some sort of crew recovery system in the T-3. If it does, installation of the system would take 24 months.

Loss of the T-3 fleet has contributed to rising pilot training attrition rates, according to AETC. That is because many students now begin

their Air Force pilot training without completing a pilot-screening program.

In an attempt to reinstitute the screening process, AETC is planning to send pilot candidates to civilian flight training at locations around the country to gain flight experience prior to their entry into Air Force training.

Tricare Senior Prime Experiment Begins

Tricare Senior Prime, a three-year experiment that could help bring 65-and-over military retirees back into the military health care system, was launched Sept. 12 with a ceremony at Brooke Army Medical Center and Wilford Hall Medical Center in Texas.

The San Antonio facilities make up the largest of the six Senior Prime test sites established by recent legislation.

The two Texas medical centers will enroll 10,000 military retirees, almost half the total number of veterans being brought into the Senior Prime project.

The experiment stems from problems caused by the fact that, once a retiree becomes eligible for Medicare, he or she is no longer able to enroll in the Tricare system, under current law. They are still eligible for space-available care in military facilities, but such spots are becoming harder to find.

The test will allow vets to use Medicare coverage to pay for military facility treatment. Over 108,000 retirees in the San Antonio area alone might be eligible for such treatment, if the program is expanded, said Sen. Phil Gramm, Texas Republican.

Gramm said he believes Senior Prime will be made available to all retirees. "I intend to expand the program no matter what it costs," stated Gramm. "These are earned benefits and we should provide these first, before unearned benefits."

Cold War Airmen Interred at Arlington

The remains of 17 US airmen shot down in a single incident during the Cold War were interred with full military honors at Arlington National Cemetery, Va., Sept. 2.

The airmen were crew members aboard a C-130 Hercules that was flying near Soviet Armenia on a reconnaissance mission Sept. 2, 1958. The airplane strayed over the border and was shot down by pursuing Soviet MiGs.

Moscow returned some remains of six of the airmen shortly after the incident. US military medical personnel were able to identify three of them.

The remaining 14 were listed as unaccounted for.

More modern technology allowed the identification of the three other sets of remains in 1996 and 1997. A US Army recovery team visited the crash site in 1993 and brought back many fragments of remains and aircraft wreckage.

Given the incomplete nature of the recovery the remains were given a group identification and buried together at Arlington. A total of 18 US military personnel lost during the struggle with the Soviet Union have now been identified. There are 123 Cold War casualties still unaccounted for.

C-17 Mission Capable Rate May Be Boosted

C-17 readiness has been so good that the Air Force may raise its Mission-Capable-Rate goal.

At present, the Air Force requires that 82.5 percent of the new Globemaster III airlifters be ready to fulfill their missions on a given day. Actual MCRs have been running at 87 percent, and Air Force leaders are considering boosting the goal to 90 percent, Air Force officials said in September.

Overall, C-17 maintenance has been much easier than anticipated. The aircraft is averaging seven maintenance man-hours per flying hour, far short of the 18.6 the Air Force expected. Mean time between repair rate is similarly impressive.

Realignments at Air Force Materiel Command

The Air Force on Sept. 14 announced major realignments at Air Force Materiel Command facilities. Primarily affected are the Air Force Development Test Center at Eglin AFB, Fla., and Aeronautical Systems Center, at Wright-Patterson AFB, Ohio.

Under the changes, the Air Force Development Test Center will be renamed the Air Armament Center. As its new name indicates, it will manage development, test, procurement, and support of all USAF air-delivered weapons. It will change from a test center to a product center, managing the full range of an armament's life cycle.

With the realignment, the center will become responsible for the 377th Air Base Wing at Kirtland AFB, N.M., which was formerly under the Space and Missile Systems Center at Los Angeles AFB, Calif. It will also acquire some Aeronautical Systems Center elements currently located at Eglin.

ASC will now manage the Human

Systems Center at Brooks AFB, Texas. The center will be renamed the 311th Human Systems Wing, with ASC serving as its higher headquarters. The mission of the Brooks unit will stay the same—serving as an advocate for integrating the human in Air Force systems and operations.

Airborne Laser Produces 110 Percent of Power

Team ABL—Boeing, TRW, and Lockheed Martin—has produced 110 percent of the design output power called for in the Airborne Laser program's first laser demonstration module.

This ability to outperform specifications with the initial building block of the ABL system is a significant achievement, according to Air Force officials.

"Meeting this milestone within two years, on schedule and cost, is a remarkable achievement," said Col. Michael W. Booen, ABL System Program Office director. "The continued technical progress demonstrated by the laser test underscores the robust design of the ABL system."

The Flight-weighted Laser Module is a multihundred-kilowatt chemical oxygen iodine laser. The test program for the first FLM was completed in late August at TRW's Capistrano, Calif., test site.

The test program involved 26 laser "firings" over several months. An updated FLM will begin a second series of tests in early 1999.

The Airborne Laser, a modified Boeing 747 freighter, will use multiple FLMs to generate a megawatt-class beam that can shoot down theater ballistic missiles shortly after launch. A live missile shoot-down test is currently set for 2002.

Global Hawk Reaches 61,000 Feet

The fourth flight of the Global Hawk UAV prototype reached an altitude of 61,067 feet. The long-range reconnaissance aircraft is designed to operate for up to 40 hours at altitudes as high as 65,000 feet.

"We have successfully expanded Global Hawk's performance envelope," said Claude Hashem, Teledyne Ryan Aeronautical vice president and program manager, in the wake of the Aug. 29 achievement.

Other objectives that were met during the flight included evaluation of aerodynamic performance, testing of flight control and navigation, and making sure that various UAV subsystems can work so far above the Earth.

"Aerodynamic performance was

very stable, turn performance was as planned, and we were able to turn off the Differential Global [Positioning] System, fly accurately and on track with the onboard inertial navigation system only, and then return seamlessly to DGPS guidance," said Alfredo Ramirez, air vehicle development team leader.

A-10s to Get PGM Capability

The A-10 Thunderbolt II will soon join the list of Air Force aircraft able to deliver precision guided weapons, according to Air Force officials.

The service has now set aside the \$12 million needed to do research and development aimed at integrating GPS coordinates into the aircraft's targeting system. If things proceed according to plan, the money will come out of the 2004 budget. Modification kits would be delivered shortly thereafter, with initial operational capability of PGM-ready A-10s set for 2006.

PGM weapons the A-10 could carry

include the Joint Direct Attack Munition and the Wind-Corrected Munitions Dispenser. The new Joint Air to Surface Standoff Missile would not fit on the venerable cross-shaped airframe.

The Air Force wants to fly A-10s through 2020. That will eventually require regeneration of some 36 aircraft now stored at the Aerospace Maintenance and Regeneration Center at Davis-Monthan AFB, Ariz., said Air Force officials.

F-22 Shaken by Engine Vibration

A slight vibration problem at certain power settings forced Air Force and Lockheed Martin technicians to replace one of the engines of the second F-22 fighter in late August.

Though not a large technical problem, the engine change caused Raptor 02 to be one week off schedule when it made its cross-country flight from Dobbins ARB, Ga., to Edwards AFB, Calif., on Aug. 26.

Since it joined Raptor 01 at Edwards for the flight test program, Air Force officials have been striving to pile up 183 F-22 flight test hours by Thanksgiving, to placate congressional critics who feel the aircraft should be flown more extensively before the first production contracts are let.

Meanwhile, in one of the first official expressions of foreign interest, Australia indicated that it will look at the F-22 as a possible replacement for the aging F-111s currently in its inventory. The Joint Strike Fighter, the Eurofighter, and the French-made Rafale are other candidates, said an Australian official.

More Base Closings—Overseas

On Sept. 3, the Defense Department announced that it will end or reduce operations at six overseas installations as part of the 23d round of base and force realignment actions.

Affected are four installations in

Congressional News

Congress in late September wrapped up work on the twin pillars of annual military legislation—the defense authorization and appropriation bills for Fiscal 1999.

The authorization bill, which sets policy, approves some \$271 billion for the Defense Department and for defense-related operations of the Energy Department and other agencies.

The appropriations bill (which excludes a few categories covered in the authorization bill) came in at \$250.5 billion, or roughly \$3 billion below this year's level, if the effects of inflation are factored out.

Defense-minded legislators were generally optimistic that the bills would be the last drawn up under restrictions mandated by the need to balance the federal budget. They said that next year's budgets might increase to address readiness concerns.

"All of us share the responsibility of reversing the current degradation in our military readiness," said Sen. Pat Roberts (R-Kan.) of the Senate Armed Services Committee.

Personnel

Lawmakers, in perhaps their most significant alteration of the Clinton Administration budget, tacked on additional money to provide a 3.6 percent pay raise for all military personnel. The White House had requested only a 3.1 percent increase.

The authorization bill prescribes an active duty end strength of 1,395,788, nearly 36,000 fewer troops than at

the end of Fiscal 1998. Reserve components are set at 885,322, or 9,937 fewer than in 1998.

Authorization for the Total Air Force: 370,882 for the active-duty force; 106,991 for the Air National Guard; 74,242 for the Air Force Reserve.

Health Care

The authorization bill also included some important test programs for retiree health care. Specifically, it called for a three-year program, carried out in at least six locations, to test allowing Medicare-eligible military retirees and their families into the federal government's general health insurance program.

It approves a two-location test program that will use the military's Tricare health system to supplement Medicare coverage for eligible retirees, as private Medigap coverage does now.

Readiness

Authorization bill airpower highlights include an increase of \$155 million in the aviation spares account. Also on tap is a \$30 million hike in the budget for flight safety modifications.

The authorization legislation also calls on the Air Force to provide a plan for the future maintenance of the C-17.

The bills provide and fund increased spare parts needed to support Air Force and Navy flying hours and additional procurement of ammunition.

The authorizers approved withdrawal of 12,000 acres of public lands,

known as the Juniper Butte Range, Idaho, to support Air Force training at Mountain Home AFB, Idaho.

Aircraft

The lawmakers approved a budget request of \$2,900.5 million for procurement, advance procurement, and spare parts for 13 C-17 airlifters.

The authorization bill contains a requirement that F-22 fighter flight testing reach 433 hours (10 percent of the planned total) before USAF can release advance procurement funds for Lot II aircraft. The Secretary of Defense can waive this testing requirement if he certifies to congressional defense committees that fewer flight hours are sufficient.

Congress approved the purchase of two more production F-22s and continued to fund Joint Strike Fighter development.

Congress cut \$57 million from the Airborne Laser program, but it also increased a few programs:

- \$400 million for six additional C-130 cargo planes, for a total of seven this year.

- \$30 million for the purchase of one F-16 fighter.

- \$50 million to increase the B-2 bomber's modifications and conventional weapons upgrades.

Appropriators agreed to provide \$13.7 billion for Air Force research, development, test, and evaluation efforts. The other major investment account—procurement—came in at \$17.5 billion. ■

Germany, one in Israel, and one in Spain.

To be returned to host nations are the US Air Force's Kreuzberg Maintenance Facility at Ramstein AB, Germany; the US Army's Eselsfuertl Quartermaster Facility at Kaiserslautern and Lohnsfeld Communications Station at Mannheim, Germany; and a Navy fleet hospital in Israel.

The Army's Equipment Support Center Kaiserslautern will be partially returned to its host nation, as will a US military seismic detection station in Spain.

Whale of a Cargo

The C-17 is specifically designed to handle heavy cargo loads with unique weight distribution. That is an attribute which came in handy Sept. 9, when an Air Force Globemaster III hauled Keiko the killer whale from his old home in Oregon to a new harbor pen in coastal Iceland.

The flight took nine hours and two in-air refuelings. The airstrip at Vestmannaeyjar Airfield in Iceland, Keiko's ultimate destination, was only 3,900 feet long—another reason to fly the C-17, which has unparalleled austere runway characteristics.

Keiko was made famous as the star of the film "Free Willy." Subsequent revelations about his substandard living conditions in Mexico made him the focus of an international rescue campaign. The Free Willy Foundation was established to manage his rehabilitation at a Newport, Ore., aquarium.

His new pen in Iceland is intended as a sort of halfway house that will allow him to get used to open spaces and nature while still remaining under the care of veterinarians. Jean-Michel Cousteau, son of the famous explorer Jacques Cousteau and a member of the Free Willy Foundation board, said the hope is that Keiko can become Free Keiko within two years.

A 28-foot tank kept Keiko cool and moist during the journey. Four pallets of ice, fish, and other equipment kept him fed and refreshed. The foundation will reimburse the US government for the cost of the whalelift.

"Flying Keiko home to Iceland demonstrates the ability of Air Force people and [airplanes] to accomplish any mission, anyplace, anytime," said acting Air Force Secretary F. Whitten Peters.

Group Fights for Retiree Health Care

The Class Act Group, a Florida-based organization dedicated to fight-

ing for free lifetime medical care for US military retirees, came to Capitol Hill Sept. 22 in an effort to educate members of Congress about retiree health care concerns.

The group has already sued the federal government to make it live up to its decades-long promises of free or nearly free health care for life. A federal judge dismissed the case, saying the judiciary cannot meddle in affairs of the executive branch, but group leaders have vowed to appeal.

"We believe our membership wants us to fight until the last dog dies," said Tom Pentecost, a retired Marine and self-described "chief of stuff" for the Class Act Group. Interested military retirees can contact the group at (850) 664-6324.

Airlifters Help in Hurricane Crisis

Air Mobility Command in late September flew five medical teams to the stricken Gulf Coast area as Hurricane Georges relief efforts continued. AMC had already flown more than 50 missions in response to federal government requests for delivery of hurricane relief supplies and aid.

Most airplanes flew into NAS Roosevelt Roads, Puerto Rico, where an Air Force Tanker Airlift Control Element from McGuire AFB, N.J., deployed Sept. 22 to lay down command and control for arriving airplanes.

AMC crews delivered to Puerto Rico and the Dominican Republic massive amounts of relief supplies, including water bladders and bottled water, generators, construction supplies, and plastic.

NATO Air Meet '98 Held

Twelve US Air Force fighter and tanker aircraft took part in a major multinational air operation in mid-September at Zaragoza AB, Spain. The exercise, NATO Air Meet '98, ended Sept. 25.

The USAF contingent comprised four F-16 multirole fighters from Aviano AB, Italy; six F-15E dual role fighters from RAF Lakenheath, UK; and two KC-135 tankers from RAF Mildenhall, UK.

All told, more than 90 aircraft and 1,200 troops from nine Allied nations took part in the two-week exercise, which focused heavily on integration of alliance units.

The combined training exercise featured one of the largest concentrations of aircraft ever to gather at one location for an event of this kind, according to NATO officials. Joining the USAF units were forces from France,

Belgium, Germany, Italy, the Netherlands, Portugal, Spain, and the UK.

The flying phase of NAM '98 consisted of seven flying missions, one per day, with different types of tactical air scenarios.

Senate OKs Reserve Commander

The Senate confirmed Maj. Gen. James E. Sherrard III to be chief of the Air Force Reserve and commander of Air Force Reserve Command. The vote was taken Sept. 25.

Sherrard is former commander of 22d Air Force at Dobbins ARB, Ga. He was nominated in April. He replaces Maj. Gen. Robert A. McIntosh as chief of Air Force Reserve, a member of the Air Staff, and principal advisor on Reserve matters to the Air Force Chief of Staff.

Military Policy on Gays Upheld

A federal appeals court in New York ruled Sept. 23 that the Defense Department's "don't ask, don't tell" policy does not discriminate against homosexuals.

The 28-page ruling was handed down by a three-judge panel of the 2d US District Court of Appeals. The court upheld the 1994 legislation that instituted the policy and overturned a lower court decision.

"We will not substitute our judgment for that of Congress," the panel said in refusing to challenge the legislation.

In 1995, US District Court Judge Eugene Nickerson struck down the policy and, in 1997, he drafted a follow-up opinion that the policy discriminated against gays. He cited First and Fifth Amendment concerns.

The appeals court's ruling voids Nickerson's 1997 opinion. The original lawsuit was filed in 1994 by six members of the military shortly after the Pentagon adopted the policy. The six now risk dismissal from the armed services.

USAF Sticks by Ogden, Boeing

The Air Force announced Oct. 9 that it is standing by its original decision on the public-private competition for depot maintenance work that had been carried out at Sacramento Air Logistics Center, McClellan AFB, Calif.

The service had announced Sept. 21 that Ogden ALC, with a Boeing subsidiary as a major subcontractor, was the winner of the "bundled" workload at Sacramento.

However, a week later the General Accounting Office upheld a protest filed before the award decision.



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Darleen A. Druyun, principal deputy assistant secretary of the Air Force for acquisition and management, who was the source selection authority, announced that Ogden, located at Hill AFB, Utah, and Boeing Aerospace Support Center in San Antonio, were the winners. Then, on Sept. 28, the GAO found in favor of a protest from Pemco Aeroplex, based in Birmingham, Ala.

Pemco challenged how the Air Force had bundled the workload package for the bid process. The contractor said the method gave Ogden an undue advantage.

"We sustain the protest," said GAO, although it had previously allowed bundling for the work performed at San Antonio ALC in Texas.

Two weeks later, the Air Force announced that it had decided to proceed with its original award.

The Air Force stated that while it was rare for the Pentagon not to implement GAO decisions, in this case, risk to readiness was its primary consideration. "Implementation of the GAO recommendations would require a delay in award of at least one year and then impose multiple transitions of the Sacramento ALC workload which would severely harm Air Force readiness," according to a USAF statement.

The workload at Sacramento consists of KC-135 programmed depot maintenance, modification installs, and drop-in maintenance; A-10 analytical condition inspection, depaint/paint, modification installs, and drop-in maintenance; and commodities repair for such workloads as hydraulics, electrical accessories, and instruments—electronics.

The Air Force said that the risk to readiness would "rise unacceptably at a time when the KC-135 fleet is already below approved wartime standards."

Ogden will do the A-10 and commodities work at Hill AFB, Utah, and Boeing will do the KC-135 work at what were the San Antonio ALC C-5 maintenance facilities.

Two offerors competed for the contract: Ogden, with Boeing as the major subcontractor, and Lockheed Martin Sacramento Aircraft Center, Inc., with AAI and GEC—Marconi as major subcontractors.

Separate Crashes Claim Lives

An Air Force Reserve Command F-16D crashed Sept. 12 at Avon Park Range, about 50 miles south of Orlando, Fla. Capt. Thomas Carr, a traditional Reservist with Homestead



USAF photo by TSgt. Darrell Board

Pararescuemen from the 58th Special Operations Wing, Kirtland AFB, N.M., assess the situation for an injured mountain climber on this cliff in Colorado. It was 13,500 feet up, which presented a unique challenge for the team's MH-53 aircrew, which had to hover, at times, with less than a 25-foot blade tip clearance from the mountain.

ARB's 482d Fighter Wing, was killed in the accident.

Carr, an American Airlines pilot in civilian life, was in a four-ship gunnery mission at the time of the accident. No one was in the backseat of the aircraft.

First Lt. M. Brice Simpson, the pilot of an F-16 which crashed on the end of the runway at Misawa AB, Japan, July 24, died Sept. 17 as a result of injuries sustained in the accident.

At the time of the crash, Simpson

had ejected safely, but his parachute carried him into the airplane's burning wreckage.

News Notes

■ On Aug. 21, Maj. Mike Brill became the first US Air Force pilot to reach 4,000 flight hours in the F-16. Brill, a full-time air reserve technician and operations officer of the 466th Fighter Squadron, 419th Fighter Wing, at Hill AFB, Utah, set the hourly record in a Block 30 F-16C.

■ The F-117A Nighthawk, which

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has used the same mission planning system since becoming operational in 1983, switched recently to a state-of-the-art Mission Planning System. The new MPS is capable of working with the Air Force Mission Support System—making the Nighthawk the first stealthy aircraft able to use an AFMSS-based system.

■ F-117As have now flown a combined total of 150,000 flying hours. Brig. Gen. William J. Lake of the 49th Fighter Wing put the fleet of 57 USAF aircraft and five Lockheed Martin test airframes past this mark with a sortie from Holloman AFB, N.M., Aug. 25.

■ Osmar Alaniz, head coach of the Air Force Boxing Team, has been named a US Olympic Committee Coach of the Year. Alaniz, a DoD civilian employee of Kelly AFB, Texas, was one of 75 amateur sports coaches in the US named coach of the year.

■ The 1st Combat Communications Squadron, Ramstein AB, Germany, has been named the best small communications and information unit in the Air Force for the second consecutive year. The 1st CCS, which

provides primary tactical communications and air traffic control, put in over 14,000 man-days in the field last year alone, said its commander.

■ A strike by local workers at Incirlik AB, Turkey, ended Sept. 29 after 69 days. The Turkish Harb-Is labor union agreed to a 20 percent pay raise, plus four \$400 quality-of-life payments, seven quarterly cost of living adjustments, and a lump sum payment of \$800. The walkout broke the old base strike record of 44 days, set in 1969.

■ Air Force Capt. Janice Mosely Langer, a medical resident at Eglin AFB, Fla., was recently named one of 20 nationwide recipients of the 1998 Mead Johnson Award for excellence in family practice residency.

■ An F-16C from the 523d Fighter Squadron, Cannon AFB, N.M., crashed near Fort Sumner, N.M., Sept. 1. The pilot, Maj. Kevin R. Frisbie, ejected and survived the crash despite serious leg injuries.

■ AFRC's 939th Rescue Wing, based in Portland, Ore., saved four lives over the course of four consecutive weekends in the closing weeks of summer. Missions involved

plucking a heart attack victim from a US merchant ship, a missing hiker from a ravine, and two ill Filipino sailors from foreign-flag vessels.

■ The US Air Force took delivery of its 42d Boeing C-17 Globemaster III in a short ceremony at Long Beach, Calif., Sept. 21. The airplane was dubbed *The Spirit of Tuskegee Airman* in honor of the pilots and crew trained at Tuskegee AAF, Ala., during World War II.

■ An MH-53 aircrew and a four-man pararescue team from the 58th Special Operations Wing, Kirtland AFB, N.M., plucked an injured mountain climber from a ledge near Pueblo, Colo., Sept. 6. The mountainous nature of the terrain near the 13,500-foot ledge made the mission difficult. "High-altitude hovers were accomplished at times with less than 25 feet for blade tip clearance from the mountain," said Capt. John Conley, helicopter copilot. "It takes a lot of skill on the part of the pilot to carry out a mission like this."

■ Andrew Herr of Latrobe, Pa., winner of the first Air Force Marathon in 1997, successfully defended his title Sept. 19 at Wright-Patterson AFB, Ohio, with a winning run of 2 hours, 27 minutes, 41 seconds. The winning female runner was Heidi McKenna of Colorado Springs, Colo., at 3:17:10. The first place relay team was the US Army, in the Men's Open category, with a time of 2:23:43.

■ Enrollment in the new Tricare Retiree Dental Program has surpassed all expectations. Officials had projected 400,000 military retirees and family members would join the plan over five years, but as of September more than 325,000 people had already joined since the plan's February debut.

■ Scott Ritter, a former member of the UN weapons inspection team in Iraq who resigned in protest over what he feels is laxness in UN policy toward the team's actions, says that Saddam Hussein has seven to 12 Scud missiles on hand in disassembled form and the potential to build another 25 by combining available parts from Iraq's short-range missile arsenal.

■ On Sept. 17, 11 Vietnam veterans sued CNN and *Time* magazine over their since-retracted report alleging that the US military used nerve gas on American defectors during the Southeast Asian war. The suit, filed in federal court in San Jose, Calif., was brought by former soldiers and pilots who either took part in Operation Tailwind in 1970 or were pictured or quoted in the news organizations' stories on the issue. ■

Senior Staff Changes

RETIREMENTS: Lt. Gen. William P. Hallin, Maj. Gen. Roger R. Radcliff, Lt. Gen. Eugene D. Santarelli.

NOMINATION: To be Major General: William A. Moorman.

CHANGES: Brig. Gen. Gary A. Ambrose, from Cmdr., 55th Wg., ACC, Offutt AFB, Neb., to Dir., AF Year 2000 Office, Information & Communications Dir., USAF, Pentagon ... Maj. Gen. John H. Campbell, from Dep. Dir., Ops. (Current Readiness & Capabilities), Jt. Staff, Pentagon, to Vice Dir., DISA, Arlington, Va. ... Lt. Gen. Thomas R. Case, from Dep. CINC, USCENTCOM, MacDill AFB, Fla., to Cmdr., 11th AF, PACAF, Elmendorf, Alaska ... Brig. Gen. (sel.) Kevin P. Chilton, from Dep. Mgr. Ops., Intl. Space Station Prgm., AFSPC, Houston, Texas, to Dep. Dir., Ops., AFSPC, Peterson AFB, Colo. ... Brig. Gen. Jack R. Holbein Jr., from Cmdr., 314th AW, AETC, Little Rock AFB, Ark., to Cmdr., Spec. Ops. Command Pacific, PACOM, Camp H.M. Smith, Hawaii ... Maj. Gen. Tiiu Kera, from Dir., Intel., USSTRATCOM, Offutt AFB, Neb., to Asst. Dep. Dir., Ops., NSA, Ft. Meade, Md. ... Brig. Gen. Timothy J. McMahon, from Dep. Dir., Ops. & Log., USSTRATCOM, Offutt AFB, Neb., to Dir., Nuclear & Counterproliferation, DCS, Air & Space Ops., USAF, Pentagon ... Maj. Gen. (sel.) William A. Moorman, from JAG, ACC, Langley AFB, Va., to JAG, USAF, Pentagon ... Brig. Gen. (sel.) Ronald F. Sams, from Mil. Asst. to Dir., Tech. Security, Defense Threat Reduction Agency, USD for Acq. & Tech., OSD, Arlington, Va., to Cmdr., 55th Wg., ACC, Offutt AFB, Neb. ... Brig. Gen. Glenn C. Waltman, from Cmdr., 341st SW, AFSPC, Malmstrom AFB, Mont., to Dir., Intel., USSTRATCOM, Offutt AFB, Neb. ... Brig. Gen. Bruce A. Wright, from Cmdr., 35th FW, PACAF, Misawa AB, Japan, to Dep. Dir. Information Ops., Jt. Staff, Pentagon.

SENIOR ENLISTED ADVISOR RETIREMENT: CMSgt. Wayne D. Petro.

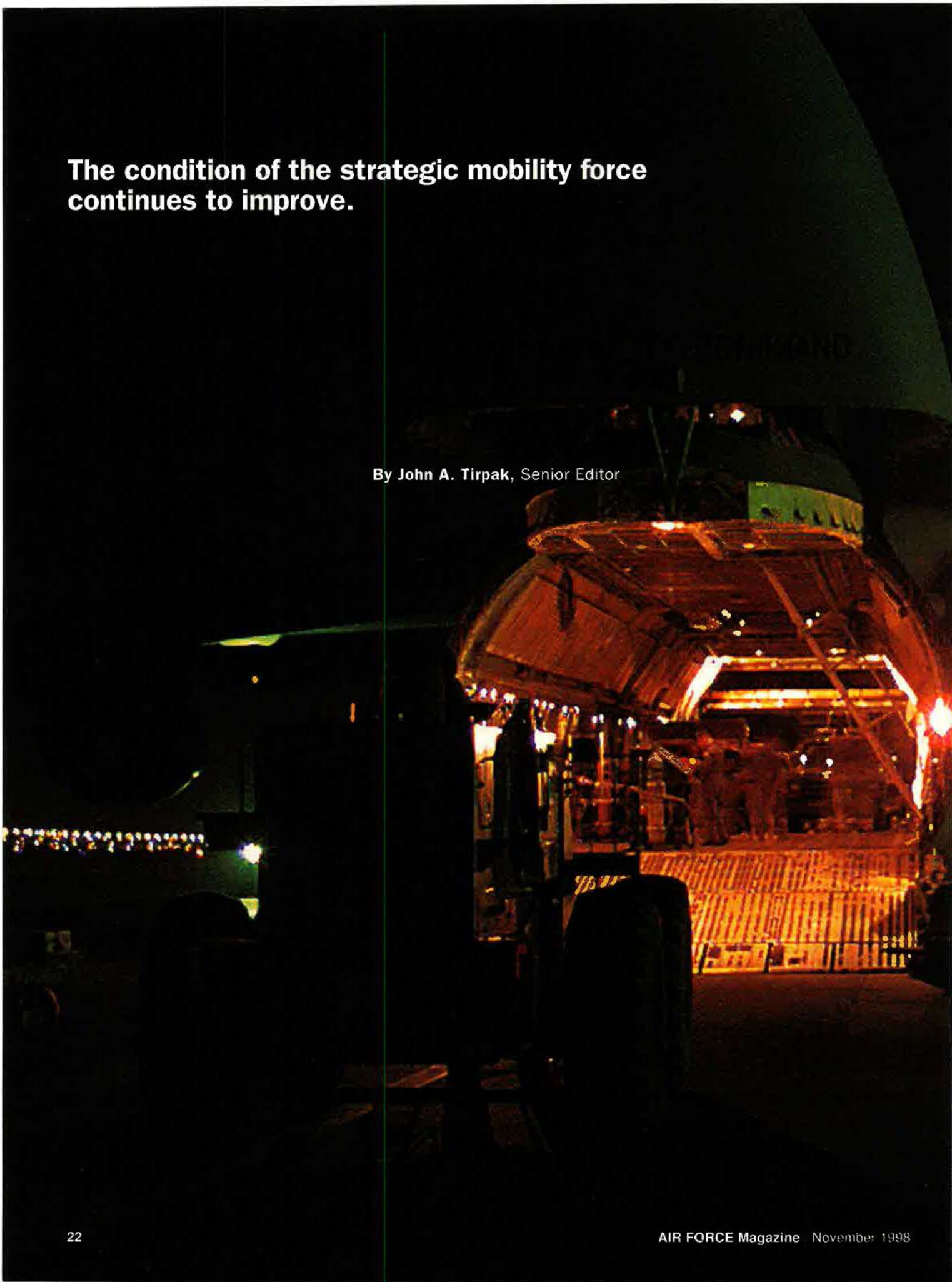
SEA CHANGE: CMSgt. Larry D. Palmer to 11th Wg., Bolling AFB, D.C.

SENIOR EXECUTIVE SERVICE RETIREMENT: Linda G. Williams.

SES CHANGE: Barry E. Fridling, to Technical Dir., Jt. Theater Air Missile Defense Orgn., Arlington, Va.

The condition of the strategic mobility force continues to improve.

By John A. Tirpak, Senior Editor



Heavy Lifters

Open wide: Few airplanes can rival the massive lifting power or astonishing volume of the C-5 Galaxy. Well into its third decade, the C-5 continues to shoulder much of the burden of strategic lift. This one is being loaded through the night at Kuwait City IAP by airmen of the 621st Air Mobility Group from McGuire AFB, N.J. The cavernous cargo hold will be filled with equipment belonging to the 8th Fighter Wing of Holloman AFB, N.M., heading home from duty in Operation Southern Watch.



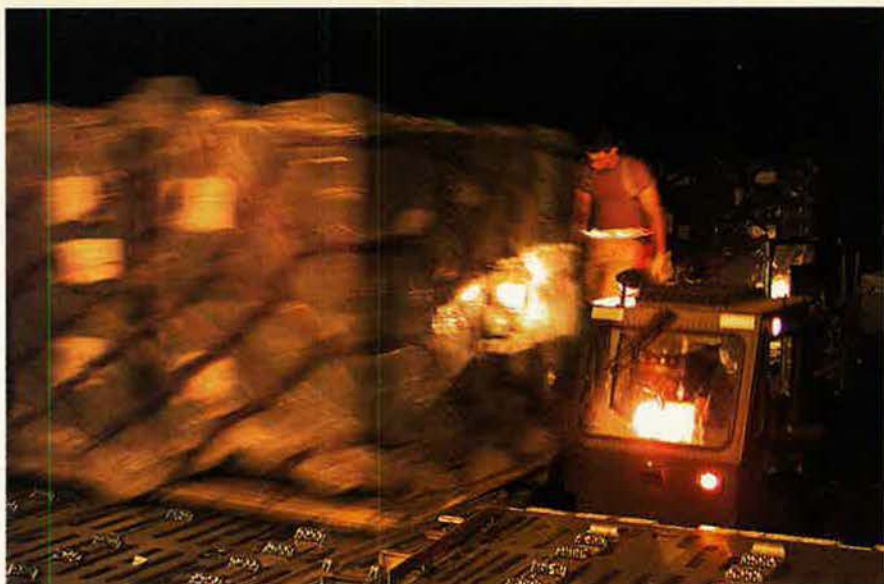
USAF photo by TSgt James D. Messman

FROM a hardware perspective, things couldn't be much better for mobility forces. The Air Force is receiving new strategic and tactical airlifters and loading equipment, the Navy is getting new sealift ships, and the Army is buying new railcars. Pre-positioned equipment is funded and in place, civilian air- and sealift auxiliaries are near full strength, and even some problem infrastructure items—like aging fuel tanks—are getting overhauled.

Mobility forces are “healthy,” Air Force Gen. Charles T. Robertson Jr., the new chief of US Transportation Command and Air Mobility Command, told *Air Force Magazine*.

The state of the force, he said, is a result of lessons learned in the 1991 Gulf War and subsequent defense reviews, the last of which, now two years old, gave to lift more focus and attention than it had received in some time. The Global Air Traffic Management program—which will update Air Force cargo and tanker aircraft to be compliant with new international avionics standards—was even given add-on money once it became clear that, without it, US air mobility forces would be restricted to less-desirable routes and altitudes and denied certain overflight rights. Not even a program, as such, two years ago, GATM is now fully funded, Robertson said.

However, readiness spending—spare parts, depot maintenance, and, especially, operating tempo and ben-



USAF photo by TSgt. James D. Mossman

It doesn't shoot, but it scores. AMC's new Turner 60K loader may not be glamorous, but it's a welcome replacement for aging gear in chronic need of repair. The new loader should boost throughput while freeing troops for other tasks.

efits to AMC people—are front and center as concerns, and he worries about the trends in retention of pilots and crews. The Defense Department is also preparing to overhaul its stated lift requirements, having rethought many of the assumptions that underpin the mobility force size it is now pursuing.

“By every predictive indicator, by every metric we use, we're meeting all the conventional requirements, as we measure readiness,” Robertson said. “Our C-ratings are fine; even departure reliability rates and [mission capable] rates—though declin-

ing—are still in the acceptable range.”

The Unseen Problems

What troubles him most are “the things that you don't measure.” These have to do with the morale-sapping effects of a prolonged, elevated operating tempo; military pay “that is perceived to be inadequate;” turbulence in moving to the “still maturing” Tricare health system; the scarcity of high-quality child care; and problems with things as basic as household goods movement, he said. In the general's view, these are quality-of-life concerns that give a private sector job much appeal at the moment.

With national unemployment so low and given that “the commercial sector right now is doing better than we are” in addressing quality-of-life issues, “we're coming up short,” Robertson observed.

Air Mobility Command has designated 1999 as the “Year of the Family.” The theme is intended to highlight concerns about family life in AMC and help the Air Force take visible steps to improve it, Robertson said. This is especially important, he asserted, because “it's not just [Air Force] members making these decisions” about whether to remain in military service. “It's families. ... And they are ... weighing all these factors” such as child and health care, as well as pay and retirement.

Introduction of the new Expedi-

USAF photo by SrA, Richard T. Kaminsky



The C-141B is heading into its twilight, giving way to the C-17 over the next few years. This one from the 62d Airlift Wing at McChord AFB, Wash., deftly illustrates Global Reach with this ice-strip delivery of vital supplies to Antarctica.

tionary Aerospace Force concept, unveiled this summer, will go a long way toward easing quality-of-life problems, Robertson said. While operating tempo "is high, and it always will be," due to AMC's being a worldwide, constantly in motion cargo operation, the EAF concept will give planners far more lead time in knowing what units will have to move to forward bases at a given time. That in turn will permit AMC to give its crews—Regular, Guard, and Reserve—better warning of when they'll be deploying and for how long.

Moreover, "this predictability" will permit AMC to do a more thoughtful analysis with the warfighting units involved to figure out the most efficient means of moving what really needs to deploy as well as what doesn't.

"We can tailor their requirement to a reasonable load that's right for them and right for us," Robertson asserted. The predictability of deployment will also permit greater use of the Guard and Reserve, he added.

"They want to play more [of a role]; they want to contribute more to the total Air Force mission, and their problem has always been that they are limited in how far in advance they can see a mission," he explained. "Now they'll be able to see them six months in advance ... and make the maximum contribution [possible] to the requirement."

Greater foreknowledge of what it will be doing allows greater Total Force participation and reduces turbulence, which has been a hammer on active retention, Robertson noted.

A Welcome Change

The EAF concept "is a good thing for AMC. ... It is an idea whose time was probably a year ago; we should have thought of it sooner," he said.

The timing of the EAF coincides with the launch of a new Mobility Requirements Study. Known as the MRS—Bottom Up Review Update, or MRS—BURU, this study will kick off this fall and is a follow-on to the one done for the 1996–97 Quadrennial Defense Review. It will set the stage for the next QDR's discussions on lift requirements. The MRS—2005 begins with a fresh set of assumptions.

The new study, being undertaken by the Office of the Secretary of Defense and Joint Staff, drops the



This C-17 is giving NASA's Mars Climate Orbiter a lift from Denver to a launchpad in Florida. Once thought doomed by bad management, the C-17 program is doing so well that the Air Force may add on to its planned 120-airplane buy.

notion that mobility forces will begin from a standing start in the next war, garrisoned in the continental US. Instead, it is now assumed that mobility forces will be deployed around the world—as they commonly are—when the next war starts.

The MRS—BURU also only set requirements for supporting two nearly simultaneous Major Theater Wars that would begin roughly 45 days apart. It did not include other missions that might be required, such as strategic brigade airdrop, special operations, and nuclear war operations. In a synopsis of the new assumptions, USTRANSCOM noted that "a one-MTW in combination with any of these [additional missions] could be a driving factor in force structure decisions. The MRS—BURU only looked at a two-MTW scenario without any other [National Command Authority]—type missions."

Moreover, the study will consider the force in light of a tightened time interval between the two MTWs—the period having dropped from 45 days to 30 days. This has implications for the call-up of Guardsmen, Reserves, and the Civil Reserve Air Fleet and decision times for activating them. The Joint Staff now considers the previous 45-day interval "very optimistic," according to USTRANSCOM.

While the MRS—BURU assumed that "all allied nations would support mobility operations," it didn't consider that an ally might either con-

tribute some lift capability of its own or deny host nation support, especially if it is under threat of weapons of mass destruction. The MRS—2005 will weigh these possibilities.

The concept of "fort-to-foxhole" operations will underlie the MRS—2005, and counted in it will be constraints at CONUS bases, the en route system, and the processing capacity at receiving ports overseas. The MRS—BURU focused only on strategic lift, port-to-port, and some en route capacity.

One program that will be strongly affected by this reconsideration of airlift assumptions is USAF's C-17 Globemaster III transport. More than 40 C-17s have already been delivered and more are coming at the rate of about one per month. So far, except for small growing pains normally associated with introducing a new system, the C-17 has performed admirably, and within five years, all of the planned 120 aircraft should be in service. The addition of the special operations element on MRS—2005, however, could raise the requirement to 135 C-17s.

Roots of the Requirement

When AMC set the C-17 requirement at 120 aircraft, it neglected to consider the need to replace a squadron of C-141s performing a special operations role, Robertson noted. After TRANSCOM and AMC conferred on the issue, officials determined that the Air Force needed

"about 15 C-17s" to fulfill the special ops requirement, which is over and above the 120 needed for strategic mobility.

The 120 C-17 fleet "only provides you the capability to meet, with moderate risk, the requirement for two [Major Theater Wars]," Robertson explained. "If we pull 15, or whatever the requirement is, for special operations, you reduce that airlift capability" for the warfighting commanders in chief.

There may be alternatives to buying C-17s and no decisions have been made, Robertson said, because there is "plenty of time" to decide the issue before the Globemaster III line starts to shut down.

The C-141 will depart from Regular service in 2003 and will be out of the Total Force inventory in 2006. Last to go will be the SOF aircraft. Robertson said he is not worried about the availability of spare parts or USAF's "sense of ownership" on the Starlifter for the years when it is a Guard and Reserve airplane exclusively.

"Because we paid attention and thought about it and built the contingency plans and got all the right players involved before it became a problem, it has turned out not to be one," Robertson asserted. While it is true the flow of new-production spare parts will slow down once the C-141 leaves the Regular force, the C-17s that have already retired and will be in storage at Davis-Monthan AFB, Ariz., will be available for parts, he noted.

"We will ... take care of the reserves" when they take over the C-141, he said. "The system will continue to repopulate the parts. ... Bases will continue to train for the C-141. ... We'll continue to do just what we're doing today."

The only major unresolved airlift hardware issue concerns what to do about the C-5 Galaxy.

"The C-5 has the lowest [mission capable] rate, the lowest departure reliability, the highest cost per flying hour, the highest maintenance per flying hour," Robertson noted. "We need to do something about that."

Replacing the C-5 with a new airplane is considered extravagant, since the type still has perhaps 15 years of service life remaining without a structural improvement. Evidently, an upgrade is the most cost-effective option, but AMC is looking at all alternatives.

"I can't say with 100 percent certainty" that an upgrade will be the option chosen, said Robertson, "but it makes sense." While a solution is needed as soon as possible, Robertson said he's aware that the "pot" of projects demanding money "is about full." It will be five years before a comprehensive upgrade could begin in earnest.

Billions to Fix

The most pressing need is to replace the C-5's engines. Waiting in the wings is state-of-the-art equipment that would be vastly more reli-

able and fuel efficient and which could in one step resolve most of its departure-rate woes. That and a raft of other enhancements would increase the C-5's departure reliability from 70 percent to 95 percent with a 75 percent mission capable rate. Two separate studies conducted by Lockheed Martin and the Institute for Defense Analyses determined that such a program would cost nearly \$5 billion. Currently, the Air Force does not have that kind of money to spare.

The Air Force wants to make a start, at least, toward addressing the C-5 problem. According to Robertson, it currently has under way a modification program to replace the engines' high-pressure turbines. It costs \$250,000 per engine to carry out the program, a manageable expenditure that will increase the amount of "time on wing" for each engine from 1,200 hours to as much as 3,000 hours, Robertson said. This increased interval between engine overhauls will help with reliability, but it "certainly is not where we need to be," when modern airliner engines average 8,000-10,000 hours between overhauls.

"It's obviously an interim fix," he said. The good news is that the engine fix "will pay for itself" in just a few years through avoidance of the cost of so many engine change outs.

In addition to GATM-required avionics in the C-5's cockpit, there will be additional navigational, communications, and safety changes to the C-5, collectively priced at about \$900 million. It is "working its way through the contracting process now," said Robertson.

The comprehensive upgrade, if it comes, will include many costly improvements. Besides the re-engining, the program would feature installation of a glass cockpit, new hydraulics, new landing gear, and structural improvements to the wing—"the same sorts of things we did with the KC-135," Robertson added. Until such an overall refurbishing is under way, "the C-5 is a worry," he said, especially since, during the transition from C-141 to C-17, it will be "the backbone of air mobility."

The KC-135 update, coupled with an aggressive program to "turn back the clock" on the aging Stratotankers, is yielding excellent results, Robertson said. Corrosion is the major headache with the KC-135, but "if you

USAF photo by SSgt. Paul Holcomb



The first PACER CRAG KC-135 arrives at the 905th Air Refueling Squadron, Grand Forks AFB, N.D. An updated cockpit and radar, plus GPS and other navigation improvements, will make the tanker viable for decades more.

talk to the experts, and take their word for it, they've turned the corner on that," Robertson claimed.

Under a program called Coral Reach, massive amounts of data have been collected about how—and specifically where—KC-135s will experience the most corrosion. Robertson noted that, at Oklahoma City Air Logistics Center, Tinker AFB, Okla., officials "have pretty good confidence ... that they can predict where the problems are going to be the next time the aircraft comes in for depot maintenance."

Each visit to depot maintenance is getting shorter as corrosion problems are found, sanded off or patched, and then sealed with an anti-corrosive agent. "They are better able to prepare for, take apart, repair, and send back out" a KC-135 "in less time," Robertson said.

Still Spry

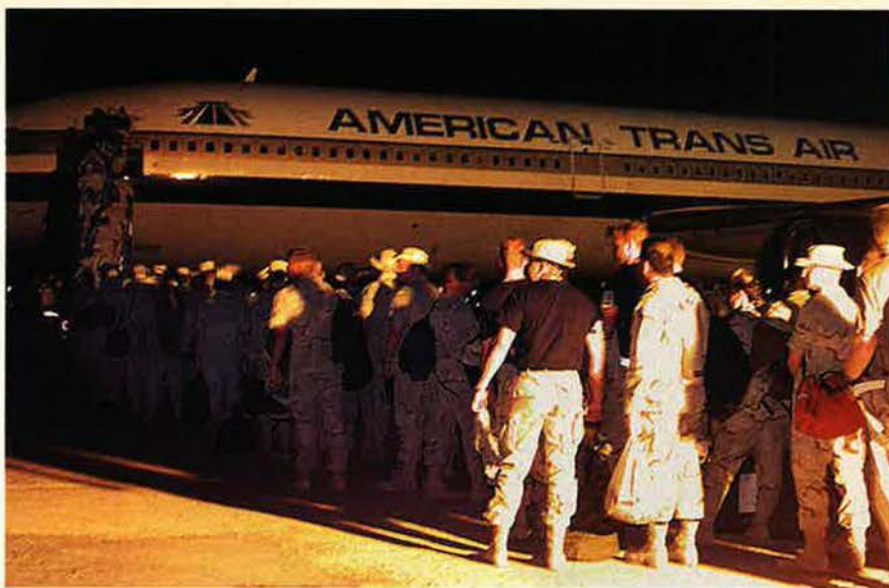
The KC-135, upgraded with GATM-compliant avionics and other improvements through the PACER CRAG program, should remain in service "farther out than we can predict," Robertson added. Though it is chronologically an old airplane, the KC-135 spent many of the Cold War years simply sitting alert to refuel nuclear-armed bombers. In that role, it did not rack up flying hours at a great rate. The aircraft's structure is still fairly young.

"It's going to be around awhile, and it's going to need to be, because we have a tremendous need for it," Robertson observed.

AMC has looked at replacing the tanker fleet. Boeing has tabled a proposal for a 767-derived tanker; a similar derivative of the C-17 has been discussed. However, said Robertson, "all the evidence indicates ... it is not a higher priority than some of the other things that are more troublesome."

GATM regulations have already gone into effect in some places, and AMC is hard hit because its mandate is to be able to go anywhere at any time. Some airlines which operate only in a given area do not need to comply with all GATM rules, just the ones that govern their region. Rules for altitudes and aircraft separation differ from ocean to ocean and continent to continent.

Robertson noted that the KC-10 is not an airplane that gets much public



USAF photo by TSgt. James D. Moseman

Participation in the Civil Reserve Air Fleet is near all-time highs. Under CRAF, commercial carriers agree to let their airplanes be drafted in wartime, taking on most of AMC's passenger load and a good part of its palletized cargo.

mention. He said that the airplane has no glaring mechanical or structural problems, is only about 10 years old on average, and is a "stalwart performer" with regard to mission capable rates and departure reliability as both a tanker and an airlifter.

There is some "serious" commercial interest in the C-17 as both a cargo carrier and even as a tanker, Robertson said. Some airlines are contemplating the use of commercial tankers to refuel airplanes on especially long routes—a move which would save the considerable time and expense of en route airport landings and refuelings.

Air Mobility Command would welcome commercial sales of the C-17 in both roles, and it is watching commercial developments closely "to see how they might fit in with CRAF."

CRAF Comes Back

Under the Civil Reserve Air Fleet program, commercial carriers agree to be on call for national emergencies, ready to carry troops or materiel to a far-off contingency. In exchange, they are not only paid for their services but are compensated in other ways—for example, by getting preferential treatment in the award of contracts for package delivery, government passenger travel, charters, and cooperative use of military air facilities.

Airline participation in CRAF has been "very good" for the last four years, Robertson said. Participation

fell in the period immediately following the Gulf War, which saw the first major call-up of CRAF assets. Carriers became worried about insurance on their aircraft, safety of their pilots, and loss of market share to nonparticipating rivals for duration of the conflict.

Retired Gen. Ronald R. Fogleman, then head of USTRANSCOM (later Air Force Chief of Staff) established preferential policies that brought CRAF participants back. Today, most CRAF categories are full or even oversubscribed.

"We've met every requirement [in CRAF] except for aeromedical evacuation," Robertson noted. In that category, he continued, "we're five airplanes short," but the requirement is being reconsidered and alternatives are under study, so he is not worried, especially since the requirement is in Stage III, the last stage of CRAF to be called up.

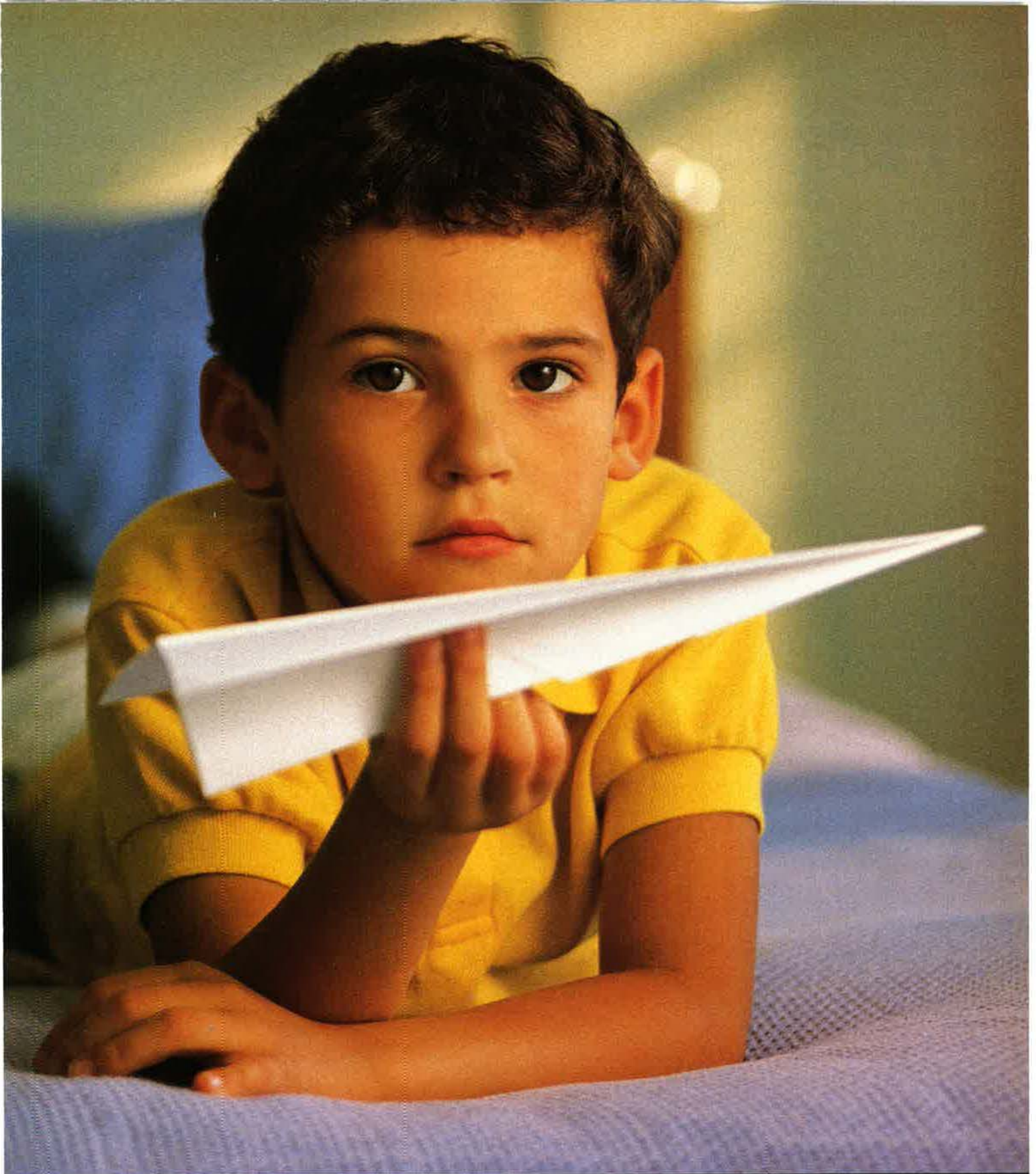
The program is well above required capacity elsewhere in Stage III. In wide-body equivalents, the requirement is 136 airplanes and participation exceeds 170. Likewise, in cargo, the Stage III requirement is 120 airplanes, and the actual capacity is more than 175.

Given that the program yields a huge chunk of national airlift capacity during wartime, said Robertson, "CRAF is good for the Air Force, DoD, and our industrial partners, and we're going to try to keep it that way for all of them," Robertson said. ■

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Two years after Khobar Towers, the armed forces have made great strides in force protection measures.

To Protect the Force

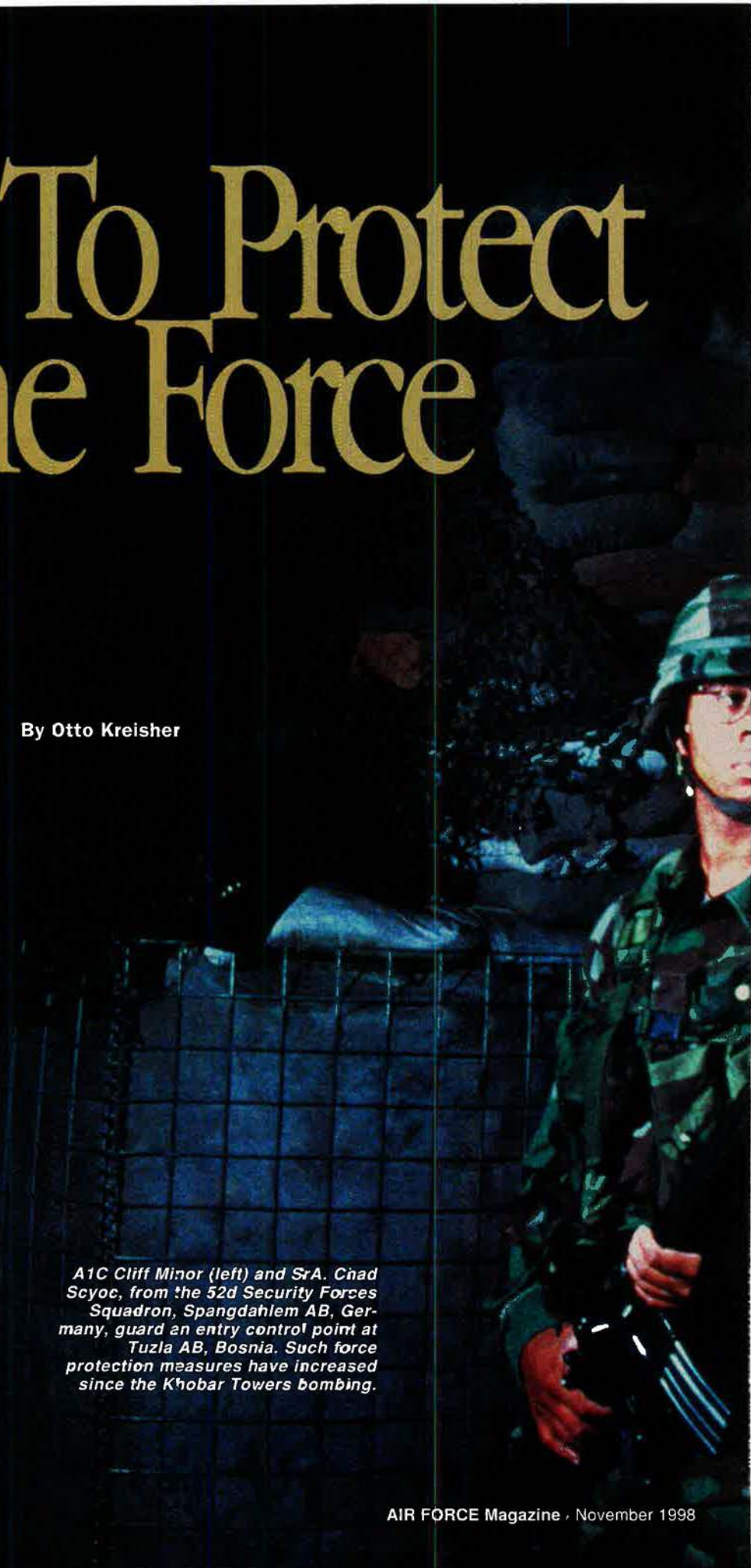
A pair of terrorist bombs that shattered US embassies in Kenya and Tanzania were bloody reminders to American armed forces of the dangers facing them around the world every day. Although only three service members were among the 12 Americans killed in the truck bomb attacks in Nairobi and Dar es Salaam, the 250,000 US military personnel deployed overseas represent a large and tempting target of terror.

"These bombings," said Defense Secretary William S. Cohen, "are a stark reminder of the threat to US personnel posed by terrorists whose only means of attacking America is through such cowardly acts."

Despite efforts to improve security, Cohen said, the bombings show that Washington will never be able to eliminate all the risks that US troops and diplomats face when they serve in foreign nations. Even so, the Pentagon, made painfully aware of that vulnerability by a number of deadly incidents in recent years, is making force protection one of its top priorities.

"We now feel pretty confident that when we send our troops into harmful situations... the commander himself focuses on the force protection issue," said Adm. Harold W. Gehman

By Otto Kreisher



A1C Cliff Minor (left) and SrA. Chad Scyoc, from the 52d Security Forces Squadron, Spangdahlem AB, Germany, guard an entry control point at Tuzla AB, Bosnia. Such force protection measures have increased since the Khobar Towers bombing.





Although many new security measures had been implemented at the Khobar Towers high rise, it was not enough to deal with a truck bomb that detonated with the equivalent of 20,000 pounds of explosives.

Jr., whose US Atlantic Command is a force provider to the other unified theater commanders.

That focus on force protection has been sharpened considerably since a massive truck bomb devastated the Khobar Towers housing complex in Saudi Arabia on June 25, 1996, killing 19 Air Force personnel and injuring about 500 Americans.

Oasis No More

The bloody attack on the Dhahran facility, which housed about 3,000 US personnel and several hundred Allied forces conducting the Operation Southern Watch missions over Iraq, was all the more shocking because it occurred in a country then-Defense Secretary William J. Perry noted had long been seen as "an oasis of calm and safety" in the tumultuous Middle East region.

There had been a warning that conditions had changed seven months earlier when a car bomb exploded in Riyadh, killing five Americans assigned to the security assistance team working with the Saudi Arabian National Guard.

Though security at Khobar Towers was improved following that blast, it was not enough to deal with the unprecedentedly large bomb packed into a fuel truck that stopped against the concrete barriers around the high-rise complex. As Air Force security personnel tried to react, the force of about 20,000 pounds of explosives destroyed the front of the

nearest building, turning window glass and concrete walls into deadly shrapnel.

Bloody though it was, Khobar was neither the first nor the worst terrorist attack on US military personnel. In 1983, a truck bomb caused the collapse of a building housing Marines in Beirut, Lebanon, killing 241 American servicemen—most of them Marines.

The repercussions of the Khobar blast were felt intensely in Washington, stimulating a sweeping change in the way the services look at force protection. "Khobar Towers was a point in Air Force history that refocused us ... on protection of the force," said Brig. Gen. Richard A. Coleman Jr., chief of Air Force Security Forces. He went on to say, "Force protection is an inherent part of the mission, now. That's the culture the Air Force has adopted."

The road map for the force protection efforts since Khobar is the report from the commission Perry appointed to investigate the bombing. The panel, led by retired Army Gen. Wayne A. Downing, described a security structure at Khobar and elsewhere in the Persian Gulf that had been hobbled by fractured chains of command, confused security standards, poor intelligence, shortage of properly trained and equipped security personnel, and a general lack of emphasis on force protection.

"A comprehensive approach to force protection is required," re-

ported the former commander in chief of US Special Operations Command. Although there were disturbing similarities between that report and the findings of the commission that studied the Beirut bombing, the Pentagon's response to Downing—unlike in 1983—was swift and extensive.

Perry ordered immediate implementation of many of its major recommendations, declaring that, when planning to deploy forces overseas, commanders "will place the threat of terrorism front and center."

One of the first actions to improve security after Khobar was the relocation of essential personnel in the Persian Gulf area to quarters that were easier to defend.

Within months, all Southern Watch operations and assigned personnel had been moved from Dhahran to Prince Sultan AB, Saudi Arabia, a desolate outpost in the desert south of Riyadh. Whereas the old facility had a security perimeter that was within mere yards of critical structures, the new base allowed miles of empty space between the first security posts and the occupied facilities.

Elaborate Protection

Those Americans working with the Saudi National Guard and the Army Patriot missile crews had to stay in Riyadh, but most of their quarters and offices were moved into Eskan Village, a walled compound guarded by an elaborate set of sensors called the Tactical Automated Security System.

"I defy you to find a better protected base anywhere," Coleman said.

Air Force personnel who were deployed to Kuwait and the United Arab Emirates also were moved from their urban quarters to nearby air bases. Security was enhanced around the three relatively remote compounds holding Army pre-positioned equipment in the Gulf. Nearly all of the US dependents in the Gulf were sent home as most of the assignments in the region were converted to unaccompanied tours. Technically, the Navy usually has the most personnel in the Gulf region, but most of them are aboard ships that spend much of the time under way, reducing their vulnerability to the usual terrorist attacks.

Downing had high praise for the Marine Fleet Anti-terrorism Security

Team that protects Navy facilities in Bahrain. In addition to sending the FAST platoon to Bahrain after Khobar, the Navy nearly doubled the size of its compound to hold more of its shore-based personnel and to expand the security perimeter.

Most of the urgent security improvements after Khobar were undertaken in the US Central Command area. However, force protection efforts increased markedly elsewhere.

The Air Force, for example, moved quickly to tighten the security for two radar stations established in the jungles of South America as part of the American counterdrug operation. A sophisticated system of night vision equipment and remote sensors and improved weapons greatly extended the reach of the security personnel protecting the isolated bases in the violence-torn region.

Force protection also has been a primary—perhaps dominant—concern for the Army commanders of the peacekeeping mission in Bosnia. That focus on security, which includes a ban on alcohol and mingling with the local population, has created some morale problems but has paid off in zero casualties stemming from hostile action.

Another immediate response was the creation of a new office in the Joint Chiefs of Staff organization to be the focal point for force protection throughout the services. Marine Brig. Gen. James T. Conway, the first director of the new office, said



DoD photo by Sgt. Jean-Marc S. Schiabile

At Bright Star '98 in Egypt, SrA. Clint A. Reynold, A1C Thomas Heinz, and their military working dogs from the 341st Security Forces Squadron, Malmstrom AFB, Mont., were part of a more comprehensive approach to force protection.

all of Downing's 81 recommendations were acted on within a year, with "the strong assistance" of the commander of Central Command, who had much of the action.

The JCS group clarified who had the force protection authority for deployed forces and dependents in each region, publishing doctrine and standards to guide local commanders and acting as a catalyst for finding or developing technology to enhance force protection, Conway said.

Another key step was setting up a four-tier system of training for the terrorist threat and for development

of unit and individual measures to reduce the risks, Conway said.

The first level of training focuses on individual service personnel and dependents who are about to be deployed. The second concerns NCOs and junior officers who will teach force protection in their services. The others are for unit commanders and senior commanders and staff officers who will implement these new security provisions.

Tapping Into Intelligence

Conway's office also has worked to implement Downing's call for more intelligence focus on terrorism and better distribution of essential information. After Khobar, the Defense Intelligence Agency created the Office of Counterterrorism Analysis to study terrorist organizations. In addition, the JCS asked the FBI to provide better warnings of terrorist threats. Finally, more unit commanders gained access to a secure intelligence data network.

Because of the improved flow of intelligence, Conway said, the JCS has stopped asking if theater commanders have the latest information and now ask, "What are they doing about it?"

The JCS office also established five vulnerability assessment teams. They are expected each year to conduct about 100 studies of the force protection capabilities of military units around the world, Conway said. Those assessments are not something

USAF photo by TSgt. James D. Moesman



Increased security measures now include searching foreign nationals who enter Al Jabbar AB, Kuwait. A1C Nathan Schweitzer (left) and Amn. William Green are with the 4406th Operations Group.



In a training exercise at Ft. Polk, La., USAF personnel dodge sniper fire, on the alert for enemy forces. The first level of a new four-tier system of training against the terrorist threat focuses on individuals about to be deployed.

that a commander should fear, he said, noting, "We're out there to try to help him protect his people."

The services have launched their own force protection improvements. The Air Force in particular has moved aggressively because of the potential vulnerability of units during its highly mobile operations. Even before Khobar, Air Mobility Command decided to create a group of specially trained security personnel, called the Ravens, to protect its strategic airlifters when they are sent to high-risk areas.

"Before the Ravens, we sent our aircraft out around the world with very little protection," said Col. Lawrence R. "Rocky" Lane, chief of security at AMC.

Now, the Ravens analyze the security risk for a proposed mission, suggest ways to minimize the dangers, and send a team to protect the aircraft and to help the crew avoid danger, Lane said. "We've instilled security in everything AMC does," he said.

This attitude prevails throughout the Air Force, Coleman said. "The question is asked every time before we deploy: How's it [the force] going to be protected?" he said. "We will not move resources anywhere anymore unless they're protected."

One force protection initiative was the creation of the 820th Security Forces Group at Lackland AFB, Texas, which is intended solely to deploy on short notice.

"It will play a big role" in the

operations of the highly mobile expeditionary force of the future, Coleman said.

The Air Force also has changed the training of its security personnel to put the emphasis on the skills needed to protect the force; has bought armored vehicles to replace its thin-skinned security vehicles; and has bought "an unequaled amount of night-imaging equipment," Coleman said.

Another key step was creation of a Force Protection Battlelab, at Lackland, to expedite the flow of new technology and concepts to the force. "We go find innovative ideas ... and nurture them to the point that they can be taken to the field," said Col. Donald J. Collins, the lab's commander.

Lab Work

The lab's first mission was helping to enhance the security of those radar sites in South America, Collins said. The package of sensors developed for those sites is being modified into kits for deployment with future Air Expeditionary Forces or other units, he said.

The lab's next two priorities are developing sensors to detect explosives in large vehicles, such as the truck that destroyed Khobar, and an Unmanned Aerial Vehicle that can

extend the threat detection perimeter beyond visual range by day and night, said Collins.

The explosives detection package is set for a proof-of-concept test in November, he said.

The lab also is working on better ways to detect biological agents in food or water and on a computer program that will allow a commander to assess the threats against him and effectiveness and cost of protective measures, Collins added.

Those concepts are being shared with the other services and federal agencies, as are many of the force protection initiatives being developed by other commands, he said.

The services also have put their money where their mouths are in the greater emphasis on force protection. Coleman said spending on security in the Air Force has doubled since Khobar, and Conway said total DoD spending on force protection went up from \$3.2 billion to \$3.5 billion.

Even so, there still exist shortages in funds, equipment, and, particularly for the Air Force security forces, personnel. Coleman said his force is under strength and has dipped recently because of low retention caused by the stress of increased deployments, but he voiced hope that recruiting and retention incentives will bring the security force back to strength within a year.

Regardless of how much resources are put into force protection, the experts acknowledged there are limits to what they can do. In the first place, Lane noted, "Force protection cannot be the mission. If it is, we don't get the job done." And despite the efforts, everyone concedes that, somewhere, sometime, a terrorist will succeed again in attacking Americans.

"The terrorist tries to look for the weak target," Conway said. "We can do [our] absolute best ... as commanders at given installations, but one of us is weaker than the others. ... That's where the terrorist will go."

Coleman said he tells his security force that "right now, some guy is out there plotting evil against the United States. It's your responsibility to make sure he doesn't succeed." ■

Otto Kreisher is the national security reporter for Copley News Service, based in Washington, D.C. His most recent article for Air Force Magazine, "In the Sandbox," appeared in the August 1998 issue.

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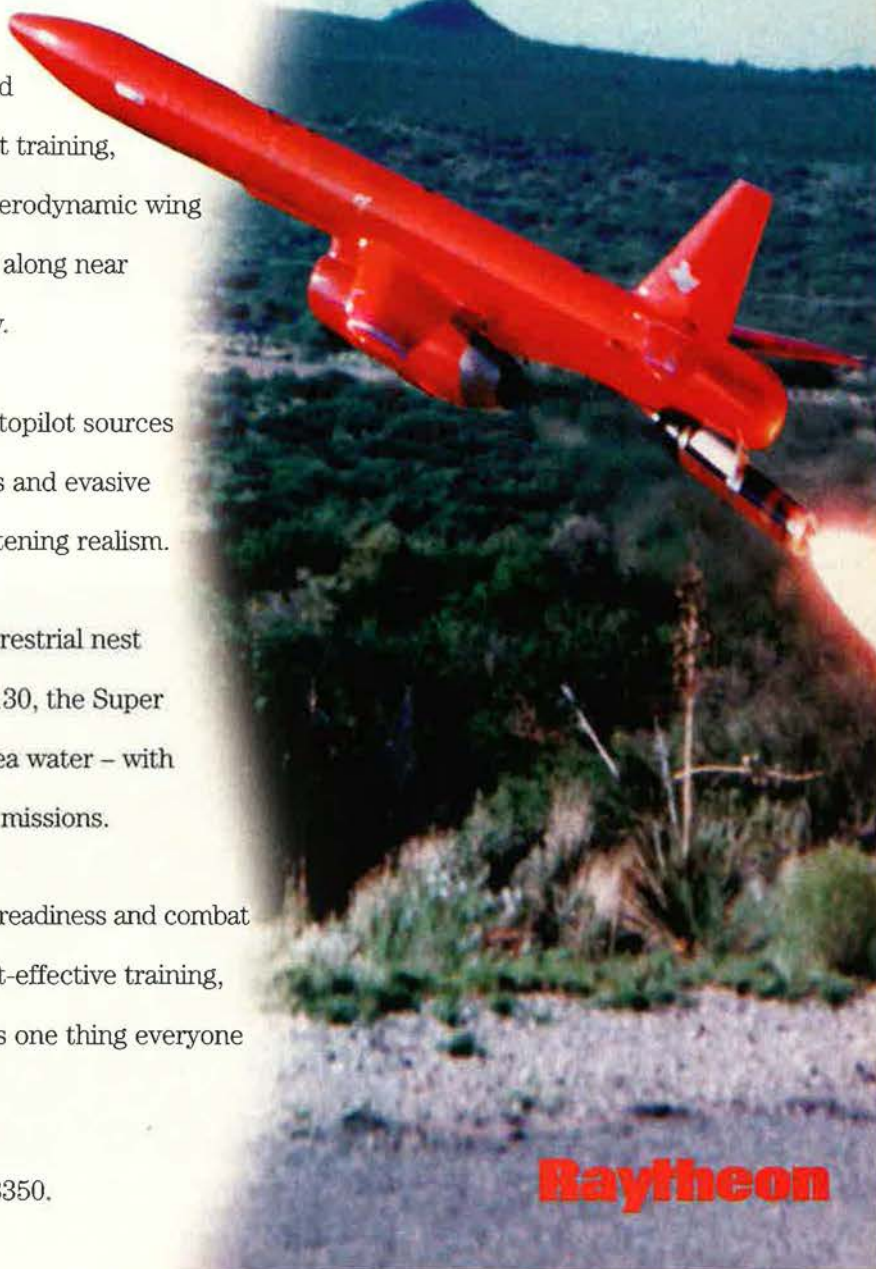
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The Air National Guard and the Air Force Reserve have taken on more of the Total Force job. Along with the new responsibilities have come additional problems.

Pressures on the Guard and Reserve

By Bruce D. Callander

IN recent years, the Air National Guard and Air Force Reserve have taken on a greater share of the missions traditionally performed by active duty members. In the process, they also have taken on some of the problems associated with the frequent deployments of today's optempo.

This load sharing has allowed the service to meet expanded commitments with a shrinking active force. But, at the same time, it has increased the concerns within the reserve components—the Air National Guard and Air Force Reserve Command—about the future of recruiting and retention.

Like their active duty counterparts, Guard and Reserve leaders see a need for improved personnel compensation, weapons modernization, and greater public support of the military.

Guard and Reserve officials also share the hope of active duty leaders that measures such as reorganizing the service into Air Expeditionary Forces and easing the requirements for inspections, exercises, and non-combat training will reduce optempo and improve morale and readiness.

Historically, USAF's two reserve components were the backup elements for the standing military establishment. Until recently, their units were, in theory, equals of the active duty forces, but in fact they often were inadequately trained and poorly equipped.

As the post-Cold War drawdown



Three fighters from New Mexico flying over the Persian Gulf symbolize the Total Force partnership: F-16Cs from the 523d Fighter Squadron, Cannon AFB and the 188th FS (ANG), Kirtland AFB, and an F-117 from the 9th FS, Holloman AFB.

USAF photo by A1C Greg L. Davis

shrank the active force, however, the Guard and Reserve came to enjoy a more equal partnership, acquired first-line equipment, and gained a higher state of readiness. With the end of the Cold War and the advent of new humanitarian, peace-keeping, and contingency missions, ANG and AFRC forces deployed increasingly to overseas locations where they normally would have been sent only in time of war.

Rising Ratio

This arrangement proved to be cost-effective. As the Air Force trimmed its expensive permanent forces, it turned more and more to the less costly Guard and Reserve units to take up the slack. While the Guard and Reserve also have undergone strength cuts, they have not shrunk as fast as the active forces. ANG still has some 108,000 members and AFRC, about 73,000. The result is that the reserve components now make up about one-third of the Total Force, compared with a quarter 10 years ago and 12 percent in the 1960s.

Today, ANG provides all of USAF's air defense interceptor force, 44 percent of its tactical airlift, and 43 percent of its air refueling tankers. AFRC flies all of the force's weather reconnaissance and aerial spraying, almost 30 percent of its rescue missions, and a fourth of its C-5 and C-141 airlifters. Combined, the reserve components supply almost 40

percent of the service's fighter strength and one-fourth of its bomber capability.

In the future, officials say, the Guard and Reserve will do even more of what has traditionally been the work of the active duty force.

"We have already assumed some new missions," said Brig. Gen. David S. Sibley, assistant vice commander of Air Force Reserve Command. "We are growing in our participation in missions in space, in our associate programs, and in our contribution to Air Education and Training Command."

The AFRC now operates its own 310th Space Group at Schriever AFB, Colo. ANG has activated the 137th Space Warning Squadron, located at Greeley, Colo. The Guard also is working with Air Force Space Command to explore ways to increase its involvement in the space mission area and with Air Combat Command to see where ANG can participate in the unmanned aerial vehicle mission.

Under the associate unit plan, Reserve units share aircraft and equipment with active duty units. "Every place where there is an active duty C-5, C-141, C-17, or C-9 unit," said the general, "there is an Air Force Reserve wing side by side at that location, flying the same planes."

Recently, the associate approach has been applied to the training area as well. As a test, AFRC began supplying flight instructors for the lead-in fighter training programs at Vance

AFB, Okla., and Columbus AFB, Miss. "It has become such a successful program," Sibley said, "that AETC wants to expand it to all airplanes in flying training and put AFRC instructor pilots at every flight training base."

"I think we also will see growth in the fighter business," the general said. "We have just begun a test of the associate fighter program at Shaw AFB, S.C., in F-16s where AFRC pilots are flying the same fighters as active duty pilots. We're going to expand that test, probably to include F-15s in the associate business at Langley AFB, Va., and see how that works."

The theory behind the associate approach is that modern airplanes are capable of flying more often than the active force can use them. "As you know," said Sibley, "the next fighter to come on line is the F-22. I think that airplane will have a compatibility to fly day and night in all weather, and we will not be able to afford the crew ratio full time to fly it as it should be flown. So, I see it as a very compatible aircraft for the associate fighter program."

Today's reserve components do far more than relieve active members so they can do the tougher jobs. Both ANG and AFRC now share the burden of deployment and contingency operations.

"Rainbow"

At any given moment, several thousand Guardsmen and Reservists are deployed overseas with airlift, fighter, and refueling aircraft. They provided a large portion of the forces for the Gulf War and continue to furnish units for deployment to trouble spots in Southwest Asia.

The mix of active, Guard, and Reserve, called "rainbowing," has become virtually seamless. Said Sibley, "You can go overseas to any location where there is an Air Force presence and you can't tell if it is an active duty, Air Force Reserve, or Guard unit doing the mission. Unlike some of our sister services, we have really taken the Total Force concept seriously."

The reserve components have moved into an unprecedented partnership with the active force, but it has not been without its costs. Reserve members now share the stress of optempo with their active duty

Photo by Erik Hildebrandt



A C-17 Globemaster displays markings for an active duty as well as a Reserve associate wing. The Guard and Reserve have acquired first-line equipment and a higher state of readiness.



SSgt. Gary Klemme straps 1st Lt. Bobbi Doorenbos, 185th Fighter Wing, Iowa ANG, into an F-16 at Al Jaber AB, Kuwait. Guard and Reserve members cope with the same optempo challenges faced by active duty forces.

counterparts and must cope with the problems of frequent deployments and prolonged separations from their families. In addition, they face the unique challenge of meshing their military duties with their civilian careers.

"Right now," said Sibley, "our average aircrew is putting in about 110 to 120 days per year in the blue uniform or the green flight suit. People in support functions are averaging about 70 days per year. That's a lot of time for what still is a reserve program."

Sibley went on, "I think we are beginning to see a little problem in this area of working our folks too hard or asking too much of them." We're doing all this with volunteers, so our challenge is to work very hard with employers and families, he said.

So far, the general said, the Reserve has not had major problems in recruiting. Overall, AFRC is close to 97.5 percent total manning. "We bring in about 11,000 new recruits per year on the average and our target is to get about 80 percent from among prior service members. Right now, we are at about 85 percent."

But the general conceded that the future of reserve component manning depends heavily on what happens in the active force. "We are a little concerned about what all this will do if the active duty force continues to draw down," he said. "We think the force mix right now is about right. If we continue to draw down in order to squeeze more dollars out of

the defense budget, it will drive up our requirements to go after non-prior-service recruits and this drives costs up. Training costs will increase and experience levels will decrease."

Homegrown?

In short, if the pool of experienced active duty veterans shrinks, the Guard and Reserve will have to take in more raw recruits and train them themselves. That would offset some of the reserves' traditional cost effectiveness, which comes mainly from recycling former active duty members rather than going to the expense of "growing their own."

Not that ANG and AFRC are totally dependent on USAF's prior-service members now. For example, up to 20 percent of all new AFRC recruits already come in directly from civilian life. Small numbers, about 60 to 70 per year, even go to flight school with no previous service. But, as Sibley noted, it takes both time and money to bring such recruits up to the experience levels already attained by those coming off active duty.

ANG already uses a more even mix of prior-service members and new recruits. For Fiscal 1998, for example its target was to bring in 4,560 prior-service and 3,444 non-prior-service enlisted recruits. Toward year's end, it had more than met the overall target but was short in the non-prior-service category.

Even if the reserve components

decide they must accept the additional costs and training requirements of accepting more non-prior-service enlistees, finding enough may not be easy. ANG officials said that the latest youth attitude study by the services shows that the propensity for today's youth to join the military is at its lowest since the early 1970s.

Retention of Air Force Reserve members also remains fairly high, and ANG says its 91 percent rate is the highest of any reserve component in the armed forces. Again, however, leaders see some problems ahead, particularly in the rated area.

"Historically," Sibley said, "we lose about 15 percent of our aircrew force annually, and this will no doubt increase over the next few years for two reasons. One is that our Vietnam-era pilots are reaching retirement age. The other is that the civilian airlines are healthy and any time they are healthy, the military loses pilots to them. We in AFRC have put together a rated officer working group to look at our options and try to retain good percentages so we don't end up having real problems."

Another potential problem is maintaining the support of employers. In the past, Guard and Reserve participation usually meant drilling only one or two weekends a month and spending two weeks per year "at camp." Most employers were willing to allow reservists enough time to meet such obligations.

Civilian Careers Suffer

Now, however, many Guard and Reserve members are away from their jobs for months at a time. Moreover, employment rates in the civilian world are up, and employers are finding it hard to find temporary replacements for reservists who are away on active duty. Federal law, stiffened in 1994, protects reservists from being fired, demoted, or subjected to discrimination as a result of their service. The law also guarantees re-employment rights to those gone for as much as five years. Still, officials admit, frequent and prolonged absences can be hard on civilian careers, particularly if employers are less than supportive. Studies have shown that job worries are a major factor in many members' decisions to give up their reserve participation.

Rather than simply enforce the reservists' job rights, Sibley said,

the service must actively seek employer cooperation. "I think the key is the local unit," he said. "I have found that, once you really involve the employers in what that unit does and what their employees are doing, it's amazing the support you can get."

Interestingly, the civilian job problem often is less serious among aircrew members than among other Guard and Reserve members. "We are fortunate," said Sibley, "that the majority of aircrews are airline pilots, and they have the capability of adjusting their schedules a little more than the nine-to-five-type persons, and they generally can build their airline flying schedules to allow blocks of time for their reserve duties."

Overall, however, AFRC leaders say that keeping employers more informed and more supportive is essential and that the proposed AEF structure should help. ANG officials agree and look to the expeditionary force concept to help. "With the AEF," one said, "we will be able to deploy our Guard members with more predictability. They will know well in advance when they will be deployed and know that they will not be redeployed for a minimum of 15 months. This helps the member, his family, and his employer."

Another possible incentive, said the officials, would be for Congress to establish some form of tax credit for those who support the reserve service of their employees.



Photo by Ted Carlsson

The Guard and Reserve have high retention rates, but their Vietnam-era pilots are reaching retirement, civilian airlines are hiring, and employers must now be asked to support longer, more frequent deployments.

Even with job protection and employer cooperation, however, the reservist's lot is not easy. Military pay still lags that in the civilian sector, and some benefits that active duty members enjoy are denied in part or in whole to reservists.

The services have been struggling with the problem internally and pressing Congress for improved benefits, but some initiatives have not worked. One notable failure was the 1996 Ready Reserve Mobilization Income Insurance Program, designed to protect called-up reservists against losing money while they were away

from their jobs. The members were required to pay a modest premium for the coverage.

Bosnia Fiasco

The government's plan was to use the premiums to build a reserve fund to cover future claims. Before that fund could grow, however, thousands of reservists were called up for Bosnia peacekeeping, and some of those who had refused the insurance before they were activated were given another chance to enroll. A flood of claims left the insurance plan in debt by \$72 million and the whole program was scrapped.

Military officials said that the insurance idea is unlikely to be resurrected. However, they noted that some other pay and benefits improvements may be in sight. In fact, Congress recently passed legislation to encourage something close to parity between the active and reserve component benefits in some areas. Still to be addressed, Sibley said, are inequities in other areas, such as the current inability of Guard and Reserve members to draw hazardous duty pay during training as well as active duty.

ANG officials said basic pay is adequate, but they would like to see a number of benefits improvements. Specifically, they said, reservists need more parity with active duty members in areas such as enrollment in the Survivor Benefit Plan, qualification for assistance from the Air

Photo by Randy Jolly



These OA-10s from the 442d Fighter Wing (AFRES) share the tarmac with active duty B-2s at Whiteman AFB, Mo. Together, the Guard and Reserve provide nearly 40 percent of USAF's fighter strength.



Maryland and Michigan Air National Guardsmen pack up equipment, heading home from a NATO exercise in Lithuania. The reserve components will call on such experience and training as they become a vital part of the EAF approach.

Force Aid Society, and eligibility for commissary privileges.

Guard officials argue that a number of policies which discriminate against the reserve members were enacted when they held a far less active status in the services. Since then, they say, ANG and AFRC members have taken on greater responsibilities and should be treated more equitably.

Like the active duty force, the Guard and Reserve also are pressing for modernization of their equipment. They no longer struggle with the war-weary surpluses from the active force, but even some first-line equipment is inadequate for today's missions.

"Our capabilities are nearly equal with those of the active force," Sibley said. "However there are special capabilities that the reserve components are lacking, such as precision guided munitions and targeting pods in the fighter business. The standardization of our C-130 fleet also will be very important."

Both ANG and AFRC are pressing for standardization of C-130s so that reserve component and active duty aircraft will have the same capabilities. Programs are under way for an advanced, more versatile J model and for converting several types of H models into one configuration, the C-130X.

ANG also is improving the A-10 with smart weapons, night vision, global positioning, and laser-guided bomb capabilities. Several electronic

improvements are being discussed for the F-15. Global positioning and improved targeting systems are planned for the F-16.

Such upgrades are important, Sibley said, as the reserve components move into a still closer partnership with the active forces, and that prospect is even more real as the Air Force moves into its plan for an Expeditionary Aerospace Force.

Under the EAF approach, the Air Force would form a number of large units that could be called on to react to various levels of contingencies. The idea would be to deploy specific units in order as their turns came up.

USAF has said that the reserve components' participation would be a vital part of the EAF approach, the idea being to levy requirements on the Guard and AFRC to be filled at their discretion. Sibley said that AFRC has been dealing with a similar concept for years with fighter units and sometimes with tankers. He said he expects the same approach will be applied to other types of units as the EAF plan becomes a reality.

"We'll put together a package, maybe with six F-16s from one unit and six from another. We'll mix the people and we'll rotate our reservists in and out of there maybe every

two or three weeks or so, depending on their availability. And we'll stay there for 90 days and do it."

Safety Valve

This approach, said the general, should help relieve some of the optempo pressures of both the active and reserve forces, but the benefit may be even greater for the reservists. The aim is to spread the deployment load more evenly among members and to give them more advanced notice of when they are likely to be called. In the case of reservists, this will allow them to alert their employers as well and, presumably, ease some of the problems of taking time off on short notice.

The Guard and Reserve also are following the active force's lead in another area in their effort to reduce optempo. From a number of surveys, USAF has learned that one of the main irritants to members is undergoing inspections and participating in exercises in addition to meeting real-world contingencies. Both the active and reserve force are trying to reduce these requirements.

As Sibley put it, "We do a lot of things that are good but have nothing to do with the combat readiness of our people. We are making progress in that we are starting to evaluate and inspect more on the unit's participation in real-world requirements and make those count for what used to be exercises. It's a way to make some big reductions in inspections and exercises without losing any combat capability and to give back what I think is the most valuable thing to our people—their time."

While both ANG and Air Reserve leaders emphasize the need to improve the lot of their members, they say they are proud of the job their forces are doing. As Sibley put it, "We don't pay them big dollars to do what they are doing. So, corny as it may sound, you have to get down to the mom and apple pie and patriotism factors. They are doing it because they like what they are doing and they feel good about being front line. That's got to make you optimistic." ■

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 New Expeditionary Force," appeared in the September 1998 issue.

There are numerous ways to get there—from rocket launch to space maneuver vehicles—and the Air Force is keeping its options open.

The Flight to Orbit

THE Air Force would like to go back and forth to Earth orbit as easily as it goes back and forth to 30,000 feet—routinely, reliably, and relatively cheaply. Such a capability goes hand in hand with being a true “aerospace” force but is one which has long eluded a hardware solution. Concepts such as the X-20 Dyna-Soar of the 1960s and the X-30 National Aerospace Plane of the 1980s and early 1990s reached beyond the technological grasp of their times. The space shuttle, while a formidable technical feat, has never lived up to the twice-monthly launch schedule or cost originally envisioned for it.

All this may soon change. As the demand for both commercial and military satellites multiplies almost exponentially, more than two dozen private and government projects are under way to try to meet the corresponding need for inexpensive launch services. One concept calls for winged vehicles to be towed to altitude, then released for a rocket-powered flight to orbit. Another anticipates a midflight air refueling before the final ascent. Still another envisions employing giant rotors that both help reach orbit and slow descent.

By John A. Tirpak, Senior Editor

Many involve international partnerships, particularly with Russian outfits, but all emphasize reuse of all or most of the system, with an eye toward becoming a space-age version of today’s overnight package companies.

Even if only a fraction of the new concepts work out, access to space will broaden and the cost of getting there will drop significantly. One industry official made the analogy between today’s rush to build cheap launchers to the barnstorming days of aviation, which paved the way for an explosion of new machines and new applications.

Around the Corner

As then-US Space Command chief Gen. Howell M. Estes III said to defense writers just before his retirement in August, “This is going to come along a lot quicker than we think it is. ... We tend to think this stuff is way out there in the future, but it’s right around the corner.”

The Air Force and NASA have divided the task of providing the US government with a means of reliable, low-cost transportation to Earth orbit. The Air Force, with the largest immediate need, is heading up the effort to revamp the Expendable Launch Vehicles now used to loft military and other government satellites. Called the Evolved ELV, this program is focused on derivatives of existing rockets. Competitors have been invited to redesign or value-engineer their proven boosters with new materials and technologies to provide reliable launch services at a far lower price than today’s benchmark of around \$10,000 a pound to Low Earth Orbit. The reasoning is that an “evolved”—rather than an all-new—vehicle will yield cost savings while reducing technical risk.

The goal is to reduce launch costs by at least 25 percent; industry leaders are shooting for a cut of 50 percent or more. The Air Force wants a family of launch vehicles, scaled to fit medium and heavy payloads headed for LEO or Geosynchronous Transfer Orbit.

In addition, USAF wants to “standardize the interfaces” between rockets and satellites, so any US military satellite can be carried by the launchers available. This will increase flexibility and eliminate the possibility that the entire military space effort could be shut down if a particular kind of vehicle developed a flaw that grounded it. The EELV program also calls for most of the processing of rockets to take place off-pad, freeing the launchpads—which are in limited supply—to be used as much as possible for launch and not be tied up waiting for one.

While the Air Force originally

Ever since the Space Age began, the Air Force has wanted a craft that could quickly get to orbit and land like an airplane. This drawing of the Martin SV-5D, an unmanned lifting body tested in the 1960s, was the precursor to the X-24A, a manned vehicle flight-tested from 1969 to 1971. USAF and NASA flew various lifting body concepts, but they proved too technically ambitious for the time.

What goes around comes around, though; the Soviet space program test flew a sub-scale craft very much like the X-24, and NASA is evaluating a similar craft, built by Scaled Composites, as an International Space Station emergency crew return vehicle.



planned to select a single contractor from among the entries in the competition, it decided late last year to carry two companies into production: Boeing with its Delta IV variants and Lockheed Martin with its Atlas and Titan follow-ons. The companies will compete on a per-launch basis. The first launch of a medium-lift variant will take place in Fiscal 2002, and the heavy-lift versions are set to fly in Fiscal 2003, with a full operational capability by Fiscal 2005. Earlier flights are definitely possible, given that both Boeing and Lockheed Martin had planned to pursue their respective vehicles with or without a "win" in the EELV competitions and given that the demand for launch services is starting to overtake the number of rockets available.

The program would, not coincidentally, help US companies reclaim their dominance of the satellite launch business. American firms, which once seemed unbeatable in commercial space, now have only 36 percent of the annual launch market of around \$2.8 billion. The *Challenger* accident in 1986, which forced a two-year shutdown in shuttle operations and left the US scrambling for expendable alternatives, allowed the European Arianespace consor-

tium to take over leadership in lift services. China and Russia also have captured a very significant chunk of the market.

The Next Phase

USAF announced Oct. 16 the award of 19 missions to Boeing and nine to Lockheed Martin for the EELV's launch services phase through Fiscal 2002-06. Each company will proceed with development of their launch vehicles and modifications of launch sites on both coasts. The project is expected to carry the bulk of USAF satellites into the 2015-20 era, when it is hoped that a thoroughly Reusable Launch Vehicle will be available.

NASA has taken the lead on this longer-term solution. While the space shuttle orbiter and its large external solid boosters can be used again after extensive refurbishment, its huge external liquid fuel tank is discarded on every flight, and turnaround time has never bested two months. NASA and the Air Force want a system which consumes nothing but fuel and parts and with a re-fly window measured in days, not weeks.

The anticipated system for the RLV is the Lockheed Martin VentureStar. This lifting-body design is expected

to loft 50,000 pounds to Low Earth Orbit—compared to the shuttle's 51,000-pound maximum—at only about \$1,000 a pound in the middle of the next decade. The VentureStar will take off vertically, using the liquid hydrogen and liquid oxygen in its vast internal fuel tanks, orbit, then return to a runway landing. It can be flown autonomously, remotely, or by an onboard crew.

It's an ambitious undertaking. To reduce risk and prove the technologies involved, a half-scale demonstrator called the X-33 is being built and will fly next year on suborbital flights of up to Mach 15. The main thing to be proven with the X-33 is that its power plant—the linear aerospike engine—will work. Though conceived in the 1970s as a space shuttle motor, it was ruled out for that program in favor of conventional rocket motors, considered less risky at the time.

Now, Lockheed believes, the technology for a practical aerospike engine is available; the company has flown the concept aboard an SR-71 test bed.

The linear aerospike is described as an "inside out" rocket motor, with fuel combustion taking place outside of a central core. The concept eliminates the weight of rocket bell exhausts and much of the plumbing involved with today's rockets, thus saving weight and cost, and should be more reliable than a standard rocket motor.

About 15 test flights of the X-33 are planned from Edwards AFB, Calif. Shorter-duration flights will end with a landing at Michael Army Air Field at the Army's Dugway Proving Grounds in Utah, while longer flights will conclude at Malmstrom AFB, Mont. Most of the flight tests will average a week apart, but the program calls for demonstrating a turnaround time of two days at least once. The suborbital flight to Utah will take about 15 minutes while the trip to Malmstrom will take 24 minutes.

The Air Force is interested in both VentureStar and the X-33 as possible launch vehicles for its own more routine operations in space but will not commit to the system for some time, waiting to see that the concept delivers on its promises. The X-33 does have a small payload bay, measuring 5 feet by 10 feet.

Spaceplane No More

"We envision a Space Operations Vehicle system," according to Air Force Space Command requirements chief Brig. Gen. Brian A. Arnold. The term "system" denotes that USAF has dropped the idea of an all-in-one military spaceplane and is now pursuing a building-block approach that will involve different types of vehicles.

The fundamental element "will be the Space Operations Vehicle," Arnold explained. The SOV will be an entirely reusable, single-stage-to-orbit spacecraft "which could go to Medium [Earth Orbit] or geosynchronous orbit," he said.

While the SOV could carry a mission payload and sensors, it probably would be used chiefly "as a truck," Arnold said, to carry aloft satellites or what is termed a Space Maneuver Vehicle. It would have a high sortie rate as well as interchangeable payloads tailored to the mission—not unlike changing the pods or ordnance on a combat aircraft.

The SMV would be a smaller vehicle capable of performing "any number of missions," he added, from spot surveillance of a touchy region to refueling or repairing a satellite to orbiting a specialized, short-lived

"smallsat" for a special mission. Its key capabilities will be "launch, return, and reuse on demand," Arnold said.

"We're talking about the operational concepts," and a mission need statement will soon be in the offing, Arnold noted. However, "the key is to be cheaper and more responsive" than today's satellites and launch vehicles.

Having such a capability would make it possible to build cheaper military satellites, he noted, since today's orbiting reconnaissance "battleships" must have multiple redundant systems and a large supply of maneuvering propellant. That's because once on orbit, it's both difficult and highly expensive to retrieve or resupply them with the space shuttle. With the ability to get to space on short notice would come the option of making satellites with less redundancy and less propellant, making them cheaper to build and thus cheaper to launch. An SMV would allow a quick satellite refueling or replacement in a crisis.

A constellation of small "cheapsats," as they are also known, would also degrade more gracefully under failure or attack than a single, massive platform. The SMV could rou-

tinely "replenish the constellation," Arnold said.

Satellites being launched by the Air Force today are not configured for on-orbit servicing, Arnold said, but the availability of SOVs in the future may swing design in that direction.

Checking Things Out

The availability of an SMV would make it possible to look over a foreign satellite, and possibly knock it out, if it carried mechanisms to blind or destroy US assets in space. Also being looked at as an SOV payload is the Orbital Transfer Vehicle—a satellite that would perform a "tug" mission, moving satellites to higher or lower orbits or bringing them to an SOV or SMV for repair or refueling.

The X-33 or VentureStar could well be the basis of the Air Force's SOV, Arnold said, if the concept proves successful. A derivative of the smaller X-33 in particular is interesting to the Air Force because it will fly sooner and, being smaller than the VentureStar, may be more suitable to quick-reaction military missions.

The Air Force is also testing a 90-percent-scale version of an SMV called the X-40A, built by Boeing. The SMV demonstrator, which is 22 feet long, has been air-dropped and recently demonstrated an autonomous landing in a crosswind. A full-scale version could carry a 1,200-pound payload into space, frequently change its altitude and inclination, or orbit, and stay in space for about a year. The vehicle could ride to space either on an X-33 derivative, VentureStar, or an Expendable Launch Vehicle.

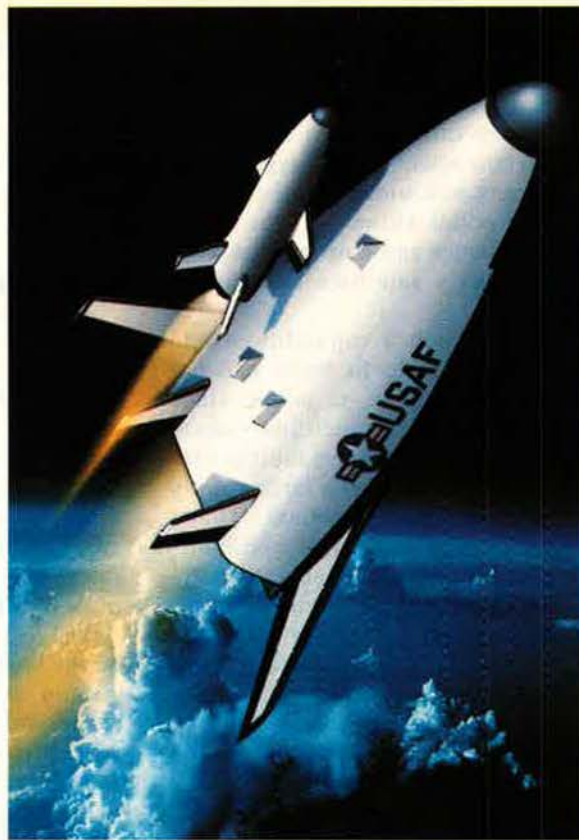
President Clinton exercised a line-item veto of funding for an Air Force spaceplane earlier this year, amid concerns that the US was "weaponizing" space and laying the grounds for a new arms race.

Estes noted, though, that "the kinds of technologies resident in the development of a Space Operations Vehicle ... are the kinds of things that I've been asked to look at in doing my space control mission." Continued research—without deployment, because "we don't need it right now"—is essential, Estes said, since "there are certain capabilities ... that are important for us to understand, so when it comes time to deploy systems to do space control, we make

Seen here being drop-tested by a UH-60 Black Hawk is the X-40A, a Boeing concept for a Space Maneuver Vehicle. In this test, the craft flew to an autonomous landing in a crosswind. The Air Force envisions orbiting 30-foot-long SMVs up to 22,000 miles for a variety of missions: inspecting foreign satellites for hostile capabilities, fixing or refueling friendly satellites, or conducting spot reconnaissance of world hot spots. The unmanned SMV might remain in orbit as long as a year before re-entering the atmosphere, making a runway landing, and being used again.



In this artist's concept, a Lockheed Martin Skunk Works X-33 variant gives an SMV a piggyback ride to Low Earth Orbit. The X-33 program could yield both a large Reusable Launch Vehicle twice its size as well as a smaller, military version like this one. While the Air Force sees such a Space Operations Vehicle as being able to carry some sensors and perhaps do on-orbit refueling, its primary mission would be as a "truck," carrying SMVs into space.



decisions that are right for the country."

As he was wrapping up his tenure as the dual-hatted chief of both US and Air Force Space Command, Estes said he was working closely with the White House and the Pentagon to continue exploring SOV technology without ignoring Clinton's intent.

"We're trying to be true to what the President told us to do," Estes said, "but also [to] have enough latitude to understand the technology well enough to make an informed decision about what's right for the country in terms of doing the space control mission, ... a mission we have been given by the President."

Given the capabilities afforded by a spaceplane type of vehicle, such as the ability to protect friendly satellites, to conduct "negation-type missions ... with directed energy systems, or through less offensive kinds of things," for short-duration reconnaissance, bringing a satellite back for repair, or "refueling a satellite to get longer use out of [it] ... then for national security purposes, ... a maneuvering vehicle in space ... makes some sense," Estes asserted.

No Treaty Constraints

He also pointed out that the US has

"signed a treaty that says we won't put weapons of mass destruction in space, but we've signed no treaty that says we won't weaponize space."

If for no other reason than to aggressively chase down the cost of getting into orbit, Estes said SOV research is worthwhile. Given a "fixed amount of money to do things in space," the Air Force can do far more if it only has to spend "15 to 20 percent" on getting to orbit "instead of 50 percent." Anticipating such needs and having ready answers when asked "is what you pay your military for," he added.

Another RLV concept in development is called the X-34, built by Orbital Sciences. This vehicle, derived from the company's successful Pegasus launcher, would be carried to high altitude by the company's L-1011 wide-body ex-airliner. Released from the plane, the X-34's engines would take it the rest of the way to Low Earth Orbit, where the vehicle would deploy a satellite and return to an autonomous landing on a runway.

The X-34, a liquid-fueled vehicle, would also be fully reusable, Arnold said. Systems like the X-34 will be increasingly in demand because the majority of commercial satellites are getting smaller, lighter, and going

only to LEO, though many at a time are being launched to create large constellations.

A funded SOV program as such doesn't exist, Arnold noted, as the Air Force is narrowing down the missions it would perform and defining the need for such a vehicle.

"We're in the ... requirements definition and ... military utility analysis" phase of the effort, he said, with an eye toward a system's usefulness and affordability. The first draft of the operational requirements document, which is the cornerstone of any new program, is to be down on paper this fall, he noted. A mission need statement for the SMV isn't expected for another year yet, Arnold forecasted. The Boeing X-40 project is to help the Air Force understand what is possible and to reduce risk if the program goes forward, he added.

Ultimately, for the vast majority of space systems, "we would like to get out of the business of launch," Arnold asserted. The Air Force would prefer to simply hire a launch company and deliver a payload for launch, rather than maintain its own vehicles and rocket infrastructure. Part of what will make this possible will be the development of the standardized interface between satellites and launch vehicles, so rocket companies can simply bid for the launch contract without any modifications to the vehicle.

As with any road map, the plan for launch vehicles is constantly shifting. The shuttle era, after 17 years of operations, is in middle age, and NASA is beginning to think seriously about its next steps, bearing in mind that, in addition to its sizable manifest of satellites to launch, it must build the International Space Station.

In September, NASA awarded five contracts to industry to develop a space transportation architecture that will lay out how the US will get people and cargo into space after the retirement of the four workhorse orbiters circa 2010. The contractors, which include Boeing, Lockheed Martin, Orbital Sciences, Space Access LLC, and Kelly Space and Technology, will examine whether the shuttles will have to be refurbished for extended service or whether NASA can go directly to derivatives of the X-33 and X-34. ■

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The North Vietnamese thought they were attacking bomb-laden F-105s. What they ran into was Robin Olds and the Wolfpack, flying Phantom F-4s.

MiG Sweep

ON Jan. 2, 1967, with aircraft losses in Southeast Asia on the rise, the United States Air Force resorted to an elaborate combat sting. The mission, called Operation Bolo, constituted an electronic Trojan Horse concealing the hard-hitting F-4 Phantoms of USAF's 8th Tactical Fighter Wing within a radiated image that simulated bomb-laden F-105 Thunderchiefs.

Despite adverse weather and a few surprises, the "MiG Sweep" did what it was designed to do: trick the increasingly elusive MiG-21s of North Vietnam into engaging F-4s rigged for aerial combat.

Until the latter part of 1966, MiG aircraft had not been as great a threat to USAF strike forces as the Surface-to-Air Missiles and anti-aircraft fire. Ironically enough, the introduction of the QRC-160 (ALQ-71) electronics countermeasures pod on the F-105s changed this. The QRC-160 was effective in neutralizing the radar controlling the SAMs and flak, and the resilient North Vietnamese responded by increasing their use of MiG fighters to prey on vulnerable F-105s configured for bombing.

Operating under ground control, and making maximum use of both cloud cover and the almost benevolent American rules of engagement, the enemy aircraft were adroitly employed. The MiGs, especially the later model MiG-21s armed with heat-seeking missiles, sought to attack the strike flights and make them jettison their bomb loads prior to reaching the target areas. Their mission was fulfilled if the Thuds were forced to drop their bombs prematurely, but they tried to score kills wherever possible.

The air war in Southeast Asia, while unique in many respects, harkened back to earlier conflicts in terms of the relative missions, forces, and equipment. As in World War II and Korea, the mission of US forces was to obtain air superiority, destroy the enemy air forces, and conduct long-range bombing operations. The mission of the enemy forces was to defend their most important targets by choosing to engage the American bombers on a selective basis.

Thud, Phantom, Thud

There were other parallels. To achieve the air superiority mission, the American fighters had to have a long-range capability and still be able to defeat the enemy fighters over their own territory. What the Mustangs and Sabres did in their wars, the F-4 Phantom II was required to do in Southeast Asia. Flights of F-4s, carrying a mixed ordnance load of bombs and missiles, would be sandwiched in between Thud flights at four- or five-minute intervals. If the F-105s in front or behind were attacked, the F-4s would drop their bombs and try to engage. If they were not, the F-4s would drop bombs right along with the Thuds.

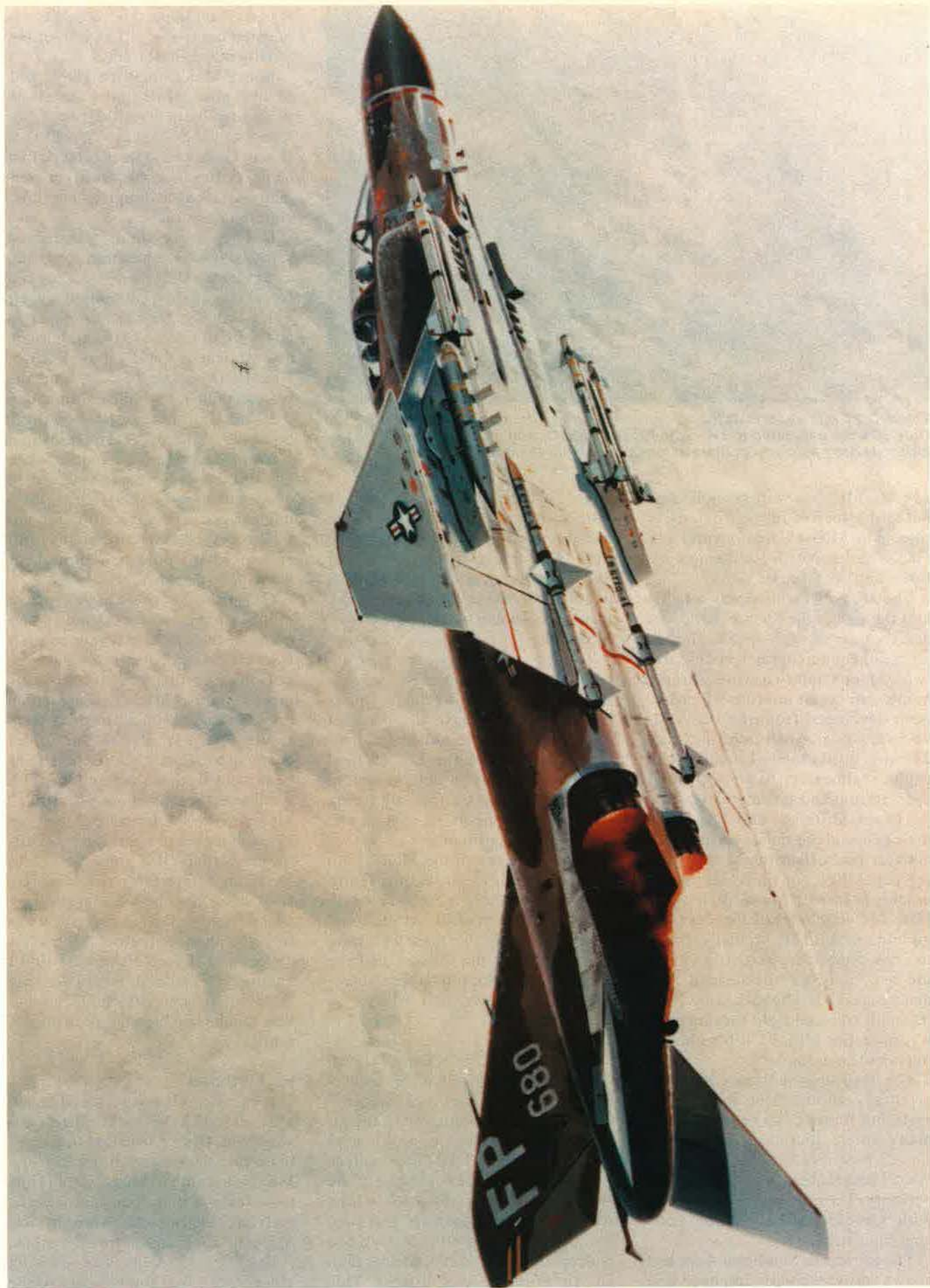
A final, tragic parallel is the price paid to execute the missions that were often laid on for statistical rather than tactical reasons. Flying Phantoms or Thuds was dangerous work. As a single example, by late 1967, more than 325 F-105s had been lost over North Vietnam, most to SAMs and anti-aircraft fire.

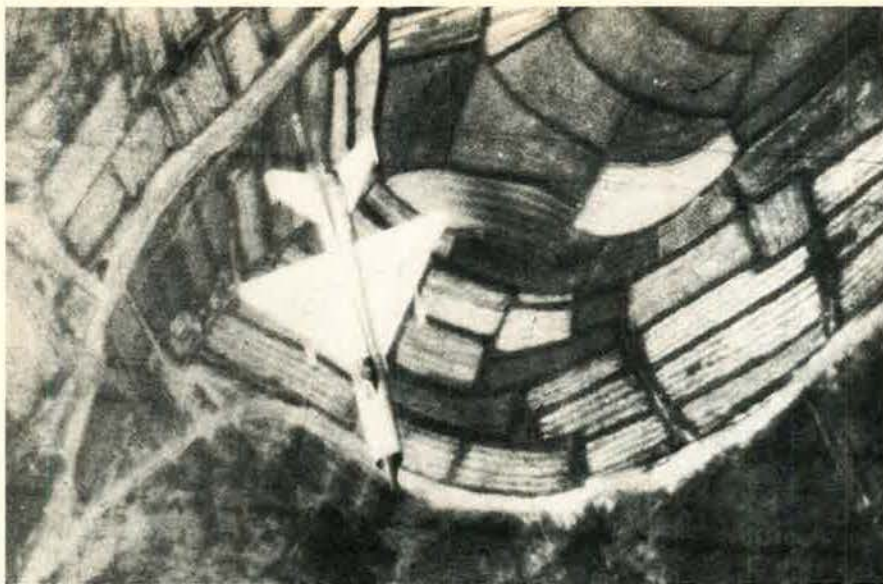
The North Vietnamese air force consisted of slow but heavily armed and maneuverable MiG-17s and a handful of modern delta-wing MiG-



Col. Robin Olds came up with the strategy of luring North Vietnam's MiG-21s into battle with F-4s that were masquerading as the more vulnerable F-105s. In the painting "MiG Sweep," at right, aviation artist Keith Ferris portrayed a successful encounter in Operation Bolo, as Olds and his backseater rolled out of the vertical and acquired a MiG-21 above the cloud deck.

By Walter J. Boyne





The MiG-21 was about half the size of the F-4 and a formidable opponent. Only 16 were estimated to be in the theater, and Operation Bolo aimed to either destroy as many of them as possible or run them out of fuel.

21s. The MiG-17s were semiobsolete but still effective in their defensive role. (The MiG-19 did not enter service with the North Vietnamese air force until February 1969.)

The MiG-21 Fishbed was roughly half the size of the Phantom and was designed as a high-speed, limited all-weather interceptor. It could carry two cannons and two Atoll infrared homing air-to-air missiles which had been developed from the US AIM-9B Sidewinder. At altitude, the MiG-21 could outfly the F-4 in almost all flight regimes. It had spectacular acceleration and turning capability. At lower altitudes, the F-4s used their colossal energy in vertical maneuvers that offset the MiGs' turning capability, for they lost energy quickly in turns at low altitudes. The MiG-21s were operated under tight ground control. They typically sought to stalk American formations from the rear, firing a missile and then disengaging. If engaged, however, its small size and tight turning ability made the MiG-21 a formidable opponent in a dogfight.

The Phantom had been intended originally to be a fleet defense aircraft, but it proved to be versatile in many roles, including reconnaissance, Fast Forward Air Control, Wild Weasel, bombing, and air superiority. The F-4Cs were armed only with missiles, although gun pods could be fitted.

The air war in Southeast Asia had grown progressively intense, and

Dec. 2, 1966, became known as "Black Friday" when the Air Force lost five aircraft and the Navy three to SAMs or anti-aircraft fire. Air Force losses included three F-4Cs, one RF-4C, and an F-105. The Navy lost one F-4B and two Douglas A-4C Skyhawks.

These ground-fire losses were accompanied by the marked increase in MiG activity during the last quarter of 1966. Because the rules of engagement prohibited airfield attacks, the men of the 8th Tactical Fighter Wing were determined to blunt the enemy's efforts by luring the MiGs into air-to-air combat and then destroying them.

The reluctance of the MiG-21s to engage did not mean that the North Vietnamese pilots were lacking in either courage or skill. At the time, the US estimated that there were only 16 MiG-21s in the theater, and the enemy had to employ them selectively to maximize their utility.

The New Boy

Brig. Gen. Robin Olds, USAF (Ret.), recalls himself as the proverbial "new boy on the block" with the 8th TFW, as yet unproven in the jet air war of Southeast Asia. When he arrived at Ubon RTAB, Thailand, as a colonel, to assume command of the Wolfpack on Sept. 30, 1966, Olds, who was 44 and stood six feet two, struck some as more the Hollywood concept of a combat commander than an Air Force regular officer. This

was, at least in part, because he was married not to the girl next door but to film star Ella Raines.

Son of Maj. Gen. Robert Olds, one of the most influential generals in the Army Air Corps, the new commander of the 8th was a World War II ace. Olds would later remark that he never flew one mission over Germany that was as tough as any mission over Hanoi.

Olds' war-ace status was marred somewhat by a reputation for being a maverick. Olds had often argued forcefully against contemporary Air Force training. He was an outspoken advocate of intensive training in the arts of war he learned in Europe. Unable to wangle his way into the Korean conflict, he had continued to press for training in strafing, dive-bombing, and other conventional warfare techniques at a time when US fighters were being adapted to carry nuclear weapons and fight a nuclear war. His advice, though not well received, was a realistic forecast of what would be required for war in Southeast Asia.

Olds knew he would have to prove himself to the combat-hardened veterans of the 8th as a leader in their war. He wished to use his past beliefs in a plan that would confirm his present status. He had first presented his idea for a MiG ambush to Gen. Hunter Harris Jr., Pacific Air Forces commander. Harris ignored him. Olds next went to the commander of 7th Air Force, Gen. William W. "Spike" Momyer. It was in early December 1966, at a cocktail party in the Philippines, that Olds edged next to Momyer. After a few polite remarks, Olds said, "Sir, the MiGs are getting pesky" and went on to describe ways to bring them to battle. Momyer's expression of deep disinterest didn't change. He moved away, leaving Olds with the uncomfortable impression that he had blown a good opportunity.

He Listened

However, Momyer had listened after all, and a week after their conversation, Olds was called to Saigon to discuss the concept of tricking the MiGs into combat. Momyer told Olds to develop a plan, one that specifically excluded attacks on North Vietnamese airfields for political reasons.

By Dec. 13, Olds was working closely with four top veterans of the

8th, striving to develop his idea. In brief, the concept called for F-4s to simulate F-105s, and Olds gave his planners specific guidelines to work by. Central to the concept was that, while no North Vietnamese airfields could be attacked, the MiGs would be prevented from landing; flights of Phantoms would orbit above the airfields, cutting off MiG escape routes to China. Olds hoped either to engage the MiGs in combat and destroy them or to simply run them out of fuel by denying them access to their airfields.

The planning group included Capt. John B. Stone, Lt. Joe Hicks, Lt. Ralph F. Wetterhahn, and Maj. James D. Covington, a wing staff officer. They worked under the tightest security; those aircrews that would fly the missions were themselves not briefed until Dec. 30.

It was a perfect combination—Olds providing the overview and the major decision elements, and the younger officers, more experienced in the theater, breathing life into a concept. The team worked long hours to develop key details on force structure, refueling points, and altitudes, ingress and egress routes, radio communications, flak suppression, electronic countermeasures, and all the other details the mission required.

The planners determined that, if the MiGs engaged in combat, their endurance from takeoff to landing would extend only for about 55 minutes. F-4 flight arrival times were

set five minutes apart to ensure maximum opportunities for engagement. The group planned for a concerted strike by a “west force” of seven flights of F-4Cs from the 8th at Ubon and an “east force” made up of five flights of F-4Cs from the 366th TFW at Da Nang AB, South Vietnam.

Everything hinged on getting the MiGs airborne, where they could be destroyed. Luring the MiGs into battle would not be easy, for the communists often declined to attack if they thought the weather would seriously impair the bombing accuracy of US attacking aircraft. The North Vietnamese had many advantages. All of the targets were in the midst of the most heavily integrated air defense system then in existence. Their geography and the onerous rules of engagement under which American forces operated had severely reduced the F-105s’ options in Rolling Thunder missions. The number of approach routes was limited, as were the targets permitted to be attacked.

The Pod Deception

Olds took these factors into account and called for a plan that depended upon a basic deception. The strike force would imitate the route, speed, and radio chatter of a normal F-105 mission. However, the force would comprise not bomb-laden Thuds but rather F-4Cs, each armed with four AIM-7E Sparrows and four AIM-9B Sidewinders. Maj. Gen.

Donavon F. Smith, chief of the Air Force Advisory Group in Vietnam, suggested the Phantoms carry the QRC-160 electronic countermeasures pod that the Thuds had been carrying.

Simply acquiring the necessary QRC-160 pods was a logistic effort that extended all over Southeast Asia and all the way back to the United States. It was the first of a series of events that engaged many disparate elements of the Air Force.

Also at play was another factor, one that Olds hoped would be the key factor in success. The first three flights entering the combat area would have “missile free” firing options. For a few precious minutes, the Americans would know exactly where all friendly aircraft were. Any other aircraft could be assumed to be hostile and be fired upon without visual identification. This gave many advantages, including surprise, isolation from counterfire, and, most of all, time to let the missile do what it was designed to do under the most favorable conditions, without excessive g forces to trouble the missile systems.

On Dec. 22, Olds briefed Momyer in Saigon. The commanding general accepted the plan without a change. Execution was set for Jan. 2, 1967. The force would contain 96 fighters—56 F-4Cs, 24 F-105s, and 16 F-104s. The force also would include KC-135 tankers, EB-66s electronic countermeasure-support aircraft, EC-121 Big Eye surveillance aircraft, and rescue forces.

Eight days after briefing Momyer, Olds canceled all leaves at the 8th TFW and postponed the New Year’s Eve party. Then, bad weather moved in, and it was obvious that the mission would not be flown on Jan. 1. Most thought it probably would not occur on Jan. 2, either. The party was reinstated for the evening of Jan. 1—a mistake, for soon the mission was reset for the morning of Jan. 2. Olds agreed to go forward, despite the probability of bad weather, because the QRC-160 pods were “on loan” to him for only seven days.

Normally, the computers at 7th Air Force developed the code words assigned to flights, targets, and routes. Because timing was so critical, however, code terms for Operation Bolo were carefully picked. The Wolfpack flights were given the names of cars, with mission com-



MiGs armed with heat-seeking missiles had been attacking strike flights of bomb-laden F-105s and also forcing the Thuds to jettison bombs prematurely. Operation Bolo F-4s mimicked the route, speed, and radio chatter of an F-105 mission.

mander Olds leading Olds Flight. (Olds was dismayed by this; he felt that the flights should have been given names similar to those used by the F-105 flights. In his pre-mission briefing he told his pilots to use first names for their radio calls.) MiG base locations were identified by the names of US cities. Phuc Yen, northwest of Hanoi, was called "Frisco," while Gia Lam, south of Phuc Yen, was "Los Angeles."

Distillation

It had required a massive Air Force-wide effort to bring Bolo into being. The entire 8th TFW's energy was thrown into overcoming last minute problems, with the support troops working all night long. (A typical glitch involved the sway braces on the F-4C. They were located differently than on the F-105, and the shell of the QRC-160 pod had to be reinforced in order to fit well.) However, as the aircraft rolled for takeoff, the long days of nonstop planning, the assembly of resources, the intense training of munitions crews, crew chiefs, pilots, and backseaters now began to condense into a 13-minute dogfight. The historic battle would be fought in a slice of sky that ranged from 10,000 to 18,000 feet in altitude and within a 15-mile radius of Phuc Yen airfield.

Olds carefully emulated the F-105 flight profile, flying a fluid-four formation at 480 knots until reaching the Red River. At that point, he ac-

celerated to 540 knots and assumed the QRC-160 pod formation. This was similar to the standard fluid four but with a separation of about 1,500 feet. The aircraft would weave up and down, and the combined effect of the pods was to jam the enemy acquisition radar.

The force maintained this Thud feint for a full three minutes after the Olds Flight arrived at its target. By that time, Olds expected the North Vietnamese to have realized what they were dealing with. Olds arrived over Phuc Yen at 1400 Zulu, exactly on schedule, but he was disconcerted to find that the MiGs were not airborne. There was a complete undercast, with tops at about 7,000 feet, and the communist ground controllers had delayed the MiG takeoffs by about 15 minutes. Olds had no way of knowing this and had to contemplate calling the mission off for the inbound flights.

He passed over Phuc Yen airfield to the southeast and then made a 180-degree turn to the northwest. The first sign of enemy activity proved sterile as Olds 3 picked up and then lost a bogie moving swiftly in the opposite direction. Knowing that Ford Flight, led by his longtime friend Col. Daniel "Chappie" James Jr., was due over the target, Olds now canceled the missile-free option and made another 180-degree turn.

Ford Flight burst into the battle area exactly on time and simultaneously with the first appearance of

MiG-21s popping up out of the undercast. Ford 1 called out a MiG-21 closing on Olds Flight. Olds turned to throw off the MiG's aim and attacked another MiG that appeared in his 11 o'clock position, low and a little over a mile away.

First Trip

It was Olds' first trip to the Hanoi area, and his first engagement with a MiG. With his backseater, Lt. Charles Clifton, he set up for a Sparrow attack as he closed to get positive identification. When he saw the silver delta shape of the MiG he fired two Sparrows and a Sidewinder—but none of them guided. Olds sighted another MiG—they were appearing everywhere now—and used the Phantom's power and energy to vector roll behind it. This time he fired two Sidewinders and the first one made impact, blowing the MiG-21's right wing off and scoring the first of the MiG kills. The pilot did not eject.

Wetterhahn, one of the key planners, had been disappointed to be flying as Olds 2, but in the course of Olds' attack he was able to slide behind a MiG-21. Working with his GIB (the Guy In Back), 1st Lt. Jerry K. Sharp, he salvoed two Sparrows. They lost sight of the first one, but the second Sparrow caught the MiG just forward of its stabilizer and blew it up. Two down.

Olds 4, flown by Capt. Walter S. Radeker III, with 1st Lt. James E. Murray III in the back, saw a MiG-21 tracking Olds 3. Radeker experienced some difficulty getting a solid tone on his Sidewinder before firing, yet the missile guided perfectly, striking just forward of the MiG's tail and sending it spinning into the undercast. Three down.

The next MiG fell to Capt. Everett T. Raspberry and 1st Lt. Robert W. Western in Ford 2. Two MiGs had closed on Ford 3 and 4, overshot, then pressed an attack on Chappie James in Ford 1, overshooting him as well. The MiG broke into a hard left turn, and Raspberry rolled to wind up at the MiG's six o'clock position. He fired a Sidewinder that guided up the MiG's tailpipe, blowing it up. Four down.

Rambler Flight had arrived exactly on time, to find itself in the midst of the MiG melee. One of the most important of the planners, Stone, was the Wolfpack's tactics officer.



This version of the F-4 participated in Operation Bolo. Note its inboard pylon ECM pod. The F-4's initial lack of an internal gun put it at a disadvantage in a close-in fight, but this one's two red stars indicate success over enemy MiGs.

He was flying with Lt. Clifton P. Dunnegan Jr., as the backseater. Over Phuc Yen, Stone picked up two MiGs, 4,000 feet below and two miles away. Uncertain of his lock-on, Stone fired three Sparrows. The second missile struck the MiG's wing root, and the pilot ejected. Five down.

Two young first lieutenants, Lawrence J. Glynn Jr. and Lawrence E. Cary, in Rambler 2 had been on Rambler lead's wing all through its combat maneuvers. Just after Rambler 1 scored, Glynn locked on to a MiG-21 and fired two Sparrows. The second missile hit the MiG in its wing root, the debris damaging Rambler 2 slightly. The enemy pilot ejected and Glynn saw his parachute open. Six down.

Maj. Phil Combies in Rambler 4 was flying with Lt. Lee Dutton in the backseat. After Dutton had locked on to a MiG-21, Combies tracked a fighter carefully, pulling no more than 4g's, and fired two Sparrows. He didn't observe the first missile at all but was able to track the second from launch to impact. It struck in the tail section. So swiftly did the parachute appear that Combies later speculated that the pilot must have ejected when he saw the missile coming.

That made seven MiG-21s down. It was the final confirmed victory of the day.

Combies and Dutton had latched on to a second MiG and had fired four Sidewinders. They saw the first two detonate just below the enemy's tailpipe, with the last two tracking well, but then they had to break hard right when they heard "F-4C, I don't know your call sign, but break right." The message was intended for Stone, but the break caused Rambler 4 to claim only a probable. (Maj. Herman L. Knapp in Rambler 3 also claimed a probable.)

It's Over

Suddenly, the MiGs were gone, and the four remaining Wolfpack flights (Lincoln, Tempest, Plymouth, and Vespa) arrived to find the action was over. The 366th, out of Da Nang,



The F-4 carried four close-range AIM-9 Sidewinder heat-seeking missiles and four radar-guided AIM-7 Sparrows like those shown here. In the opening moments of Operation Bolo combat, Olds scored his first MiG-21 kill with an AIM-9.

had flown up the coast to a point off Haiphong, evaluated the weather, and elected not to participate in the western part of the mission. Operation Bolo was over.

Seventh Air Force was elated with the Wolfpack's results. Twelve F-4Cs had engaged 14 MiGs and shot down seven, with no losses. It is worth noting that of the 14 crew members who scored victories, only one, Glynn, had ever seen a MiG in air combat before. (Olds had seen MiGs at a distance.) The Phantom crews, despite their relative inexperience in combat and their lack of dissimilar aircraft combat training, used vertical maneuvers to put themselves in firing position.

For dogfighting, the F-4C proved clearly superior to the MiG-21, and the AIM-7E Sparrow and AIM-9B Sidewinder proved to be highly effective weapons. Only 10 Phantoms had fired their missiles. Eighteen Sparrows had been launched; of these, only nine guided, but these nailed four MiGs. Twelve Sidewinders were launched, seven guided correctly, and they destroyed three MiGs.

The QRC-160 ECM pods had apparently worked very well, although the presence of MiGs in the combat

area undoubtedly inhibited both missile and anti-aircraft fire. Only five SAMs were spotted and a light burst of 85 mm anti-aircraft fire seemed to be aimed at random.

The battle proved beyond doubt the importance of the largely unsung GIB, the backseaters, who locked the radar on the target and who, despite the continuously changing g forces, kept their heads on a swivel watching out for enemy aircraft and SAMs.

Finally, the battle proved Olds to his men. He made sure that all who participated in Operation Bolo, whether in the air or on the ground, were given full credit for their contributions. The general effect of Bolo on Air Force morale was positive, in Southeast Asia and the US.

There was a postscript. The MiG force had retaliated by attacking an Air Force RF-4 reconnaissance airplane, and this inspired 7th Air Force planners to use another deception.

Two F-4Cs, fully armed, were to fly in close formation so that they would appear as a single blip. They flew a mission as a reconnaissance aircraft would on Jan. 5, without any enemy reaction. They did it again on Jan. 6 and were rewarded by being bounced by four MiGs. The F-4Cs shot down two of the North Vietnamese aircraft, meaning that nine of the 16 MiG-21s had been shot down. The MiG-21s went through a three-month stand-down, during which both sides studied the lessons of the battle. ■

Walter J. Boyne, former director of the National Air and Space Museum in Washington, is a retired Air Force colonel and author. He has written more than 400 articles about aviation topics and 29 books, one of which is Beyond the Wild Blue: A History of the United States Air Force, 1947-1997. His most recent article for Air Force Magazine, "The Easter Halt," appeared in the September 1998 issue.

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By John L. Frisbee, Contributing Editor

The Track to Survival

Someone had to find out if a pilot could eject from an airplane at supersonic speed and live.

On Oct. 14, 1947, Capt. Chuck Yeager broke the sound barrier in the experimental rocket-propelled X-1. Scientists and engineers now knew that an airplane and its pilot could safely fly faster than the speed of sound. But could a pilot bail out at such speed and survive? That was a question that had to be answered quickly, for USAF's first supersonic fighters were just over the horizon.

It was certain that the wind blast on leaving the cockpit could dislocate limbs and break bones. There also would be rapid—almost instantaneous—deceleration, subjecting the pilot to very high g loads. Some scientists thought the human body could endure no more than 18g's, or 18 times the force of gravity—far less than a pilot would experience in a supersonic bailout.

Two approaches to the problem were evident: First, build a complex, heavy, expensive ejection capsule for the pilot; second, find out what stresses an unprotected human could survive. The Air Force assigned the second approach to flight surgeon Lt. Col. John Paul Stapp, a bachelor with a philosophical bent, a quiet sense of humor, a

love of classical music, and an unquenchable curiosity.

Under Stapp's direction, Northrop Aircraft Inc. built at Edwards (then Muroc) AFB, Calif., a 2,000-foot rail track for a rocket-driven sled that could accelerate to nearly 1,000 mph. Toward the end of the track, scoops beneath the sled would dig into a pool of water, jerking the sled from several hundred miles an hour to a stop in just over a second, simulating the deceleration of a high-speed ejection. Early passengers were dummies.

At the end of one run, the safety harness broke and the dummy plunged through a one-inch wood windscreen, sailing 700 feet across the desert. A few more rides, a few improvements, and it was time for the first human passenger.

In December 1947, Paul Stapp began riding the sled at increasing speeds.

By May of the following year, he had rocketed down the track 16 times and withstood a force of 35g's during deceleration. So much for the 18g limit of human endurance.

What was the sudden stop like? Stapp reported: "It felt as though my eyes were being pulled out of my head. ... I lifted my eyelids with my fingers, but I couldn't see a thing. ... They put me on a stretcher, and in a minute or two I saw some blue specks. ... In about eight minutes ... I saw one of the surgeons wiggle

his fingers at me, and I was able to count them. Then I knew that ... my retinas had not been detached, and I wasn't going to be blind."

Stapp continued to ride the sled at Edwards until 1951. He was sent to Holloman AFB, N.M., in 1953 to work with a longer track and an improved sled called Sonic Wind. There, on Dec. 10, 1954, the 44-year-old Stapp rode the sled to a record 632 miles an hour, decelerating to zero in a second and a quarter with a force of about 35g's. Momentarily his body weight was about 6,800 pounds. Wind blast and deceleration were equivalent to a high-altitude ejection at supersonic speed.

Out of these wild rides came improved helmets, arm and leg restraints, better aircraft seats, stronger safety harnesses, and techniques for positioning the body to help absorb unearthly forces. And for Paul Stapp? During his 29 rides came several retinal hemorrhages, cracked ribs, and two broken wrists—the second of which he set himself while walking back to the field lab that he headed.

Stapp was named winner of the Cheney Award for 1954. That award recognizes acts of "valor, extreme fortitude, or self-sacrifice in a humanitarian interest performed in connection with aircraft." That same year, he also won AFA's Theodore von Karman Award for distinguished service in the field of aerospace science. For unassuming Paul Stapp, the greatest reward was the knowledge that he had helped make a dangerous profession a little less hazardous—that many jet pilots who had to abandon their planes were still alive and flying.

War is the breeding ground of heroes. In times of peace, few have the opportunity or the dedication and courage to risk permanent injury or death, as Lt. Col. John Paul Stapp did repeatedly, so that others may live. He exemplified in extraordinary measure "the noble quality we call valor." ■



High-speed photos record Stapp during a 421 mph ride at Holloman AFB, N.M.

First appeared in May 1983 issue.



A F A 1 9 9 8 N A T I O

CONVENTION

By Tamar A. Mehuron, Associate Editor

NEW
HAMPSHIRE

ALABAMA

LOUISIANA

NEBRASKA

Photo by Paul Kennedy



N A L
DIN ▶

Photo by Paul Kennedy



At the annual National Convention, outgoing Air Force Association National President Doyle E. Larson addressed a hall filled with more than 300 delegates from 47 states, the District of Columbia, and Guam.

A host of foreign air force leaders, air attaches, and students from the Inter-American Defense College joined Air Force Association delegates at the symposium "Aerospace Power: The International Dimension," the new event that highlighted AFA's National Convention held Sept. 14-16 at the Marriott Wardman Park Hotel in Washington, D.C.

Sen. Richard G. Lugar (R-Ind.), an influential member of the Senate Foreign Relations Committee, opened the convention Sept. 14 with the keynote address.

The international symposium, held Sept. 16, featured a panel discussion with Gen. John P. Jumper, commander of US Air Forces in Europe, and the three prospective NATO air chiefs: Lt. Gen. Ladislav Klima, Czech Republic, Lt. Gen. Attila Kositzky, Hungary, and Maj. Gen. Kazimierz Dziok, Poland. The symposium wrapped up with an address by Robert G. Bell, a White House national security advisor, who provided an update on international arms control and security matters.

Nearly 100 students from IADC at Ft. McNair, D.C., attended the aerospace power symposium by special invitation from AFA. In return, a senior IADC representative, Col. Jose Marcos Ehlers Figarella, Venezuelan air force, presented AFA a plaque,

accepted by then-AFA President Doyle E. Larson.

As part of the opening day activities, AFA honored the Air Force's 12 Outstanding Airmen of the Year at the annual dinner on the convention's first evening. Air Force Vice Chief of Staff Gen. Ralph E. Eberhart was the dinner speaker, and CMSAF Eric W. Benken served as toastmaster.

Award-winning singer and actress Leslie Uggams provided a musical

treat with USAF's Jazz Ensemble at the Air Force Anniversary Dinner on Sept. 15. The evening's program also included the Air Force Band String Orchestra. Col. Lowell E. Graham directed both USAF musical groups.

About 9,000 people took part in one or more of the convention-related activities. The 332 registered delegates, representing 47 states and the District of Columbia and Guam, were joined by senior military and government officials for the Aerospace Technology Exposition, featured speeches, and social events. The three-day exposition featured 95 exhibitors. On hand to cover the convention were 74 reporters and other news media representatives.

Election of officers. Thomas J. McKee, Fairfax Station, Va., was elected AFA National President for a first term. Doyle E. Larson, Burnsville, Minn., was elected Chairman of the Board for a first term. William D. Croom Jr., of Colorado Springs, Colo., was re-elected National Secretary for a second term, and Charles H. Church Jr., of Lenexa, Kan., was re-elected National Treasurer for a fourth term.

AFA's Aerospace Education Foundation also elected new officers. They are: Michael J. Dugan, Hastings-on-Hudson, N.Y., for his first term as Chairman of the Board; Jack C. Price,



AFA's new National President, Thomas J. McKee (left), most recently served two terms as the Aerospace Education Foundation's board chairman and also was its president. At right is Martin H. Harris, an AFA national director emeritus.

Photo by Paul Kennedy



Several AFA national secretaries gathered for a portrait during the convention. They are (top row, l-r) William D. Croom Jr. (1997-), Mary Anne Thompson (1994-97), and Thomas J. McKee (1987-90). Seated (l-r): Jack C. Price (1976-79), Martin H. Harris (1972-76), and Mary Ann Seibel (1990-94).

Pleasant View, Utah, as President; Martin H. Harris, Montverde, Fla., as Vice President; Charles B. Jiggetts, Clifton, Va., as Secretary; and Phillip J. Sleeman, Tolland, Conn., as Treasurer.

Other elections. Nine new National Vice Presidents were elected, and three National Vice Presidents were re-elected. Newly elected are Barbara M. Brooks-Lacy (Northwest Region), Francis F. Carmichael Jr. (New England Region), John E. Craig II (Central East Region), Marleen E. Eddlemon (South Central Region),

William R. Goerges (Great Lakes Region), Raymond Hamman (Northeast Region), Thomas J. Kemp (Southwest Region), Cheryl L. Waller (Far West Region), and Robert M. Williams (Midwest Region).

Elected to the Board of Directors for three-year terms were R. Donald Anderson, Poquoson, Va., Robert J. Cantu, Universal City, Texas, Ivan L. McKinney, Bossier City, La., John J. Politi, Sedalia, Mo., Phillip J. Sleeman, Tolland, Conn., and William L. Sparks, Daytona Beach, Fla.

Two new Under-Forty Directors

joining the AFA Board are Raymond C. Otto, Laurel, Md., and Max J. Stitzer, Glendale, Ariz.

For a complete list of AFA Vice Presidents and Directors, including those re-elected, see "This Is AFA" on p. 71.

Meeting concurrently at the convention were AEF trustees, Senior Enlisted Advisors of USAF major commands, and the Air Force Memorial Foundation Board of Trustees, as well as AFA's Air National Guard Council, Civilian Advisory Council, Enlisted Council, Junior Officer Advisory Council, Reserve Council, and Veterans/Retiree Council.

The newly elected AEF trustees are Richard B. Goetze Jr., Cos Cob, Conn., Victoria W. Hunnicutt, Warner Robins, Ga., Hansford T. Johnson, McLean, Va., and Edith A. Magerkurth, Merced, Calif.

There was also a joint meeting of the national executive boards of the Arnold Air Society and Silver Wings.

New constitution. The Board of Directors adopted a new constitution, which received final approval from the convention delegates. With this step, AFA, in essence, has a shortened and streamlined constitution. Much of the old constitution's detailed contents now are contained in the operations and procedures manual. Both the new constitution and the manual are available on the AFA website.

Reorganization of regions. At the start of the 1999-2000 operat-



At left, Sen. Richard Lugar delivered the keynote address at the international aerospace power symposium. Rep. Van Hilleary (left), here with Jack Westbrook of the Gen. Bruce K. Holloway (Tenn.) Chapter, checks out this year's activities.



(L-r) Gen. John Jumper, USAFE commander, Lt. Gen. Attila Kositzky, Hungary, Lt. Gen. Ladislav Klima, Czech Republic, Gen. Michael E. Ryan, USAF Chief of Staff, and Maj. Gen. Kazimierz Dziok, Poland, participated in the international aerospace power symposium.



Gen Lt Ladislav Klima
Czech Rep

ing year, AFA will undergo a reorganization that alters both the size and shape of its regions and the way the regions are represented on the board. The number of regions will grow from 12 to 14. AFA also adopted a resolution that will remove Vice Presidents from the board but will ensure each region is represented on the board by Directors elected by the regions. The title of National Vice President will change to "Region President," each of whom will serve a two-year term.

Congressional activity. AFA state delegations sponsored 23 congressional breakfasts on Tuesday and Wednesday of convention week, with 31 members of Congress participating. Among them were Sen. Charles S. Robb (D-Va.) on the Senate Armed Services Committee and Sens. Slade Gorton (R-Wash.) and Patty Murray (D-Wash.), who are on the Senate Appropriations Committee.

Also participating in the AFA breakfast meetings were several members of the House National Security Committee, including Chairman Floyd D. Spence (R-S.C.), Reps. Herbert H. Bateman (R-Va.), Saxby Chambliss (R-Ga.), Lindsey O. Graham (R-S.C.), Van Hilleary (R-Tenn.), Michael Pappas (R-N.J.), Owen B. Pickett (D-Va.), Joe Scarborough (R-Fla.), Norman Sisisky (D-Va.), John M. Spratt Jr. (D-S.C.), and Bob Stump (R-Ariz.). Congressmen Rodney Frelinghuysen (R-N.J.), David L. Hobson (R-Ohio), and Jack

Kingston (R-Ga.), members of the House Appropriations Committee, also participated. Other congressmen attending the breakfasts were Michael "Mac" Collins (R-Ga.), Nathan Deal (R-Ga.), John J. Duncan Jr. (R-Tenn.), Asa Hutchinson (R-Ark.), Jim McCrery (R-La.), and John S. Tanner (D-Tenn.). Sen. Jack Reed (D-R.I.) also attended.

State delegations meeting separately with their representatives included the Rhode Island delegation, which met with Sen. John H. Chafee (R), and the Oklahoma delegation, which visited with their representatives.

AFA's Florida delegation presented an AFA Special Citation award to Rep. Cliff Stearns (R) and named Rep. John Mica (R) an AEF Doolittle Fellow. The California, Wyoming, and South Carolina delegations made presentations to their congressmen: Rep. Ron Packard (R-Calif.), Sen. Craig Thomas (R-Wyo.), and Representative Spence. The Northwest Region made a presentation to the Air National Guard and Reserve.

AFA leaders also presented an AFA Distinguished Congressional Service Award to Sen. Dirk Kempthorne (R-Idaho).

Acting Secretary of the Air Force



CMSAF Eric W. Benken served as toastmaster at the USAF Outstanding Airmen of the Year banquet. Here, he chats with retired CMSAF James M. McCoy, who is a former AFA national president and board chairman.

F. Whitten Peters visited breakfasts hosted by Arizona, Colorado, Florida, Northwest Region, Rhode Island, South Central Region, Utah, and Virginia/West Virginia. Air Force Chief of Staff Gen. Michael E. Ryan visited the South Carolina breakfast. Vice Chief Eberhart took part in breakfasts hosted by the Colorado, Florida, Missouri/Kansas/Iowa, New Hampshire, New York, North Carolina, North Central Region, South Carolina, and Wyoming delegations.

Aerospace Education Foundation. A video on the theme of "What It Means To Be an AFJROTC Cadet" won the foundation's annual contest for presentations by AFJROTC cadets. Entitled "A Class Act," the winning entry was from NJ-821 Unit at Scotch Plains-Fanwood High School in Scotch Plains, N.J. It traced a day in the life of cadet senior Kelvin Brooks, who narrated events from formation drills to school activities such as tutoring and aerospace science projects. He emphasized the sense of pride and respect in being a cadet, the opportunity to serve as a role model in school, and the preparation that such experience contributes to a future in aerospace.

Sheila Alvanell Williams, from Columbus, Miss., won the Christa McAuliffe Memorial Award for Teachers as the year's outstanding aerospace science, mathematics, and computer science teacher. The Brig.



Photo by Paul Kennedy

Charles H. Church Jr. (right), AFA national treasurer, and George H. Chabbott, a national director emeritus and former national treasurer (1981-87), talk shop during a break in convention activities.

Gen. James R. McCarthy Chapter, Daytona Beach, Fla., received the Sam E. Keith Jr. Aerospace Education Award of Excellence. The award is named in honor of the late AFA leader and former National President and Board Chairman from Fort Worth, Texas. Lt. Col. Thomas W. Howell of Edmond, Okla., won the George D. Hardy Memorial Award. The winner is nominated by an AFA chapter for outstanding contributions to furthering the scientific, technical, and aerospace education of the nation.

On Wednesday afternoon, following the international airpower symposium, Eberhart presented the Chief of Staff Team Excellence awards to: the Launch Programs Environmental Systems Team, Space and Missile Systems Center, Los Angeles AFB, Calif.; the Aircraft Wheel Assembly Natural Working Group, 18th Wing, Kadena AB, Japan; the Turbo Propulsion Shop Natural Working Group, 130th Airlift Wing, West Virginia ANG; the C-17 Home Station Check Action Workout Team, 437th Equipment Maintenance Squadron, Charleston AFB, S.C.; and the Pharmacy Customer Service Team, 45th Space Wing, Patrick AFB, Fla.

Acknowledgments. Parliamentarian for the AFA National Convention was Martin H. Harris. Inspectors of elections were Charles G. Durazo (chairman), Gerald S. Chapman, and William A. Lafferty. Robert J. Cantu chaired the Credentials Committee, serving with John D. Bailey and Daniel C. Hendrickson.

The association is particularly grateful to a corps of volunteers who assisted the staff in convention support: Tammy Baker, Cecil Brendle, Evie Dunn, Noel Garcia, Charles and Mary Lucas, Debbie and Greg Snyder, David Sulhoff, Charlie Tippet, and Leola Wall.

The 1999 convention will be held at the Marriott Wardman Park Hotel, Washington, D.C., Sept. 13-15, 1999. ■

Photo by Paul Kennedy

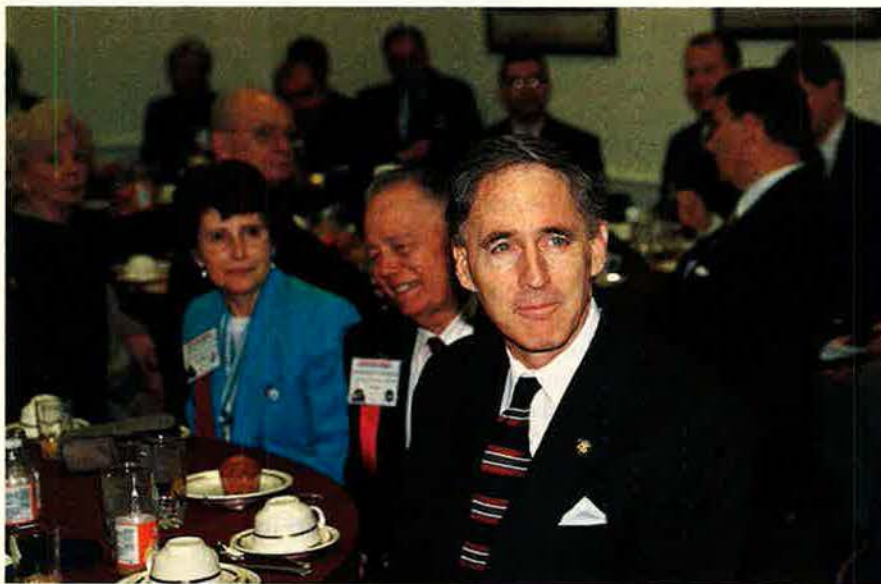


A panel discussion featured two Russians and two Americans who received their nations' highest awards for heroism. The Americans were Medal of Honor recipients Michael J. Novsel and Joe M. Jackson (right), who obliged Walter E. Scott, outgoing AEF president, with an autograph. MOH recipient Bernard F. Fisher also attended.

Leaders from Congress, the Air Force, and AFA came together during 23 Congressional Breakfasts at the National Convention. Here, CMSAF Eric W. Benken (seated) listens during a discussion with Rep. James N. Talent (R-Mo.) (right), AFA outgoing National President Doyle E. Larson (middle), and John J. Politi (left), then national vice president (Midwest Region).



Photo by Paul Kennedy

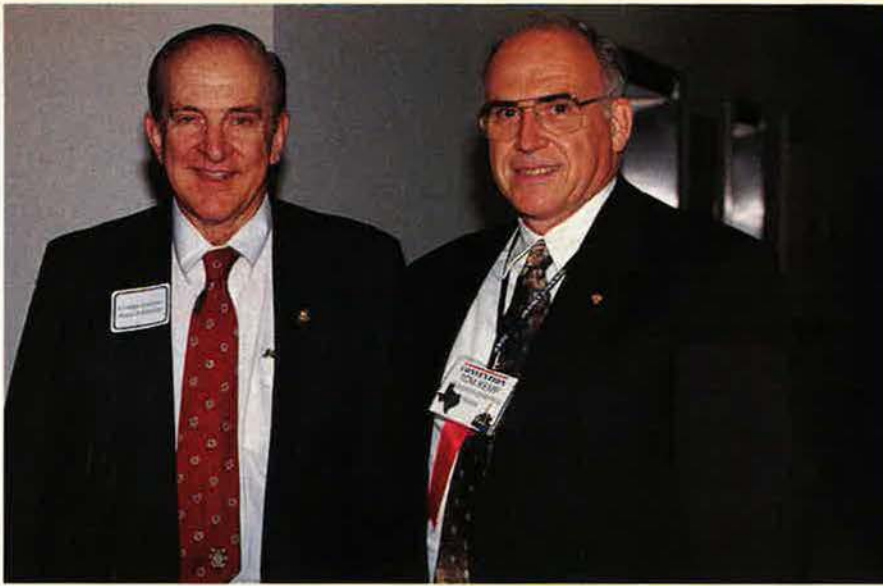


Rep. Cliff Stearns (R-Fla.) (right), a House Veterans' Affairs Committee member, received an AFA Special Citation from the Florida AFA delegation. Here, Stearns shares a table with Richard A. Ortega of the Central Florida Chapter, and his wife, Wynelle.

A breakfast hosted by the Utah delegation enabled Republican Sen. Orrin G. Hatch (left) to meet with several of his constituents. The AFAers expressed their concerns about several areas, particularly the military retirement programs and retention trends—focusing on USAF's escalating loss of key mid-level enlisted members.



Photos by Nick Kennedy



Rep. Sam Johnson (R-Texas) and Thomas J. Kemp (right), incoming national vice president (Southwest Region), talked about such issues as the threat of a hollow military force and the erosion of military retirement benefits. Kemp also thanked Johnson for his strong support of the Air Force Memorial. Texas and New Mexico combined resources for this Congressional Breakfast. Among the attendees from New Mexico was Rep. Heather Wilson (R).

Irene G. Johnigan of the Cheyenne Cowboy (Wyo.) Chapter greets Sen. Craig Thomas (R-Wyo.). At right is Maj. Gen. Gary L. Curtin, who was then director, Defense Special Weapons Agency, in Alexandria, Va. Curtin commanded the 90th Strategic Missile Wing at F.E. Warren AFB, Wyo., in the 1980s.



Rep. Cyrus Rodriguez (D-Texas) (right) of the House National Security Committee and Henry C. Hill, Texas state president, discussed the depot maintenance activities at Kelly AFB, including the award of part of the workload from the Sacramento, Calif., depot to Boeing's Kelly-based maintenance center. Other guests at this breakfast included Rep. Ralph M. Hall (D), Rep. Pete Sessions (R), Gen. Lloyd W. "Fig" Newton, AETC commander at Randolph AFB, and Lt. Gen. Donald L. Peterson, USAF deputy chief of staff for personnel, a Texas A&M graduate.

Awards

Among the prestigious awards presented at AFA's National Convention was the W. Stuart Symington Award, shared by Rep. Saxby Chambliss (R-Ga.), at left, and Rep. Norman Dicks (D-Wash.), cofounders of the bipartisan congressional Airpower Caucus.



Photo by Paul Kennedy

National Aerospace Awards

Award

H.H. Arnold Award AFA's highest honor in national security to a member of the armed forces

W. Stuart Symington Award AFA's highest honor in national security to a civilian

John R. Alison Award AFA's highest honor for industrial leadership

David C. Schilling Award outstanding contribution in flight

Theodore von Karman Award outstanding contribution in science and engineering

Gill Robb Wilson Award outstanding contribution in arts and letters

Hoyt S. Vandenberg Award outstanding contribution in aerospace education

Thomas P. Gerrity Award outstanding contribution in logistics

Department of Veterans Affairs Employee of the Year

Recipient(s)

Gen. Richard E. Hawley, commander, Air Combat Command

Reps. Saxby Chambliss (R-Ga.) and Norman D. Dicks (D-Wash.)

Philip M. Condit, chairman & CEO, The Boeing Company

BAT 10, 437th Airlift Wing, Charleston AFB, S.C.

Arthur L. Money, former assistant secretary of the Air Force for acquisition

Maj. H.R. McMaster, USA, author of *Dereliction of Duty: Lyndon Johnson, Robert McNamara, the Joint Chiefs of Staff, and the Lies That Led to Vietnam*

Air Force Institute of Technology Graduate School of Engineering

Maj. James E. Teal Jr.

Christopher N. Bacorn, South Texas Veterans Health Care System, San Antonio

Management and Environmental Achievement Awards

Award

AFMC Executive Management Award

AFMC Middle Management Award

AFMC Junior Management Award

Gen. Edwin W. Rawlings Award for Environmental Excellence (Management)

Gen. Edwin W. Rawlings Award for Environmental Excellence (Technica)

Recipient

Richard L. Hanson, Wright-Patterson AFB, Ohio

Lt. Col. Edgar A. Wright, Hanscom AFB, Mass.

Capt. Timothy R. Johnson, Brooks AFB, Texas

Gail T. Cooper, Maxwell AFB, Ala.

MSgt. Rick J. Baird, Edwards AFB, Calif.

Crew Awards and Special Citations

Award	Recipient(s)	Achievement	Accepted by
Lt. Gen. Claire L. Chennault Award	Maj. James C. Fogle, 52d Operations Support Sq., 52d Fighter Wing, Spangdahlem AB, Germany	Best aerial warfare tactician	Maj. James C. Fogle
Brig. Gen. Ross G. Hoyt Award	Crew of Mazda 85, 911th Air Refueling Sq., Grand Forks AFB, N.D.	Best air refueling aircrew	Capt. John C. Kratt
Gen. Curtis E. LeMay Award	Crew C-3, 34th Bomb Sq., 366th Wing, Mountain Home AFB, Idaho	Best bomber aircrew	Capt. William G. Eldridge
Gen. Jerome F. O'Malley Award	Rivet Joint crew, 4407th Reconnaissance Sq. and 4416th Intelligence Sq., Offutt AFB, Neb.	Best reconnaissance crew	Lt. Col. Jimmy L. Pollard and MSgt. Benjamin L. Thomas
Gen. Thomas S. Power Award	Crew S-250, 91st Operations Gp., Minot AFB, N.D.	Best missile combat crew	Cpts. Craig Ramsey and Kendra Eagan
Space Operations Award	K-18 Titan IV Launch Team, 30th Space Wing, Vandenberg AFB, Calif.	Best space operations crew	Capt. John R. Knight
Lt. Gen. William H. Tunner Award	6th Airlift Sq., 305th Airlift Mobility Wing, McGuire AFB, N.J.	Best airlift aircrew	Capt. Thomas Borowiec
Airborne Battle Management Crew	Operation Display Dragon aircrew, 12th Airborne Command & Control Sq., Robins AFB, Ga.	Best ABM crew	Maj. Kent Bennett
USAF Test & Evaluation Team of the Year	C-17 special operations Low-Level II follow-on operational test & evaluation team	Best test team	Maj. Rodney D. Carroll

Air National Guard and Air Force Reserve Command Awards

Award	Recipient(s)	Achievement	Accepted by
CMSgt. Dick Red Award	CMSgt. Faustino Jose Gutierrez, 163d Air Refueling Wing, March ARB, Calif.	Best ANG aerospace maintenance	CMSgt. Faustino Jose Gutierrez
Maj. Gen. Earl T. Ricks Award	Maj. James E. Walker, 185th Fighter Wing, Iowa ANG	Best ANG airmanship	Maj. James E. Walker
Best Air National Guard Unit	193d Special Operations Wing, Pennsylvania ANG	Top ANG unit	Col. E. Thomas Kuhn
Best Air Force Reserve Unit	513th Air Control Gp., Tinker AFB, Okla.	Top AFRC unit	Col. Kenneth D. Suggs
President's Award	Air Force Rescue 231, 920th Rescue Gp., Patrick AFB, Fla.	Best Reserve aircrew	Capt. Phillip N. Kennedy Jr.

Gill Robb Wilson Award recipient Army Maj. H.R. McMaster chats with John R. Alison, an AFA national director emeritus. McMaster is the author of Dereliction of Duty.



Photo by Paul Kennedy

Acting Air Force Secretary F. Whitten Peters presents retired Gen. Robert D. Springer with a USAF Exceptional Service Award. Springer was president of the Air Force Memorial Foundation. Joining in the applause are (l-r) Gen. Michael E. Ryan, USAF Chief of Staff; Thomas J. McKee, incoming AFA National President; Bonnie Springer; and Doyle E. Larson, outgoing AFA National President.



Citations of Honor

Recipient

TSgt. Mark S. Creasap, Minot AFB, N.D.

SSgts. Viola Eckert and Lee Przedziecki, McChord AFB, Wash.

Lt. Col. Bruce L. Gillman, SECAF Public Affairs, Los Angeles, Calif.

Maj. Thomas Lutz and aircrew, RAF Mildenhall, UK

Falcon Gold Team, US Air Force Academy, Colorado Springs, Colo.

5th Space Launch Sq., 45th Space Wing, Cape Canaveral AS, Fla.

48th Fighter Wing, RAF Lakenheath, UK

Achievement

Designed a training program for air traffic controllers and airfield management personnel.

Developed media relations program as a key recruitment tool.

Established the Air Force as a valuable resource for the production of major motion pictures and television programs.

Led search operation following a midair collision between a USAF C-141 and a German air force TU-154, off the coast of Namibia, Africa.

Designed, built, launched, and operated the Academy's first orbiting spacecraft.

Launched the Titan IVB-33 Cassini mission to Saturn.

Provided combat airpower and support for NATO and US objectives.

Professional, Civilian, and Educational Awards

Award

CMSAF Thomas N. Barnes Award for Crew Chief of the Year
Gen. Billy Mitchell Award for C⁴ Excellence
Paul W. Myers Award for Physicians
Verne Orr Award for Human Resources
Juanita Redmond Award for Nursing
Stuart R. Reichart Award for Lawyers
Personnel Manager of the Year
Civilian Wage Employee of the Year
Civilian Program Specialist of the Year
Civilian Program Manager of the Year
Civilian Senior Manager of the Year
AFROTC Cadet of the Year
CAP Aerospace Education Cadet of the Year
Diane O'Malley "Angel of the Year"
Joan Orr Award for Air Force Spouse of the Year
Christa McAuliffe Memorial Award for Teachers
Sam E. Keith Jr. Aerospace Education Award of Excellence
George D. Hardy Memorial Award
Outstanding Initiative in Visions of Exploration Program Award
Outstanding Visions of Exploration Chapter Award
Aerospace Education Foundation 1997-98 AFJROTC Winner

Recipient

SSgt. Michael T. Perkins, Kadena AB, Japan
Patricia E. Katzer, RAF Mildenhall, UK
Lt. Col. Robert A. Munson, Brooks AFB, Texas
319th Air Refueling Wing, Grand Forks AFB, N.D.
Capt. Virginia C. Johnson, Yokota AB, Japan
Col. Michael N. Madrid, Langley AFB, Va.
Capt. Victoria L. Bowens, Pope AFB, N.C.
Carl A. Bausch, Eglin AFB, Fla.
Reta M. Parsons, USAF, Washington, D.C.
Alexander Petersen, Andrews AFB, Md.
Eldon E. Hix, Whiteman AFB, Mo.
Matthew D. Cooper, Seattle Pacific University
Betany Anne Torma, Western Michigan University
Michelle C. McCaffrey, Auburn University
Ora M. Spencer, Tinker AFB, Okla.
Sheila Alvanell Williams, Columbus, Miss.
Brig. Gen. James R. McCarthy Chapter, Fla.
Lt. Col. Thomas W. Howell, Edmond, Okla.
Mile High Chapter, Colo.
Gen. E.W. Rawlings Chapter, Minn.
NJ-821 Unit, Scotch Plains-Fanwood High School, N.J.

Arthur C. Storz Sr. Membership Awards

AFA's most prestigious membership awards are named for Arthur C. Storz Sr., a former permanent AFA national director, a life member, and a principal founder of the Ak-Sar-Ben (Neb.) Chapter. The Storz membership awards, made possible through a generous endowment to the association by his son, Art Storz Jr., have been awarded for membership excellence based on criteria approved by AFA's board of directors for the year ending March 31, 1998.

State Award

Presented to the AFA state organization that produces the highest number of new members during the 12-month period ending March 31, 1998, as a percentage of total state membership as of March 31, 1997, and meets certain other minimum indicators of overall performance and excellence.

AFA Alaska

Chapter Award

Presented to the AFA chapter that produces the highest number of new members during the 12-month period ending March 31, 1998, as a percentage of total chapter membership as of March 31, 1997, and meets certain other minimum indicators of overall performance and excellence.

Steel Valley, Ohio

Individual Award

Presented to the AFA member who has done the most to promote AFA membership during 1997-98.

Jack L. Ventling, Ohio

1998 Unit Activity Awards

Donald W. Steele Sr. Memorial Award

AFA Unit of the Year
Ark-La-Tex Chapter, La.

Outstanding Region of the Year Award

Rocky Mountain Region

Outstanding State Organization

Florida State

Outstanding Chapters

Large Chapter: Northern Utah Chapter, Utah
Medium Chapter: Steel Valley Chapter, Ohio
Small Chapter: Leigh Wade Chapter, Va.

Exceptional Service Awards

President's Award for Public Education (Small Chapter): Contrails Chapter, Kan.
Best Single Program: Central Missouri Chapter, Mo.
Communications: Central Florida Chapter, Fla.
Community Partners: Enid Chapter, Okla.
Community Relations: Ak-Sar-Ben Chapter, Neb.
Overall Programming: Gen. B.A. Schriever Los Angeles Chapter, Calif.
Veterans' Affairs: Gen. E.W. Rawlings Chapter, Minn.

Jack Gross Award

These awards recognize the chapter in each size category with the highest number of new members as a percentage of chapter size at the beginning of the membership year. A minimum of 10 is required. (The award is based on their recruitment of new members during the 12-month period ending March 31, 1998.)

Small Chapter	Leigh Wade, Va.
Medium Chapter	Steel Valley, Ohio
Large Chapter	Northeast Texas, Texas
Extra Large Chapter	Ark-La-Tex, La.
Chapter Larger Than 1,500	Carl Vinson Memorial, Ga.

AFA Staff Member of the Year

A donation from Jack Gross, national director emeritus, enables AFA to honor staff members each quarter. Those members become eligible for AFA Staff Member of the Year.

1992	Doreatha Major
1993	Jancy Bell
1994	Gilbert Burgess
1995	David Huynh
1996	Sherry Coombs
1997	Katherine DuGarm

Special Recognition—Sustained New Member Recruitment

These awards recognize chapters that have attained the quarterly new member recruitment goal for three consecutive quarters, from October 1997 to June 1998. (The awards are based on their recruitment of new members during the 12-month period ending March 31, 1998.)

Bakersfield, Calif.
Taunton, Mass.
Metro Rhode Island, R.I.
Atlantic City Area, N.J.
Highpoint, N.J.
Chautauqua, N.Y.
Eagle, Pa.
Total Force, Pa.
Leigh Wade, Va.
Danville, Va.
Northern Shenandoah Valley, Va.
Florida Highlands, Fla.
Central Florida, Fla.
Miami, Fla.
John W. DeMilly Jr., Fla.
On Wings of Eagles, Fla.
Fort Wayne, Ind.
Terre Haute-Wabash Valley, Ind.
Mount Clemens, Mich.
Lloyd R. Leavitt Jr., Mich.
Steel Valley, Ohio
Ark-La-Tex, La.
Richard D. Kisling, Iowa
Northeast Iowa, Iowa
Contrails, Kan.
Central Missouri, Mo.
Enid, Okla.
Concho, Texas
Northeast Texas, Texas
Anchorage, Alaska
Richard S. Reid, Ariz.
Cochise, Ariz.



Retired USAF Brig. Gen. G. Peyton Cole Jr., Ark-La-Tex (La.) Chapter president, and his wife, Katherine, rest for a moment during the AFA National Convention. The Ark-La-Tex Chapter, about 1,140 members strong, received the Donald W. Steele Sr. Memorial Award as AFA unit of the year.

Photo by Paul Kennedy

1998 Individual Activity Awards

Member of the Year

Ivan L. McKinney, La.

Gold Life Membership Card

No 1998 recipient

Special Award

No 1998 recipient

Presidential Citations

George Aguirre, Va.
Samuel M. Gardner, Kan.
Fred Kubli Jr., Ohio
Robert E. Patterson, Fla.
Jack H. Steed, Ga.
Mark J. Worrick, Colo.
Charles P. Zimkas Jr., Colo.

Central East Region

Medal of Merit

Dennis Alvey, Va.*
Monte Correll, Va.
Keith A. Ebert, Va.
Robert Maiocco, Va.
Edward R. Martin, Va.
Ellen Merilic, Va.
Alan J. Swygert, Va.
Glen E. Thompson, Va.
Thomas Veltri, Va.
Robert Walsh, Va.

Exceptional Service Award

Capt. Charles P. Armentrout, Va.*
CMSgt. Marie Ashmore, Md.*
CMSAF Eric Benken, Md.*
Barry F. Creighton, Va.
Wayne R. Gracie, Va.*
Lynn Matsler-Brod, Va.*
Brig. Gen. John F. Regni, Va.*
Sean Ryan, Va.
Allan M. Van Wickler, Va.
Thad A. Wolfe, Va.*

*Recognized by Awards Committee for significant achievement as members of AFA advisory councils.

Europe Region

Special Citations

James C. Harding, AE

Far West Region

Medal of Merit

Donald L. Cromer, Calif.
Jeffrey Fason, Calif.
Donna Gibson, Ariz.
Joel T. Hanson, Calif.
Richard L. Jones, Calif.
Vernon M. Karlin, Calif.
Louis J. Kridelbaugh, Calif.
Richard M. May, Hawaii
Donita F. Plaumann, Ariz.
John R. Ransome, Calif.
John C. Scherer, Calif.
Robert R. Skloss, Calif.
Michael E. Solomon, Hawaii

Exceptional Service Award

Kathryn G. Chapman, Calif.
Angelo Di Giovanni, Ariz.
Stanley J. Hryn, Calif.
Paul A. Maye, Calif.
Charles E. Whited, Calif.

Special Citations

Kathleen L. Landis, Calif.
John Lynch, Calif.

Great Lakes Region

Medal of Merit

Richard DeYoung, Mich.
Michael E. Harold, Ohio (posthumously)
Duane E. Hinds, Iowa
Jeanne L. Hissem, Ind.
David H. Leimenstoll, Ind.
Richard J. Luckay, Ohio
William Monica, Mich.
Francis E. Newton, Ind.
Carole J. Parise, Ill.
William Tester, Ind.
Jack L. Ventling, Ohio

Exceptional Service Award

John D. Bailey, Ill.
Lyle W. Marschand, Ind.
Edward S. Papelian, Mich.
Kenneth R. Wheeler, Ohio

Midwest Region

Medal of Merit

David K. Burke, Kan.
Ronald E. Crow, Kan.
Dennis R. Kumm, Neb.
Charles E. Sharp, Kan.
Dennis B. Swanstrom, Iowa
Gary M. Young Sr., Mo.
John P. Weatherford, Mo.

Exceptional Service Award

John J. Politi, Mo.
Catherine L. Williams, Neb.

New England Region

Medal of Merit

Lawrence Flynn, Mass.
Harry I. Gillogly, Mass.
William S. Goodhand, Mass.
Richard C. Lockridge, Mass.
Edward E. Myllmaki, Mass. (posthumously)

Exceptional Service Award

Dr. Eugene D'Andrea, R.I.
Louis Emond, Mass.

North Central Region

Medal of Merit

Curtis H. Halverson, N.D.
Marc Miller, Minn.
Charles A. Nelson, S.D.
Coleman Rader, Minn.
Vladimir Tkach, Minn.

Exceptional Service Award

Capt. Korvin D. Auch, N.D.*
Clayton C. Pyle, Minn.

*Recognized by Awards Committee for significant achievement as members of AFA advisory councils.

Northeast Region

Medal of Merit

Fred DiFabio, N.Y.
Robert Iarussi, Penn.
Mary F. Lower, N.J.
Charlene Nicholson, N.Y.
Ernest R. Seeling, N.J.

Exceptional Service Award

John Dunderdale, N.Y.
Sandy L. Sandlin, N.J.
William G. Stratemeler Jr., N.Y.
Marylyn V. Zywan, N.Y.

Northwest Region

Medal of Merit

Robert W. Menestrina, Ore.
Vernon R. Quick, Ore.
Lavern A. Willie, Ore.

Pacific Region

Medal of Merit

Maj. Ronald G. Bransford, Japan

Rocky Mountain Region

Medal of Merit

John L. Dearness, Utah
Barbara B. Flores, Colo.
Karl McCleary, Utah
Stephan A. Pappas, Wyo.
Michael E. Peterson, Colo.
Joan L. Sell, Colo.

Exceptional Service Award

Craig Allen, Utah
Lawrence B. Anderson, Utah
Larry D. Fortner, Colo.
Edmund L. Robert, Colo.

South Central Region

Medal of Merit

Billy M. Boyd, Miss.
Morris D. Cash, Ark.
Mark J. Dierlam, Ala.
Col. Robert Kraynik, Ala.*
Ralph W. Stephenson, La.
Russell L. Tucker, Tenn.
Lt. Col. Jimmie Varnado, Ala.*
Nancy R. Zehrer, Ala.

Exceptional Service Award

Col. Robert L. Brooks, Ala.*
Joseph E. Sutter, Tenn.

*Recognized by Awards Committee for significant achievement as members of AFA advisory councils.

Southeast Region

Medal of Merit

Michael D. Chickini, Ga.
Thomas V. Gammon, Fla.
Rodgers Greenawalt, S.C.
Lawrence R. Hahn, Ga. (posthumously)
Brig. Gen. Walter Hatcher III, Ga.*
Dennis F. Hilley, Fla.
Gary E. McCurry, Fla.
Michael E. Richardson, Fla.
Rocco J. Torre, Fla.

Exceptional Service Award

Jerry H. Nabors, Fla.
Raymond Turczynski Jr., Fla.

Special Citations

Richard A. Ortega, Fla.

Southwest Region

Medal of Merit

Dottie Bobo, Okla.
Ralph Charlip, Texas
Richard L. Knapp, Okla.

Exceptional Service Award

Capt. Robert K. Mendenhall, Texas



Winner to winner: Ivan L. McKinney, outgoing national vice president (South Central Region) and an Ark-La-Tex Chapter member, holds his AFA Member of the Year plaque as he shakes the hand of a fellow award recipient, MSgt. Daniel L. Edwards Jr., one of this year's USAF Outstanding Airmen.

1998 Community Partner Membership Awards

The following chapters have qualified for these awards based on their recruitment of new members during the 12-month period ending March 31, 1998.

Exceptional Service Award

Selection for this award is made by the National Awards Committee from among the chapters that have recruited the greatest percentage of Community Partners, in terms of chapter membership.

Enid, Okla.

Contraails, Kan.
Enid, Okla.
Steel Valley, Ohio
Lloyd R. Leavitt Jr., Mich.
Carl Vinson Memorial, Ga.
Robert H. Goddard, Calif.
Cape Canaveral, Fla.
Colorado Springs/Lance Sijan, Colo.
Ark-La-Tex, La.

Gold Awards

These awards recognize chapters that have a total number of Community Partners equal to or greater than 6 percent of overall chapter membership, with a minimum number of Community Partners to qualify. The minimum number is determined by the chapter size.

On Wings of Eagles, Fla.
William A. Jones III, Va.
Delaware Galaxy, Del.
Gen. David C. Jones, N.D.
Pope, N.C.
Long's Peak, Colo.
Gen. Charles L. Donnelly Jr., Texas
Golden Triangle, Miss.
Florida Highlands, Fla.
Concho, Texas
Total Force, Pa.
Llano Estacado, N.M.
Leigh Wade, Va.
Swamp Fox, S.C.
Col. H.M. "Bud" West, Fla.
John W. DeMilly Jr., Fla.
Fort Wayne, Ind.
Richard D. Kisling, Iowa
Eagle, Pa.
Altus, Okla.
Northeast Texas, Texas
Richard S. Reid, Ariz.
High Desert, Calif.

Achievement Awards

These awards recognize chapters that have a total number of Community Partners equal to or greater than 3 percent of overall chapter membership, with a minimum number of Community Partners to qualify. The minimum number is determined by the chapter size.

Heart of the Hills, Texas
John C. Stennis, Miss.
Gen. B.A. Schriever Los Angeles, Calif.
Central Missouri, Mo.
Mount Clemens, Mich.
Tidewater, Va.
Scott Berkeley, N.C.
Anchorage, Alaska
Cape Fear, N.C.
Jackson, Miss.
Fairbanks Midnight Sun, Alaska
Happy Hooligan, N.D.
Chautauqua, N.Y.
Albuquerque, N.M.
Central Oklahoma (Gerrity), Okla.
Wright Memorial, Ohio
David D. Terry Jr., Ark.
Langley, Va.
Montgomery, Ala.

Named in Memorial Tribute

Deaths during the past year formally recognized by the convention

Milton Adler
Edward J. Allen
Brig. Gen. James S. Allen, USAF (Ret.)
Capt. James T. Bailey Jr., USAFR (Ret.)
Maj. Gen. Benjamin R. Baker, USAF (Ret.)
MSgt. Robert L. Boyce, USAF (Ret.)
SMSgt. James B. Brown, USAF (Ret.)
Lt. Col. Ned H. Brown, USAF (Ret.)
Maj. Timothy F. Cahill, USAF (Ret.)
Earl D. Clark Jr.
Col. John H. Combs, USAF (Ret.)
Sherry Coombs
Col. Louis Cummings, USAF (Ret.)
Alban E. Cyr Sr.
Lt. Col. Sidney R. Davis, USAF (Ret.)
SMSgt. Major Durrett, USAF (Ret.)
CMSgt. Robert E. Eversole, USAF (Ret.)
Col. Francis B. Gallagher, USAF (Ret.)
Esther B. Gill
Barry M. Goldwater
Dr. Karl Gottfried Guderley
CMSgt. Lawrence R. Hahn, USAF (Ret.)
Fred P. Hollowell
Michael E. Harold
Joe H. Higgins
Robert E. Holland
Jean P. Hufnagel
Col. William R. Humphrey, USAF (Ret.)
Gen. Robert E. Huyser, USAF (Ret.)
Gen. Leon Johnson, USAF (Ret.)
Frederick J. Kahn
Robert J. Kaufman
Aarne Kolhonen
Lt. Col. Edmund B. Lynn, USAF (Ret.)
Lt. Gen. David J. McCloud, USAF
CMSgt. Malcolm McVicar, USAF (Ret.)
Col. Alvin R. Moorman, USAF (Ret.)
Lt. Gen. Thomas S. Moorman Sr., USAF (Ret.)
Beth Munn
Lt. Col. Edward E. Myllmaki, USAF (Ret.)
SMSgt. Sherry Lynn Olds
Eric A. Ortega (Son of Richard Ortega)
Lt. Col. John A. Pompetti, USAF (Ret.)
Gen. E.W. Rawlings, USAF (Ret.)
Sally R. Reid
Julia Reynolds
Col. J. Paul Robertson, USAF (Ret.)
Roy Rogers
Maj. Maud K. Schaub, USAFR (Ret.)
Phillip Siavells
MSgt. William K. Skidmore Jr., USAF (Ret.)
Maj. Gen. Dale O. Smith, USAF (Ret.)
John V. "Jack" Sorenson
Capt. Raymond J. Thurber, USAF (Ret.)
Patricia E. Whipp
Lt. Col. Richard M. Wray, USAF (Ret.)

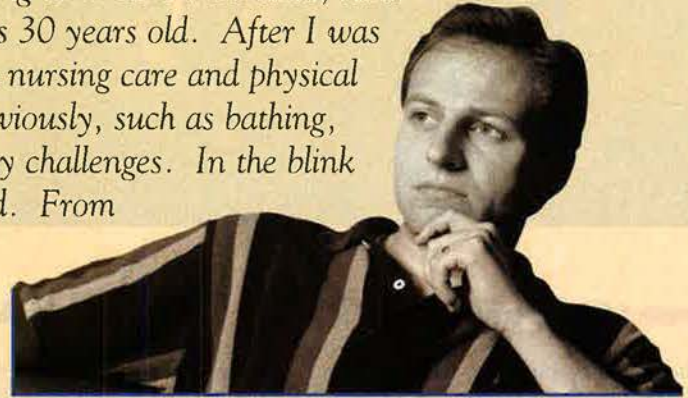


AIR FORCE ASSOCIATION LONG-TERM CARE PROGRAM



"I never gave much thought to purchasing long-term care insurance, until two years ago when I was hit by a car. I was 30 years old. After I was released from the hospital, I needed at-home nursing care and physical therapy. Tasks I had taken for granted previously, such as bathing, feeding and dressing myself, became everyday challenges. In the blink of an eye, I had become my wife's third child. From that experience, I learned the importance of planning ahead."

George Shave, Health Care Professional



Anyone, at any age could require long-term care. Long-term care can be costly, whether care is received at home or in a nursing facility. Dealing with long-term care needs can be difficult for the family, both emotionally and financially.

Unfortunately, the need for long-term care services is not uncommon. With the high cost of long-term care services, greater life expectancies and the aging baby boomer generation, providing and paying for long-term care have become a serious dilemma.

Consider the following facts:

- Three out of five people over the age of 65 will need some type of long-term care over their lifetime.¹
- Forty percent of all people who need long-term care are under the age of 65.²
- The average nursing home stay of 2.6 years³ can easily exceed \$100,000.⁴
- Care at home can cost over \$20,000 a year.⁵

¹ Project Report for the Health Insurance Association of America, 1990.

² United States General Accounting Office, 1995.

³ *New England Journal of Medicine*, 1991.

⁴ Health Insurance Association of America, 1997.

⁵ Long Term Care Group, Inc., 1997.

What is long-term care?

It is the extended personal care you may need when—because of a chronic illness, injury or old age—you need help with basic activities like dressing, bathing or eating, whether at home or in a nursing facility.

Who Pays For Long-Term Care?

- Private health and disability plans and Medicare typically provide little or no coverage for long-term care.
- Medicaid only pays once you've exhausted virtually all your assets paying for care.

AFA's Long-Term Care Program

- AFA members, current and former military personnel, and their spouses, parents and parents-in-law, will be eligible for this important coverage.
- AFA's customized program will provide comprehensive coverage at competitive group rates.

Detailed information about this valuable new AFA program will be sent to members in early 1999.

The Outstanding Airmen

By Tamar A. Mehuron, Associate Editor



Photo by Nick Kennedy

The 1998 USAF Outstanding Airmen pose beneath the painting of the signing of the Declaration of Independence at the US Capitol. They are (l-r) MSgt. Daniel L. Edwards Jr., SrA. Homero H. Ruiz Perez, TSgt. Jessica L. Wilson, SrA. Joseph L. Caldiero Jr., SrA. Aileen D. Fermin, TSgt. Sandra L. King, SMSgt. Deidra J. Moore, SMSgt. Pamela J. Lane, TSgt. Gil Morales, SMSgt. Joseph L. Holguin, TSgt. Quinton K. Yoakum, and MSgt. Timothy Gordon.

SrA. Joseph L. Caldiero Jr. distinguished himself by being promoted to flight kitchen manager—a post normally held by seasoned staff sergeants. As the flight kitchen manager for AFSOC's 16th Services Sq., Hurlburt Field, Fla., he transformed a mediocre flight kitchen into a top-notch and innovative program—rated No. 1 by the Air Force in 1997. As a shift leader he launched a new menu featuring popular weekly and monthly ethnic specials. The dramatic improvements earned the squadron the 1997 John L. Hennessy Trophy for USAF's best single-facility food program.

MSgt. Daniel L. Edwards Jr., now assigned to the 86th Security Forces Sq., Ramstein AB, Germany, served as chief, Operations Flight, for AETC's 47th Security Forces Sq., Laughlin AFB, Texas. On a deployment to Saudi Arabia, he found the security forces short-staffed and working 14-hour days on a six-day schedule. He reorganized the schedule for 12-hour duty days, on a three-day schedule. His actions produced new efficiencies, and morale skyrocketed. An expert in theater force protection, Edwards also worked closely with the Joint Task Force—Southwest Asia and

Royal Saudi Air Force intelligence community.

SrA. Aileen D. Fermin works as a telecommunications operator with the Pentagon Communications Agency. She renovated the training program for the 90-person office and incorporated new step-by-step training procedures for more than 265 tasks. She directly contributed to Operations Southern Watch, Provide Comfort, Assured Response, and Joint Endeavor by writing a troubleshooting guide for communications center operators.

MSGt. Timothy Gordon is the superintendent for Airfield Communications Element, 100th Communications Sq., RAF Mildenhall, UK. His expertise and leadership contributed to the squadron earning the 1997 USAFE Maintenance Effectiveness Award. His efforts helped the unit yield maintenance uptime rates of 99.8 percent for tactical air navigation equipment and 99.6 percent for instrument landing system equipment. The unit's excellent performance garnered a quarterly Flight Safety Award, a rarity for a non-flying unit. Gordon's work with USAFE's special maintenance team improved command-and-control links for special contingencies from Norway to Africa for the 352d Special Operations Gp.

SMSGt. Joseph L. Holguin, with ACC's 15th Reconnaissance Sq., Indian Springs AAF, Nev., is chief of maintenance for USAF's Predator Unmanned Aerial Vehicle squadron. He established the maintenance operation and beddown of the Predator within the Air Force. His efforts resulted in the refurbishment of seven uninhabitable facilities, the design of six military construction projects, and the acquisition of 45 UAVs, 11 ground control stations, and 11 US Army Trojan Spirit II SATCOM systems. In addition, Holguin established maintenance qualification training standards for Predator and Trojan Spirit II satellite communications. He developed procedures to support deployed operations, initial qualification training, and continued squadron training.

TSgt. Sandra L. King serves with the 354th Mission Support Sq., Eielson AFB, Alaska. As PACAF's first readiness NCO, she established the new family readiness program that

helps military families face the challenges of long deployments of spouses and parents. She researched and prepared a Family Readiness Response Plan concerning mass wartime contingency, deployments, casualties, natural disasters, and evacuations. Her innovative "Stay Connected" electronic mail link enabled spouses and children to keep in better touch with deployed active duty members.

SMSGt. Pamela J. Lane is a superintendent for equipment maintenance at Kadena AB, Japan, with AFSOC's 353d Maintenance Sq. She oversees the corrosion control program and structural repairs of all 353d Special Operations Gp. fixed-wing aircraft and supervises 73 military and three civilians. Under her leadership, the 353d had the lowest repair-cost-per-flying-hour rate in AFSOC for Combat Talon II aircraft. The squadron's night vision goggle serviceability rate of 99.8 percent is the best in AFSOC and attests to her superior management.

SMSGt. Deidra J. Moore serves as the superintendent for USAF's only drug testing laboratory, located at Brooks AFB, Texas. Her design of an enlisted rotation program ensured technicians were certified in all areas of drug testing, thereby providing management more flexibility in staffing. Moore's reorganization of enlisted positions spelled out career paths and aligned responsibilities commensurate with rank. She also wrote and implemented a master training plan for the drug testing division.

TSgt. Gil Morales' maintenance expertise and leadership skills led to his unit's selection as AMC's Maintenance Effectiveness Award winner for 1997. He serves as an aircraft engine craftsman with AFRC's 514th Maintenance Sq., McGuire AFB, N.J. At Phoenix Pace, he discovered a previously overlooked crack in an engine's ring cowl assembly and replaced it with a new assembly in minimal time. During a period of leadership transition and personnel drawdown, Morales started a newsletter to inform fellow Reservists of policy changes, upcoming events, and propulsion and career information.

SrA. Homero H. Ruiz Perez, 341st Civil Engineering Sq., Malm-

strom AFB, Mont., served as lead computer draftsman in 1997 on 18 project designs, among them renovation for six missile alert facilities and design work that ensured the corrosion protection for 50 launch facilities into the next decade. Perez created a digital emergency fire response plan for all base facilities that cut the fire department's response time by 25 percent. His use of 3-D imagery for a nuclear surety inspection was a key factor in resolving a compliance issue. He also initiated compilation of more than 8,000 record drawings into a new database system.

TSgt. Jessica L. Wilson, wing resource protection manager with AMC's 437th Security Forces Sq., Charleston AFB, S.C., created the first Level 1 force protection briefing for the 437th Airlift Wing. Its success led other AMC wings to request it. When NationsBank planned to establish a facility in an AMC commissary—a first—Wilson coordinated the alarm installation and anti-robbery procedures. She conducted 50 annual anti-robbery exercises in high-target facilities and made sure that personnel were properly trained for high-risk robbery situations. As the first female graduate of AMC's Phoenix Raven program, Wilson served as team leader on six Phoenix Raven missions, providing excellent en route aircraft and personnel security for C-17, C-141, and C-130 missions to worldwide locations.

TSgt. Quinton K. Yoakum, environmental technician for ACC's Lajes Field, Azores, Portugal, introduced new pest control technology such as baits and gels and cut pesticide use by 65 percent. His efforts helped the field achieve DoD goals three years ahead of schedule. An expert on Azorean entomology issues, specifically Japanese beetle eradication, Yoakum was tapped by ACC and the US State Department to spearhead actions with the Azorean Department of Agriculture and the local university concerning the insect. Under Yoakum's leadership, his section's productivity jumped more than 25 percent, and they completed 445 of 469 routine and urgent work orders. Their performance earned them the 1997 ACC Overseas Environmental Quality Award. ■



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Aerospace Technology Exposition

At the Aerospace Technology Exposition, 95 exhibitors helped illustrate the theme for the Air Force Association's 1998 National Convention: "Aerospace Power—The International Dimension."



Staff photos by Guy Aceto

Maj. Gen. Kazimierz Dziok, commander of the Air and Air Defense Forces of Poland, gets "checked out" in a Lockheed Martin F-22 cockpit demonstrator. Dziok also spoke at the convention's first international airpower symposium.



A representative from Rafael gives Capt. Scott McClean information on the Python 4, a fourth-generation air-to-air missile. Rafael also displayed its new day/night navigation/targeting pod, a joint effort with Northrop Grumman.



Northrop Grumman representative Ed Riley describes the company's Unmanned Combat Aerial Vehicle to ROTC cadets (l-r) Heidi Kaiser from Embry-Riddle Aeronautical University, Maria Bararo from Syracuse University, and Gregory Grimes from Rensselaer Polytechnic Institute. The one-third-scale model showed the UCAV's roots in the B-2.

Several US Air Force organizations joined defense industry companies as exhibitors. At the booth for the Joint Direct Attack Munition System Program Office at Eglin AFB, Fla. (l-r), Maj. Mike Joy discusses the JDAM with Cols. Bill Corbett and Ray Caddell.



A hot topic at the exposition was the new Expeditionary Aerospace Force concept, here explained in a briefing by Lt. Col. Rocky Kimpel, deputy director, Expeditionary Force Experiment Task Force, Langley AFB, Va.

Aerospace Exhibitors in Review

Companies represented at the AFA Aerospace Technology Exposition

Aerjet Technology In reusable and expendable strategic- and space-propulsion systems; aircrew ejection seats.

Air Force Flight Test Center, Edwards AFB, Calif. The scene of more major milestones in flight than any other place on Earth.

Air Force Junior Reserve Officers Training Corps

Air Force Weather Agency, Offutt AFB, Neb. Enhances the nation's capability with quality weather and space products, training, equipment, and communications.

Alliant Techsystems Titan and Delta rocket motors, missile propulsion systems, MMPT, infrared flares, 25 mm ammunition, CTA, SFW, and CMBRE.

AlliedSignal Aerospace Supplier of advanced technology components, auxiliary power, business aircraft propulsion, avionics, engine control systems, wheels and brakes, actuation components, and anti-submarine warfare sonar.

ANSER, Inc. SCATS is a USAF-approved work flow process for over 3,000 users.

Armed Forces Bank A full-service bank with military oriented services.

Armed Forces Benefit Association Provides low-cost insurance products to military personnel, federal civilians, and their current and former dependents.

Armed Forces Journal International Independent, professional journal of military and industrial affairs.

Army and Air Force Mutual Aid Association A nonprofit service organization serving military members since 1879.

Army Times Publishing Co. Publisher of several newspapers aimed at members of the armed services and their families.

Arnold Engineering Development Center, Arnold AFB, Tenn. Long-range planning; the most advanced and largest complex of flight simulation test facilities in the world.

Atlantic Research Corp. A unit of Sequa Corp., one of the world's leading producers of rocket propulsion.

Bell Helicopter Textron Features the CV-22 Osprey, upgraded UH-1Y, and TR911 helicopters.

BFGoodrich Aerospace A broad-based supplier of aircraft systems and service, providing both initial production and replacement products.

Boeing Company, The A wide range of air- and space-based products that support the full spectrum of Air Force warfighting operations.

Booz-Allen & Hamilton An international technology and management consulting firm committed to helping organizations solve complex problems.

Clear Path, Inc. Products that utilize inherent heat to instantly melt snow and ice.

Daimler-Benz Aerospace AG (DASA) One of the world's leading companies for design, manufacture, and support of military and training aircraft.

Defense Information Systems Agency

Defense Systems Management College

Dowty Aerospace Products include specialized hydraulics and actuation systems, turbine engine components, and all-composite bladed propellers.

DRS Technologies Inc. Precision Echo featured Mission Recorder products; Photonics featured its Data Optic product line; Flight Safety and Communications featured the EAS3000 which protects flight and voice data.

DynCorp/EFW, Inc. Teamed to offer USAF a C-130 avionics modernization solution.

First Flight (of Glen Alpine, N.C.)

FLIR Systems, Inc. High performance, affordable, single- or multisensor airborne, handheld, and ground-based surveillance systems.

FPA Business-RSC Leader in tactical IR Focal Plane Arrays, Dewars, and Cryogenic Coolers.

Galaxy Aerospace Corp.

GE Aircraft Engines Engines forming the backbone of today's fleets, solutions for the JSF program, and the Axisymmetric Vectoring Exhaust Nozzle.

GEC-Marconi Dynamics Low-cost expansion wing kit for JDAM, SSBRE, and WCMD.

General Atomics A leader in high technology R&D, taking concepts through prototype to full-scale development.

General Atomics Aeronautical Systems, Inc. World leader in the development and manufacturing of remotely operated aircraft.

Gulfstream Government Sales and Marketing Manufactures high performance, large cabin, long-range business and special mission jets.

Interstate Electronics Corp. Expertise in differential GPS technology and implementation.

Israel Military Industries Products designed to improve the capabilities of US fighters and other aircraft.

Jane's Information Group Online access to more than 300 of Jane's sources of defense, aerospace, and geopolitical information.

John Deere Co. The M Gator, a commercial off-the-shelf, small tactical utility vehicle.

Kerrigan Media Intl., Inc. Publisher of military magazines.

Kwajalein Missile Range The US Army's premier missile test range.

L-3 Communications An independent supplier of secure communication systems and products.

Linkabit Wireless, Inc. World leader in the design, development, and production of DAMA SATCOM systems.

Litton Industries

Litton Amecom Electronic warfare and information sensors; ATC and defense telecommunication systems.

Litton Applied Technology Threat warning, advanced missile approach warning systems, and electronic support measures.

Litton Data Systems R/SAOC upgrade program and other advanced technology projects.

Litton Guidance & Control Inertial navigation systems, altitude and heading reference systems, inertial platforms, and inertial measurement systems.

Lockheed Martin The fighter enterprise, launch vehicles, transport aircraft, precision strike, and reconnaissance space systems.

Lucas Aerospace Capabilities for such USAF programs as JSF, JSOW, and C-130.

Market Lubbock, Inc. Economic Development Corp. The full-service economic development organization for the Lubbock, Texas, area.

Martin-Baker Aircraft Co. Ltd. US16B ejection seat developed for the JSF.

Motorola Integrated communications solutions.

NASA/Marshall Space Flight Center

National Guard Counterdrug Directorate

National Imagery & Mapping Agency Provides critical support for national decision-making process; contributes to high state of US military operational readiness.

Nichols Research Corp.

North American Technology & Industrial Base Orgn. A cooperative effort of the US and Canadian defense departments to achieve rapid intersection of advanced technologies in the North American industrial base.

Northrop Grumman The technologies, resources, and critical skills for emerging requirements in surveillance, precision strike, advanced battle management, and information.

Orbital, Fairchild Defense An experienced contractor in the design, development, production, integration, and test of advanced digital electronics and avionics systems.

ORINCON Corp. Developed the Aircraft Classification and Tracking on Surfaces System for identification and alerting of potential runway incursion situations to ground controllers.

Parker Aerospace Products geared toward Air Force applications.

Pentagon Federal Credit Union

Pratt & Whitney, A United Technologies Company

P&W Canada PT6 engine.

P&W Large Military Engines The F117, F119, and F100-229.

P&W Space Propulsion The EELV, RD180, Minuteman, and Orbus family of motors.

P&W USBI Co. The DRAGON System—precision cargo delivery; CST—coating application system.

Rafael Python 4 air-to-air missile, HAVE NAP air-to-ground missile, and Litening day/night navigation/targeting pod.

Raytheon Systems Co. Products and services in defense electronics, commercial and special mission aircraft, and engineering and construction.

Recon/Optical, Inc. CAI Supplier of tactical reconnaissance cameras and long-range reconnaissance systems, infrared line scanning systems, as well as military and industrial optics and windows.

Rockwell Collins Avionics & Communications Advanced communications, navigation, and mission management solutions.

Rolls-Royce Allison Develop, design, produce, and support worldwide Air Force fighter, transport, and patrol aircraft with the Joint Strike Fighter LiftFan system.

Rolls-Royce North America Major aircraft engine supplier to USAF.

Sargent Fletcher, Inc. Manufacturer of aircraft external fuel tanks.

Smiths Industries Aerospace Systems for Global Air Traffic Management, cockpit modernization, and capabilities to lower training costs and monitor aging fleets.

Stanley Government Sales Storage aids for FOD and HAZMAT Storage Systems and MAC and PROTO tools.

STRATOS Mobile Networks (USA) LLC

TEAC America, Inc. Worldwide leader in ruggedized airborne video recorders and reproducers.

Team SBIRS Low

Teledyne Ryan Aeronautical Global Hawk—DoD's high altitude endurance

unmanned aerial reconnaissance system.

Textron Systems SFW, JSOW with BLU-108/B submunition, P3L version of the BLU-108 submunition, mobile microwave landing systems and airborne surveillance, and laser radar systems.

Thiokol Propulsion Producer of solid rocket motor propulsion systems and provider of related technical services.

Toys and Models Corp. Aerospace display models.

TRW Space, Defense & Information Systems Space, information technology, and avionics systems and advanced technologies for space-based surveillance and communications, ICBM systems, low-cost satellites, combat simulation and training, ground control, imaging, integration systems, and F-22 and JSF avionics.

USAA Auto, property, life, and health insurance, investments, banking services, and travel and merchandising services.

US Army Corps of Engineers—Sacramento District Quality, responsive engineering service to the nation.

US Army Space & Missile Defense Command Space products and expertise to support land forces.

USAF-Eglin AFB, Fla., Joint Direct Attack Munition SPO MK-83 JDAM mock-up—simulated BLU-109 penetrating a concrete slab.

USAF Modeling, Simulation & Analysis Interactive air-to-air and air-to-ground fighter simulation in a virtual environment.

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The State of the Force

By Peter Grier

Acting Secretary Peters

Heavy demands of international operations have hit USAF people and equipment hard in recent years, said acting Secretary of the Air Force F. Whitten Peters in a Sept. 15 address to the AFA National Convention and Aerospace Technology Exposition.

The service remains ready today, but the current pace of operations is not sustainable, according to Peters.

"In a nutshell, the Air Force is caught between a flat budget topline and increasing costs of operations," said the acting Secretary.

In the recent past, service leaders have often squeezed out the cash for contingency operations and readiness by cutting back on force size or scrimping on modernization, military construction, real property maintenance, and investment in research and development.

"This strategy is no longer viable," said Peters.

For one thing, with the exception of domestic base infrastructure, the Air Force is done shrinking. End strength has already been reduced by more than 40 percent, as has the current aircraft inventory. Major overseas bases have been cut by two-thirds.

Without another congressional round of base closings "we cannot go any further," said Peters.

Second, remaining USAF aircraft are aging to the point where they are becoming more difficult to maintain. For example, the cost of engine depot maintenance for KC-135s is now projected to increase 28 percent annually, as older power plants need service. The comparable figure for the F-16 is 21.7 percent.

Third, it is getting harder to pile up an adequate supply of spare parts. The service has added \$300 million

to \$500 million per year to spares and repairs accounts for the last several years just to keep pace with the demands of an aging aircraft stock.

Fourth, the collision of an aging fleet with less than full funding for spares has had a predictable negative impact on overall readiness.

"Mission capable rates are down 8.8 percent since the Gulf War," noted Peters.

The acting Secretary said it is important to note that the Air Force focuses its readiness resources where they are needed the most.

Deployed frontline units have first call, with aircraft stationed in the European and Pacific theaters next. Those based in the continental US are third in line for readiness cash.

The mission capable rate for F-15Es based in Southwest Asia was 100 percent this spring, for instance. Yet F-15Es in Europe had a 77 percent mission capable rate, while those in the US had a 70 percent rate.

"We're OK in the short run, but we can't afford to operate this way without some relief over the long haul," said Peters.

This relief must come from fewer bases in the US, plus savings from streamlined business practices and some added topline funds in the defense budget.

"Even in the face of these challenges, as we look ahead, we are determined to build on the progress yielded by all our reforms currently under way and those, such as the [Expeditionary Aerospace Force], which will be implemented in the near term," said Peters.

The acting Air Force Secretary also made reference to USAF's role in equipping and training friendly foreign air forces.

"It is not bragging to say that the Air Force has become the world's 'center of excellence' for aerospace training, as it trains more foreign students from more countries than anyone else," he said.

On average, USAF personnel train over 800 international aviators and 3,800 foreign airmen every year. In 1997, the Air Force participated in about \$260 million in foreign training programs and \$5.6 billion of foreign military sales.

Chief: General Ryan

A central problem for today's Air Force leaders is to provide more stability and predictability for people under their command while girding to protect US interests in a 21st century world that promises to be increasingly unstable and unpredictable.

The answer to this dilemma: Redesign the service into an Expeditionary Aerospace Force, said Air Force Chief of Staff Gen. Michael E. Ryan.

In a way, US airpower has always been expeditionary, Ryan told AFA attendees. The nation's first air expeditionary force, he said, was formed in 1916, when the Army's Aviation Section accompanied Gen. John J. Pershing in his pursuit of Pancho Villa across the Mexican border. Two years later, noted Ryan, the soon-to-be-famous Billy Mitchell organized and led another US expeditionary force of aircraft in World War I's battle of St. Mihiel.

However, those efforts were reactive. They were organized from scratch, in response to specific crises.

The force of the next century will be active rather than reactive, with units trained and organized for expeditionary fighting prior to deploy-

ment. "What is new here is that we're going to prepare ourselves for expeditionary missions all the time," said Ryan.

That is because the Air Force will undoubtedly be called on to perform such missions all the time. In recent years the Air Force has had to respond to multiple "pop-up crises," in Ryan's phrase, while remaining committed to protracted operations around the globe.

Since 1992 there have been six or seven pop-up crises every year, with an average of 25 USAF aircraft deployed to handle each one. Meanwhile, the Air Force has averaged 250 aircraft deployed at any one time to handle more predictable commitments, such as the enforcement of no-fly zones over Iraq.

"I believe the world we live in today requires us to sustain an expeditionary posture indefinitely," said Ryan.

The Air Force should be in the execution phase of its new Expeditionary Aerospace Force posture by the turn of the century. Plans call for operationally linking geographically separated units into 10 Air Expeditionary Forces.

Two AEFs will be on call at all times for deployment, or possible deployment, but this on-duty stage will last for only 90 days, followed by a year-long training and reconstitution period back at home bases.

This more-predictable schedule could lower operations tempo for Air Force personnel now whipsawed by duty demands. The pace of operations, plus a perception of low pay and deteriorating benefits, is hurting retention.

"We're not keeping as many quality people as we would like," said Ryan.

The pilot problem is well-known. The hiring demands of the 14 major airlines are more than double the number of fixed-winged pilots from all the US military services who have completed their military obligations, pointed out the Air Force Chief. The service goal is for half of pilots to stay beyond their initial nine-year commitment. Currently, only one-quarter do so.

Last year the Air Force doubled its retention bonus for pilots. While that helped, more action is needed.

"We are doubling our pilot training rate to 1,100 active duty pilots

per year by the turn of the century, and we are extending the active duty service commitment to 10 years, vs. eight, for those entering pilot training in 1999," said Ryan.

Less publicized is the enlisted retention problem. Military pay is, on average, 14 percent less than comparable civilian wages. For this and other reasons the Air Force is having trouble keeping skilled people in such technically demanding spots as F-16 crew chief and combat air controller.

"We, therefore, must continue to work on the incentives to serve, such as improved mission satisfaction, sustainable operations tempo, reasonable stability, and family security," said Ryan.

But people are not the only component of the Air Force that must receive attention if strength and readiness are to be maintained. The aging aircraft force structure needs to be updated to meet the full promise of the AEF concept, said Ryan.

Next year, the average age of an Air Force aircraft will be 20 years. By 2015, the average age will be 30 years—even if every new plane now in development proceeds apace.

"That is why it is so important to stay on track with all our modernization efforts both in new replacement procurement, such as the F-22, Joint Strike Fighter, and C-17, and investment in revitalizing our older, but still critical, aircraft like the KC-135 and C-5," said Ryan.

JCS: General Ralston

For Gen. Joseph W. Ralston, vice chairman of the Joint Chiefs of Staff, the most consistent lesson in modern warfare is that applying force in any medium requires air superiority.

"We use airpower in a multitude of ways to meet the challenges that our nation faces," said Ralston.

Airpower remains a force that will provide the United States with an asymmetrical advantage for the conflicts it will face in the 21st century, said the vice chief. Today, the state of US airpower remains strong.

However, today's money crunch makes maintaining that superiority difficult. "We are trying very hard to

get the proper balance between today's readiness, modernization, and quality of life for our people," said Ralston.

The final report of the Quadrennial Defense Review, drawn up almost two years ago, did a good job in balancing these needs for all US forces. Since then, however, a number of things have occurred—or not occurred—that have upset some of the QDR's calculations.

The QDR did not assume that the US would remain in Bosnia in the year 2000, as now appears will be the case. "The price tag for that is \$2 billion a year," noted Ralston.

The QDR assumed that the Russian parliament would have ratified the Start II nuclear arms reduction agreement. It has yet to do so, meaning the US is spending an extra \$1 billion a year to maintain strategic forces it would otherwise have scrapped by now.

The QDR also figured in more domestic base closings than have actually occurred.

"Yes, it is making things increasingly more difficult to strike that balance between today's readiness, modernization, and quality of life," said Ralston.

Consider what is happening to procurement, which represents tomorrow's readiness.

Budget plans call for a continued ramp-up in DoD procurement spending. The goal for Fiscal 1999 was \$49 billion—a goal the Pentagon managed to meet. The goal for 2000 is \$54 billion. So far, military budget planners do not see where they will get that extra money.

"We have made it very clear that we think we ought to adhere to that \$54 billion ramp in 2000. Right now we're short of that," said Ralston.

Still, insisted the JCS leader, the Air Force represents a viable choice for young people now planning their careers.

"Look at the enormous strides that we've made in the space business," Ralston said. Look at the F-22, the C-17, and all that coming downstream, he added. "I find it terribly exciting." ■

Peter Grier, the Washington bureau chief of the Christian Science Monitor, is a longtime defense correspondent and regular contributor to Air Force Magazine. His most recent article, "The Retention Problem Spreads," appeared in the October 1998 issue.

The International Perspective

By Peter Grier

USAFE: General Jumper

Expansion of the North Atlantic Treaty Organization is important to the United States and its Allies because it will add more protection against instability in Europe and will help spread the values of political and economic freedom, according to Gen. John P. Jumper, commander of US Air Forces in Europe and commander of Allied Air Forces Central Europe.

Jumper issued his remarks on Sept. 16 at the Air Force Association's first international aerospace power symposium, held as part of the 1998 AFA National Convention in Washington, D.C. NATO's acceptance of new members, never an easy step for the alliance, now is inevitable. Next April, NATO will grow from 16 to 19 members with the addition of Hungary, Poland, and the Czech Republic as members.

According to Jumper, the air forces of the three new members will constitute a real military addition to the alliance. He said the flying units are well-trained and well-practiced in the business of protecting the skies over their respective nations.

"There is no doubt in my mind that, in April 1999, in consonance with the 50th anniversary of the North Atlantic Treaty Organization, we will witness the accession of three professional, competent, and ready air forces," said Jumper.

However, enlargement of the alliance is not without its challenges from the airpower point of view, said NATO's principal air chief. The first and most obvious challenge is geographical. NATO's new eastern boundary will not be continuous. Hungary will be an island, not adjacent to other member nations.

A second problem concerns the ability to ascertain threats. In today's world, adversaries are unspecified and unknown. In many cases, the threats that they pose will not be focused upon NATO borders or territory but on NATO interests.

"It requires a new way to think about how we organize ourselves to deal with those types of threats," said Jumper.

Third, it will not be easy to integrate the new forces into the alliance structure. Much of the new members' Soviet-made air equipment was designed for a different era and different time.

"These are technical challenges that can be overcome, but with a great deal of work and effort, and we are doing that," concluded Jumper.

NATO's Newest Air Chiefs

The Polish air force gives a good idea of the scope of the task. Poland's 293 combat aircraft range from MiG-29s to older MiG-23s and MiG-21s and Su-22s. Of these, only the MiG-29s and Su-22s are projected to remain in service beyond 2000.

The modernization needs of the service are considerable, according to Maj. Gen. Kazimierz Dziok, commander of the Air and Air Defense Forces of Poland. They include equipping existing aircraft with Global Positioning System and NATO-compatible Identification Friend or Foe systems; adjusting broadcasting stations to NATO frequencies; and replacing ground elements of air navigation and landing systems.

"For the long term, it is critical for the Polish air forces to replace existing [Soviet-made] aircraft with a new multirole Western aircraft," Dziok told symposium attendees.

The Czech Republic is planning a multirole aircraft upgrade as well. Tentative plans call for purchase of 18, or perhaps 36, new Western fighters sometime after the turn of the century.

"F-16, F-18, I do not know exactly" what model the country will pick, said Lt. Gen. Ladislav Klima, commander of the Czech Republic's air forces.

The Czech Republic is a new nation, formed from the breakup in 1993 of what used to be Czechoslovakia. The leaders of the new national air force, in one of their first acts, cut the number of pilots and airplanes left in inventory from Warsaw Pact days.

It now has five air bases, down from 12. The number of pilots has been cut from 800 to 500. Besides the supersonic aircraft from the West that Czech leaders hope to acquire, their force has 72 subsonic, domestically built fighters, attack helicopters, and transport aircraft.

"We are a very small air force when we are compared with your Air Force, ... but we are very proud that we can cooperate with NATO," said Klima.

The chief of staff of the Hungarian air force, Lt. Gen. Attila Kositzky, talked about the unique problems his nation faces due to its sensitive location. Located outside NATO's eastern "fence," Hungary sits right on top of the explosive region of the Balkans.

Where Hungary is will determine its future focus for military operations, said Kositzky.

"We are concentrating our efforts in the direction of the southern region of the alliance," he said.

The Hungarian air force has already established a new staff with NATO-style directorates to facili-

tate interaction with the alliance. Personnel total 12,898, down from 18,000 in December 1996.

Hungary's aging MiG-21s are scheduled to leave service by 2001. Therefore, like its fellow new members, the Hungarian air force will soon be shopping for a Western replacement.

"The country's present financial position requires that we choose a type of aircraft which can be used for as many roles as possible," said Kositzky.

Senator Lugar

The addition of Hungary, the Czech Republic, and Poland to NATO is one reason the US now finds itself at a high-water mark in international affairs, said Sen. Richard G. Lugar. The Indiana Republican, an influential member of the Senate Foreign Relations Committee, delivered the keynote address.

NATO expansion provides "a very, very strong advance" for democracy, according to Lugar. It will help make sure that these nations, now emerging from the long night of Soviet domination, will be part of the Western world's democratic, free-market-oriented framework.

Another, perhaps even more important, trend in international affairs is the continuing destruction of nuclear weapons that were once part of the Soviet arsenal. Former Soviet republics Ukraine, Kazakhstan, and Belarus are all living up to their promise to rid themselves of the atomic warheads once based on their soil.

"This has been one of the miracles of this decade, that three states ... literally gave up their nuclear authority and became non-nuclear powers," said Lugar.

Unfortunately, the tide of promise may be receding. Economic troubles spreading into Eastern Europe from Asia threaten more than just pensioners' standard of living.

"We are at the threshold of a very difficult moment in all this," said Lugar, "because 1998 has not been a happy year for the progression of democracy or of free markets."

Russia is the key problem. Economic and governmental instability has called into question whether the Russian parliament, or Duma, will ever ratify the START II nuclear arms reduction agreement with the US.

It has also had an extremely negative impact on the Russian military.

The leadership has no money for the pensions and apartments promised to departing officers. They do not even have the cash to pay troops on time—or at all.

"It is a very desperate predicament," said Lugar.

High-level contacts in Russia sometimes discuss further mutual reductions in warheads, down to 1,000 or so, said the former mayor of Indianapolis. Reducing nuclear infrastructure could save them money—and make it easier to track and secure remaining nuclear material.

Whether such a small number of warheads would mesh with US security needs remains to be seen. But Lugar said that in general "my prayer is [that] the window of opportunity in the world remains open long enough for us to work with Russians who really want to progressively destroy many more" of their nuclear weapons.

NSC: Robert Bell

The US remains productively engaged with Russia, despite that nation's political turmoil, insisted Robert G. Bell, who serves as senior director for defense policy and arms control on the National Security Council.

Much of President Clinton's September visit to Moscow was taken up with exhorting Boris Yeltsin to fight the good fight for democracy, but progress was made in four areas, said Bell.

The subjects were early warning missile data sharing, plutonium disposal, START ratification, and space control.

"We were able to advance our national security interests in a cooperative way with Russia at the summit in these four areas," said Bell.

Bell defended the Administration position on space control, saying officials had no intention of negotiating a treaty with the Russians that would limit anti-satellite weapons.

"The requirement for space control capabilities has been clearly established at the highest levels of the US government," he said.

In itself, the agreement reached at

the meeting to share information from early warning satellite and radar detection networks is very significant, claimed the top NSC staffer. It could also be a harbinger for more openness to come.

Such sharing could make the Russians less likely to overreact to a perceived missile launch at a time when their military structure is somewhat scrambled. It might also lead to more direct engagement with the Russians on such space questions as willingness to relax the Anti-Ballistic Missile treaty.

The data to be swapped include information from ground based radar and space based satellites and will involve both strategic and tactical missile systems. Each side will establish its own national center as a point of fusion for the effort.

"We are going to invite all the countries of the world to treat these centers as a clearinghouse in effect, in which they can, in advance of missile launches, file notice of that launch so that the people [who] are working this system have some notice that something is going to happen," said Bell.

US and Russian officials also agreed at the summit that each side would permanently eliminate 50 tons of weapons-grade plutonium from military stockpiles. It marks the first time that the military superpowers have agreed to destroy the basic building element of the atomic age.

On arms pacts, the already-negotiated-and-signed START II, and a prospective START III, were not subjects for discussion at the summit. The US has said it will not begin work on START III until the Russian parliament ratifies START II, which it has so far declined to do.

Addressing the issue of raising defense spending, Bell said that "more is going to be required. We are going to have to do more."

The presidential advisor gave no specifics about any possible addition to the defense budget. He told AFA delegates, "I would just ask you to stay tuned, watch us carefully, and let's see where it all comes out." ■

Peter Grier, the Washington bureau chief of the Christian Science Monitor, is a longtime defense correspondent and regular contributor to Air Force Magazine. His most recent article, "The Retention Problem Spreads," appeared in the October 1998 issue.

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WYOMING (Cheyenne): **Irene G. Johnigan**, 503 Notre Dame Ct., Cheyenne, WY 82009 (phone 307-773-2137).

Books

Compiled by Chanel Sartor, Editorial Associate

Abrams, Elliott, ed. *Close Calls: Intervention, Terrorism, Missile Defense, and 'Just War' Today.* Ethics and Public Policy Center, 1015 15th St. N.W., Washington, DC 20005 (202-682-1200). 1998. Including notes and index, 389 pages. \$19.95.

Bellafaire, Judith L., ed. *The U.S. Army and World War II: Selected Papers From the Army's Commemorative Conferences.* Government Printing Office, Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954 (202-512-1800). 1998. Including notes, 422 pages. \$26.00.

Birdsall, Steve. *Pride of Seattle: The Story of the First 300 B-17F Flying Fortresses.* Squadron/Signal Publications, Inc., 1115 Crowley Dr., Carrollton, TX 75011-5010 (972-242-8663). 1998. Including photos, 64 pages. \$9.95.

Cooper, Belton Y. *Death Traps: The Survival of an American Armored Division in World War II.* Presidio Press, 505 B San Marin Dr., Ste. 300, Novato, CA 94945-1340 (415-898-1081). 1998. Including photos, maps, appendices, and index, 324 pages. \$28.95.

Currey, Cecil B. *Edward Lansdale: The Unquiet American.* Brassey's Inc., PO Box 960, Herndon, VA 20172 (703-260-0602). 1998. Including photos, notes, bibliography, and index, 430 pages. \$24.95.

Cynk, Jerzy B. *The Polish Air Force at War: The Official History, Vol. 2, 1943-1945.* Schiffer Publishing Ltd., 4880 Lower Valley Rd., Atglen, PA 19310 (610-593-1777). 1998. Including photos, maps, appendices, bibliography, and index, 670 pages. \$59.95.

Gamble, Bruce. *The Black Sheep: The Definitive Account of Marine Fighting Squadron 214 in World War II.* Presidio Press, 505 B San Marin Dr., Ste. 300, Novato, CA 94945-1340 (415-898-1081). 1998. Including photos, maps, appendices, notes, sources, and index, 466 pages. \$28.95.

Hatcher, Patrick Lloyd. *North Atlantic Civilization at War: The World War II Battles of Sky, Sand, Snow, Sea, and Shore.* M.E. Sharpe, Inc., 80 Business

Park Dr., Armonk, NY 10504 (914-273-1800). 1998. Including maps, suggested readings, and index, 171 pages. \$24.95.

Haynsworth, Leslie, and David Toomey. *Amelia Earhart's Daughters: The Wild and Glorious Story of American Women Aviators From World War II to the Dawn of the Space Age.* William Morrow and Co. Inc., 1350 Avenue of the Americas, New York, NY 10019 (212-261-6500). 1998. Including photos, bibliography, and index, 322 pages. \$24.00.

Jenkins, Dennis R. *Lockheed U-2 Dragon Lady.* Specialty Press Publishers and Wholesalers, 11481 Kost Dam Rd., North Branch, MN 55056 (800-895-4585). 1998. Including photos, illustrations, and appendices, 100 pages. \$16.95.

Johnsen, Frederick A. *Bell P-39/P-63: Airacobra & Kingcobra.* Specialty Press Publishers and Wholesalers, 11481 Kost Dam Rd., North Branch, MN 55056 (800-895-4585). 1998. Including photos, illustrations, and appendices, 100 pages. \$16.95.

Kinzey, Bert. *F4U Corsair, Part 2, F4U-4 Through F4U-7.* Squadron/Signal Publications, 1115 Crowley Dr., Carrollton, TX 75011-5010 (972-242-8663). 1998. Including photos, 80 pages. \$12.95.

Logan, Don. *General Dynamics F-111 Aardvark.* Schiffer Publishing Ltd., 4880 Lower Valley Rd., Atglen, PA 19310 (610-593-1777). 1998. Including photos and appendices, 314 pages. \$59.95.

Logsdon, John M., ed. *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program, Vol. 3: Using Space.* Government Printing Office, Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954 (202-512-1800). 1998. Including tables, graphs, glossary, appendix, and index, 608 pages. \$41.00.

Love, Terry. *Wings of Air America: A Photo History.* Schiffer Publishing Ltd., 4880 Lower Valley Rd., Atglen, PA 19310 (610-593-1777). 1998. Including photos, 104 pages. \$19.95.

MacGarrigle, George L. *Taking the Offensive, October 1966 to*

October 1967: The United States Army in Vietnam. Government Printing Office, Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954 (202-512-1800). 1998. Including photos, maps, bibliography, and index, 485 pages. \$44.00.

McFarland, Stephen L. *Conquering the Night: Army Air Forces Night Fighters at War.* Government Printing Office, Superintendent of Documents, Mail Stop: SSO, Washington, DC 20402-9328 (202-512-1800). 1998. Including photos, appendices, and suggested reading, 45 pages. \$2.75.

McManus, John C. *The Deadly Brotherhood: The American Combat Soldier in World War II.* Presidio Press, 505 B San Marin Dr., Ste. 300, Novato, CA 94945-1340 (415-898-1081). 1998. Including photos, notes, bibliography, and index, 353 pages. \$28.95.

Parrish, Thomas. *Berlin in the Balance 1945-1949: The Blockade, The Airlift, The First Major Battle of the Cold War.* Perseus Books, 1 Jacob Way, Reading, MA 01867 (781-944-3700). 1998. Including photos, maps, bibliography, notes, and index, 394 pages. \$27.50.

Prados, Edward F., ed. *Neptunus Rex: Naval Stories of the Normandy Invasion, June 6, 1944.* Presidio Press, 505 B San Marin Dr., Ste. 300, Novato, CA 94945-1340 (415-898-1081). 1998. Including photos, maps, illustrations, references, and index, 304 pages. \$24.95.

Raymond, Robert S. *A Yank in Bomber Command.* Pacifica Press, 1149 Grand Teton Dr., Pacifica, CA 94044 (800-453-3152). 1998. Including photos and glossary, 221 pages. \$24.95.

Savino, Maj. Carl S., USAR, and Ronald L. Krannich. *From Air Force Blue to Corporate Gray: A Career Transition Guide For Air Force Personnel, 1998-1999 edition.* Impact Publications, 9104-N Manassas Dr., Manassas Park, VA 20111-5211 (703-361-7300). 1998. 138 pages. \$17.95.

Seidl, Hans D. *Stalin's Eagles: An Illustrated Study of the Soviet Aces of World War II and Korea.*

Schiffer Publishing Ltd., 4880 Lower Valley Rd., Atglen, PA 19310 (610-593-1777). 1998. Including photos, appendices, glossary, and bibliography, 368 pages. \$59.95.

Stanley, Roy M. II. *To Fool a Glass Eye: Camouflage Versus Photoreconnaissance in World War II.* Smithsonian Institution Press, PO Box 960, Herndon, VA 20172-0960 (800-782-4612). 1998. Including photos, appendices, bibliography, and index, 192 pages. \$37.95.

Stapfer, Hans-Heiri. *La 5/7 Fighters in Action.* Squadron/Signal Publications, 1115 Crowley Dr., Carrollton, TX 75011-5010 (972-242-8663). 1998. Including photos, 50 pages. \$7.95.

Toperczer, Istvan. *Air War Over North Viet Nam: The Vietnamese Peoples' Air Force 1949-1977.* Squadron/Signal Publications, Inc., 1115 Crowley Dr., Carrollton, TX 75011-5010 (972-242-8663). 1998. Including photos, 64 pages. \$9.95.

Vaughan, David K. *Flying for the Air Service: The Hughes Brothers in World War I.* Bowling Green State University Popular Press, Bowling Green, OH 43403 (419-372-7865). 1998. Including photos, bibliography, and index, 222 pages. \$24.95.

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Wallace, Sally Macready. *John Macready: Aviation Pioneer at the Earth's Ceiling, a Celebration of the First Non-Stop Transcontinental Flight and the Pioneer Who Made It Happen.* Sunflower University Press, 1531 Yuma, PO Box 1009, Manhattan, KS 66505-1009 (785-539-1888). 1998. Includes photos and index, 174 pages. \$19.95.

Weart, Spencer R. *Never at War: Why Democracies Will Not Fight One Another.* Yale University Press, 302 Temple St., New Haven, CT 06520-9040 (203-432-0960). 1998. Including appendix, notes, and index, 424 pages. \$35.00. ■

AFA / AEF National Report

By Frances McKenney, Assistant Managing Editor

AFA's Web Site Gets New Look

The Air Force Association has modernized its web site, adding more information, speeding up the loading time, and updating the overall design. The site consistently attracts nearly 20 000 visits per month.

Air Force Magazine boosted the number of items it has on the web page to more than 400. This includes all the "Valor" columns it has published since February 1983; groups of articles—some of them also going back to 1983—on military health care, military retirement programs, roles and missions, aerospace concepts, defense program reviews; a chronology of airpower; a gallery of classic aircraft; and articles on Air Force history. Most major articles from issues in recent years are available.

New issue briefs on the web site cover such topics as trends in resources and personnel, the F-22, and space.

The Members Only section—unveiled at the AFA National Convention last year—has continued to prove its worth, having been accessed 600 times in August alone. It offers many key documents, such as the field and chapter operations handbooks; state and chapter miniguides; monthly and quarterly membership reports; operations and procedures manual; and general items ranging from AFA newsletters to downloadable AFA and AEF logos.

On the horizon is the AFA Online Community, with such services as a permanent e-mail address for AFA members. This will allow a member to set up through AFA an e-mail address that will remain the same, even if the member changes Internet access providers.

Other members-only services will include bulletin boards that can be used by chapters, state level organizations, and AFA councils; live discussions to allow distance learning and online chats that could facilitate professional development; and home



Thomas J. McKee (second from left) began his 1998-99 tenure as AFA National President with a weekend of AFA activities in Florida. At an Eglin Chapter social, he posed with (l-r) Bruce Marshall, chapter president; SrA. Joseph Caldiero Jr., a 1998 USAF Outstanding Airman; and Mark Andrews, president of the Hurlburt Chapter.

page space that chapters can use to establish an Internet presence. Also in the works is a merchandise section, listing items in the AFA catalogue and videos available.

The AFA web site is at <http://www.afa.org>.

Hosting the New President

Shortly after AFA's National Convention, the association's new National President, Thomas J. McKee, participated in a weekend of activities hosted by the **Eglin (Fla.) Chapter**.

The 23rd annual Eglin AFA Scholarship Foundation Golf Tournament highlighted the first day. About 150 golfers from industry, government, AFA, and the Air Force played in the two-day tournament, raising about \$20,000 for scholarships.

The **Hurlburt Chapter**—including President Mark Andrews and Secretary Eugene W. Hardy—joined the Eglin Chapter on Saturday evening for a social at Fort Walton Beach. Guests included Robert Patterson, then Florida state president, and SrA. Joseph L. Caldiero Jr., from Hurlburt Field, who is a 1998 USAF Outstanding Airman.

At a Sunday evening banquet, the

Eglin Chapter elected new officers: Bruce E. Marshall, president, Ronald H. Byrd, vice president, William W. Edwards, treasurer, and Sandra S. Wood, secretary.

Walter B. "Benny" Putnam, a retired major general and a former commander of the Air Warfare Center at Eglin, was named an Ira C. Eaker Fellow at the banquet. The honor represents a donation of \$1,000 in his name to the Aerospace Education Foundation. Putnam started the chapter's scholarship foundation 23 years ago, according to Marshall.

Conventions: In the "Prairie State"

They may have been dressed in suits and ties, but that didn't stop several AFA leaders like Anton D. Brees, then national vice president (Great Lakes Region), and Henry B. Hufnagel, Illinois state treasurer, from playfully launching balsa wood gliders into the air at the Illinois State Convention's "Flyoff" in Galesburg, Ill.

The sale of the tiny (about seven inches long) gliders was a fund-raiser, and the competition took place in the hotel parking lot at the end of the convention.

The best "pilot" among approxi-



mately 25 entrants that included the children and wives of convention-goers was Larry Ackerman, president of the **Greater Rockford Chapter**.

The **Richard W. Asbury Chapter** hosted convention activities, during which the following state officers were re-elected for a second term: John D. Bailey and Eunice L. Bailey of the Greater Rockford Chapter, president and secretary, respectively; Keith N. Sawyer of the **Scott Memorial Chapter**, vice president; and Hufnagel, treasurer.

Keynote speaker for the evening banquet was Asbury Chapter member David B. Eason, who retired as a major general in 1981 after a USAF career that stretched from World War II as an aviation cadet to his final assignment as commandant, AF-ROTC, Maxwell AFB, Ala.

In the "Land of Enchantment"

The **Llano Estacado Chapter** hosted the New Mexico State Convention in Clovis, N.M., where William D. Croom Jr., AFA national secretary, served as keynote speaker for the Saturday evening dinner.

Representatives from the state's three Air Force bases presented mission briefings during the convention's business sessions. They were Col. David E. Clary, 27th Fighter Wing commander at nearby Cannon AFB, Col. Lavon Alston, commander of the 377th Civil Engineer Group at Kirtland AFB, and Col. C. Brian Fisher, the new commander of the 49th Materiel Maintenance Group at Holloman AFB.

Charles G. Thomas of the **Albuquerque Chapter**, outgoing AFA national vice president (Southwest Region), was elected state president. The other state officers were re-elected: Peter D. Robinson of the Albuquerque Chapter, vice president, and Kenneth J. Huey Jr. and Thomas J. Pacholke, both from the Llano Estacado Chapter, treasurer and secretary, respectively.

Dennis E. Mills, outgoing state president, noted that Huey has been serving as treasurer for 16 years. Huey is president and CEO of First Bank in Clovis and has also been state president twice and chapter president 10 times.

In the "Tar Heel State"

Astronaut Lt. Cmdr. Susan L. Still's presentation on her two space shuttle flights thrilled the North Carolina State Convention, hosted by the **Tarheel Chapter** at the Seymour Johnson AFB (N.C.) Enlisted Club.

A former TA-4J instructor who has flown more than 30 types of aircraft, Still logged nearly 472 hours in space as pilot on the April 1997 and July 1997 shuttle flights. Her slides and videos taken on these *Columbia* missions, some of them showing North Carolina's coast and views spanning 300 miles, awed convention-goers.

In her speech, Still also spoke about working toward becoming a pilot and astronaut and the education, family support, and encouragement she received.

At the convention's business meeting Bobby G. Suggs of the **Pope Chapter** was elected president. Three vice presidents were voted into office: Re-elected to represent the eastern part of the state was Alton V. Jones, of the **Kitty Hawk Chapter**, and for the western region James L. Mulligan of the **Blue Ridge Chapter**. Gerald V. West of the **Cape Fear Chapter** will represent the central region. Lindy C. Gunderson of the **Scott Berkeley Chapter** and William W. Michael of the Pope Chapter were re-elected treasurer and secretary.

James E. "Red" Smith, a current national director, and Kevin Sluss, a former national director, were special guests at the convention.

In the "Hoosier State"

Indiana held its state convention near the famous Indianapolis 500's Motor Speedway, in August. Doyle E. Larson, then AFA National President, was keynote speaker.

Larson's address to the conventioners covered AFA's reorganization plans, its mission of educating the public and Congress, and its role as the force behind USAF. He also promoted the use of computer technology, provided an update on the Air Force Memorial, and encouraged chapters to develop a speaker's bureau and to continue support for AFA



To be a Hoosier is to be a basketball fan, so this tie seemed an appropriate gift for Doyle Larson, then AFA national president, when he attended the Indiana state convention. James E. Fultz (right), Indiana state president, enjoyed the presentation, too.



The Charleston (S.C.) Chapter and Military Order of the World Wars cosponsored an Air Force Anniversary Ball at Charleston AFB, where TSgt. Jessica Wilson of the 437th Security Forces Squadron received congratulations on her selection as a 1998 USAF Outstanding Airman from Henry Scott (left), chapter president, and Brig. Gen. (sel.) Robert Bishop Jr., 437th Airlift Wing commander.

and AEF programs aimed at young people.

Elected as Indiana's state officers were James E. Fultz, president, and Suzanne L. Fultz, secretary, both from the **Southern Indiana Chapter**, and from the **Fort Wayne Chapter**, William Howard Jr. and Allen P. Fæback, vice president and treasurer

During the awards program that followed the business meeting, Medals of Merit went to David H. Leimenstoll, William Tester, and Francis E. "Gene" Newton of the **Central Indiana Chapter** and Jeanne L. Hissem of the Fort Wayne Chapter.

Lyle W. Marschand from the **Lawrence D. Bell Museum Chapter** received an Exceptional Service award, and Georjean A. Bush of the Fort Wayne Chapter was named Indiana Teacher of the Year. A science teacher at Pleasant Center Elementary School in Fort Wayne, she was later selected to be Great Lakes Region Teacher of the Year.

The Great Lakes Region and AFA Indiana made Harold F. Henneke, then a national director, a Jimmy Doolittle Fellow, donating \$1,000 in his name to AEF.

A 10K Repeat

For the second consecutive year USAF Maj. Andrew T. Klemas of the **Donald W. Steele Sr. Memorial (Va.) Chapter** won the Air Force in Motion 10K, hosted by the **Nation's Capital (D.C.) Chapter**.

Klemas completed the course

through Bolling AFB and Naval Station Anacostia, D.C., in 33 minutes, 40 seconds, matching his finishing time last year. Klemas, 35, is an experienced runner who has competed for the US Armed Forces and interservice teams. He is an acquisition officer at the National Imagery and Mapping Agency in Bethesda, Md.

Running a 5.4-minute-mile pace, Klemas crossed the finish line almost 5.5 minutes ahead of the second-place 10K runner, Army MSgt. Lionel Scatliffe, 44, of Hq. Co., US Army Garrison, Ft. McNair, D.C. Riding in a pace car, Maj. Gen. Susan L. Pamerleau, director of personnel force management, led the way for the runners.

Klemas' training partner, USAF 1st Lt. Clifton P. Vo pe, of the Nation's Capital Chapter, won the 5K portion of the road race. Volpe, 25, is a C-21 pilot with the 457th Airlift Squadron at Andrews AFB, Md. Civilians Alice Deppe and Barbara D. Heffernan were the overall winners for the women's races.

Chapter President Gerald J. Smith led the group of volunteers who organized the road race, which attracted 146 participants, including active duty Army and Navy runners.

ChalleNGe, the National Guard Military Youth Corps, benefited from the funds raised by the road races.

Warbirds in Fort Collins

The **Long's Peak (Colo.) Chapter** and Downtown Fort Collins Airport, a



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chapter Community Partner, sponsored a visit by historic B-17 and B-24 bombers owned by the Collings Foundation of Stow, Mass.

More than 5,000 visited the Flying Fortress *Nine-O-Nine* and the Liberator named *All American* during their four-day stop at Fort Collins.

Robert Alexander, chapter president, headed the advance planning for the visit by the fully restored bombers, which are on a 10-month, coast-to-coast tour. Chapter member Edmund L. Robert organized a bomber ride raffle, and other members manned an AFA booth, coordinated arrangements with the Collings crews, and provided ramp marshal service.

AFA received a great deal of publicity when James Strickland, chapter member, and Sharone Mekelburg, a Community Partner, spent several hours on the air at a local radio station, promoting the warbirds' visit and discussing Air Force issues and AFA. Six World War II veterans were also featured guests.

U-2 Tales

James T. Whitehead Jr. spoke to a September meeting of the **Bakersfield (Calif.) Chapter** about his experiences in flying the U-2 over Cuba and Turkey in the late 1960s.

The retired USAF major general described the difficulties in flying the high-altitude reconnaissance aircraft.

Whitehead became a U-2 pilot in 1965. He left the Air Force two years

later (joining the Reserve) to become a TWA pilot. Today he is operations manager for the FAA's Western Pacific Region office.

Nick Robolino, chapter president, and the Cold War spy plane pilot appeared on a local TV station's 6:30 a.m. newscast, where Robolino spoke about AFA's founding fathers "Hap" Arnold and Jimmy Doolittle and about the association's mission.

More Chapter News

■ The **Northern Shenandoah Valley (Va.) Chapter** held a Welcome-Back-to-School reception in September for the faculty of Randolph-Macon Academy in Front Royal, Va. Eric H. Rodney, chapter president, presented to Henry M. Hobgood, RMA president and also a chapter member, a \$2,000 check for the AFA Northern Shenandoah Valley Chapter cadet scholarship. Also, James E. Reed, chapter member, was presented with the state president's award for service.

■ At its annual business meeting in August, the **John W. DeMilly Jr. (Fla.) Chapter** celebrated its naming as the state's outstanding medium-size chapter. Michael E. Richardson received the Chapter Member of the Year award at the meeting and also collected a state-level citation for Exceptional Service, along with Thomas V. Gammon. William Susser was awarded the citation posthumously.

Chapter members re-elected John H. Breslin for a third term as president; William R. Kountz and Raymond R. Monti for second terms as vice president and secretary; and Sara D. Warren as treasurer. All four are in the Air Force Reserve.

■ With an eye to encouraging chapter membership among young people, the **Thomas W. Anthony (Md.) Chapter** recently created a Cadet Advisory Board. Its first president is Civil Air Patrol cadet Matthew Barnett of the CAP Andrews Composite Squadron, National Capitol Wing, from Andrews AFB, Md.

■ The **Colorado Springs/Lance Sijan (Colo.) Chapter** raised funds through its annual reception held before the start of the US Air Force Academy's annual charity boxing tournament. Deborah S. Canjar-White, chapter executive vice president, afterward presented \$1,600 to Col. Randall Spetman, director of athletics at the Academy. The donation helped the cadets raise funds in support of two children who are fighting cancer.

■ Retired Col. Alvin R. Moorman died of cancer Aug. 3, 1998. He was 74. A resident of Laguna Niguel, Calif., he had served as California state president (1990), state vice president, and chairman of the board (1991), and as president of the San Diego Chapter. Contributions in his name may be made to the Aerospace Education Foundation. ■

Unit Reunions

Fourth Ferrying Group Assn, Air Transport Cmd (WWII). May 12-15, 1999, at the Holiday Inn Downtown/Market Square in San Antonio. **Contact:** Rick and Gail Ravitts, 2410 Devonshire Dr., Rockford, IL 61107 (815-229-1122).

862d Engineers Aviation Battalion (1942-57). May 12-16, 1999, at the Days Inn Opryland South in Nashville, TN. **Contact:** Sherl Hasler, RR 5, Box 25B, Bloomfield, IN 47424 (812-384-4666).

3558th Combat Crew Tng Sq, Perrin AFB, TX. April 15-18, 1999, in Tucson, AZ. **Contact:** Bob Barnett, 5780 Calle Del Ciervo, Tucson, AZ (520-299-1360) (MWTB22A@Prodigy.com).

Boom Operator's Assn. April 30-May 2, 1999, at Altus AFB, OK. **Contact:** SSgt. Kevin Beccard (DSN 866-7108 or 580-481-7108) (beccardk@intplsrv.net).

Pilot Class 43-D. April 28-May 1, 1999, at the Henry VIII Hotel in St. Louis. **Contact:** Ted Pappas, 865 Masonridge Rd., St. Louis, MO 63141 (314-434-8419).

Pilot Class 45-B. May 6-8, 1999, in Branson, MO. **Contact:** Paul R. Wildes, 1054 Glen Grattan Dr., Montgomery, AL 36111 (334-263-7590) (prdv@aol.com).

Pilot Class 69-06. April 9-11, 1999, in Del Rio, TX. **Contact:** John Danahy, 268 Troon Rd., Dover, DE 19904-2371 (302-734-8810).

For a reunion seeking AC-119G and AC-119K aircrew and support personnel of the **17th, 18th, and 71st Special Operations Sqs** (Phan Rang, Da Nang, Bien Hoa, and Saigon, South Vietnam, and Nakhon Phanom, Thailand). **Contact:** Fred Graves, 1105 Maple Dr., Mountain Home, ID 83647-2027 (208-587-9255) (farkle@micron.net).

Mail unit reunion notices well in advance of the event to "Unit Reunions," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, date, location, and a contact for more information.

Seeking members of the **38th BW, 66th Air Police Sq, or 66th Tactical Recon Wg** (Laon AB, France, 1957-66) for a reunion in October or November 1999 in Las Vegas or San Antonio. **Contact:** Robert L. Shook, 942 N.E. 5th Ave. Dr., Hillsboro, OR 97124 (503-648-2204) (shookbob@aol.com) or William M. Poe, 220 Dominica Cir. E., Niceville, FL 32578 (850-897-4163 or fax 850-897-2606) (mcpoes@aol.com).

Seeking members of the **817th Troop Carrier Sq**, Naha, Okinawa (1964-67), for a reunion. **Contact:** Bill Cummings, 12031 Mahogany Dr., Fort Wayne, IN 46804 (219-672-2728) (JETBILL@CRIS.COM).

Seeking members of **Navigator Class 54-06**, Ellington AFB, TX, for a reunion, June 1999, in Las Vegas. **Contact:** Larry Schaller, 1553 Tree Farm Rd., Plano, TX 75093-4650 (972-248-4810) (schaller@flash.net).

Seeking **OCS Class 58-B** members for a reunion. **Contact:** J.M. Quinn, PO Box 8541, Calabasas, CA 91372 (818-718-6544) (saggi/32@aol.com). ■

Bulletin Board

Seeking contact with or information on **William Wainwright**, who was stationed in Bristol, UK, in 1942 and who knew Margaret C. Rowlands. **Contact:** Jane Mitchell-Barnes, 47 Evelyn Rd., Walthamstow, London, UK, E17 9HE.

For a memorial, seeking contact with or information on the nine airmen whose plane, piloted by **Lin (sp?) George Petersen**, was shot down over the Hahnenberg Mountain by a German Messerschmitt March 18, 1944. **Contact:** Claude Marchal, 8 rue de la Iere Armees, Chatenois, France, F-67730.

Seeking **models** of spacecraft, aircraft, and missiles for a collection. **Contact:** Joshua Slattery, 1617 Oxford Dr., Apt. B, Cheyenne, WY 82001 (307-632-1529).

Seeking photos of the **B-52D Stratofortress** that was badly damaged by an SA-2 April 8, 1972, and recovered at Da Nang AB, South Vietnam, and returned to U Tapao AB, Thailand. Participated in Linebacker II. **Contact:** Wayne C. Pittman Jr., 498 Carthage Dr., Beavercreek, OH 45434-5865.

Seeking contact with or information on **John E. Whitley**, of Jacksonville, FL, who retired as a TSgt. or MSgt., and was stationed at RAF High Wycombe, UK, with the 2180th Comm. Sq, 1962-65; Kunsan AB, South Korea; and Kirtland AFB, NM. **Contact:** R. and J. Gavette, Boeing Peace Sentinel, Unit 61311 V156, APO AE 09803-1311 (gavette@naseej.com) or T. Partner, 9/44 Military Dr., Dover Heights, Sydney, Australia, 2026.

For modeling project, seeking information on the

de Havilland Sea Vampire F.21 VT802 that participated in flexible deck experiments Dec. 29, 1947. **Contact:** Rich Jones, 2755 Eakin Rd., Apt. E, Columbus, OH 43204-5801.

Seeking anyone who knew **SSgt. Charles J. "Carly" Buehler**, who was a radioman-gunner with the 341st BS, 97th BG, Foggia, Italy, and was killed in a B-17 mission Jan. 27, 1944. **Contact:** Walter P. Buehler, 20 Nittany Dr., Mechanicsburg, PA 17055 (717-766-2091).

Available for military funerals or memorial services: cassette tapes of "**Taps**" by an Army bugler or taps played at President John F. Kennedy's funeral. **Contact:** George Gregory, 1095 Baldwin Rd., Lapeer, MI 48446.

Seeking **Bob Olsen**, who served in WWII in Slough, UK, and was a friend of Dorathy and Nellie Joan Pursglove. **Contact:** S. Teagle, 23 Roebuck Green, Cippenham, NR Slough, Berkshire, UK, SL1 5QY.

For a USAFA exhibit, seeking photos, first-person experiences, and memorabilia of **Native Americans** who served in the Army Air Corps/Air Force, 1940-97. **Contact:** Pamela Chadick, HQ USAFA/DFPFA, 2354 Fairchild Dr., Ste. 3K27, USAF Academy, CO 80840 (719-333-2416).

Seeking contact with anyone who served with **2d Lt. Andrew Dicterenko** of the 2004th AAFBU, 879th BS, 499th BG, 73d BW, who was stationed in Lincoln, NE, May 1945, and who was a member of crew #1083. Also seeking contact with **James A. Burton, Marbury B. Clark, Charles F. Grenier,**

Arthur E. McWilliams, Vincent G. Moore, John M. Riffell, O. Carmond Simmons, Clark E. Simonds, or anyone else who may have served with them. **Contact:** Fraya A. Krukar, 4231 Yukla Cir., Anchorage, AK 99504 (907-337-4663) (krukar@alaska.net).

Seeking Dyess AFB, TX, fire department crash rescue shoulder patch with a B-1 bomber and a P-23 crash truck shown on it. **Contact:** Gary McIntosh, 5043 Tuscarora Rd., Niagara Falls, NY 14304-1169 (716-297-3259) (fyrfann@aol.com).

Seeking contact with or information on **Ronald W. Petty**, who was stationed in Dorset, UK, from mid- to late 1960s, and who knew Carol Gould. **Contact:** Timothy Wayne Richardson, 320 Portswood Rd., Southampton, Hampshire, UK, SO17 2TD.

Seeking information on **1st Lt. James Marquette**, 8th FS, 49th FG, Japan/Korea, 1950-51. **Contact:** Charles W. Vaughn, 5303 Josie Ave., Lakewood, CA 90713 (562-925-4994).

Seeking contact with or information on **Clarence Miller** of Michigan, who served with USAF 1953-54, was based at Sculthorpe, UK, and who knew Iris Elizabeth Symonds. **Contact:** V. Symonds, 14 Whimbrel Dr., Bradwell, Great Yarmouth, Norfolk, UK, NR31 9VN.

Seeking "**Skippy**" Denney and **Army Col. Judd Weber Denney**, who served in WWII and Korea and who are the adopted sons of John M. Denney. **Contact:** David F. Cook, 1298 Scrub Oak Cir., Boulder, CO 80303 (303-499-0052).

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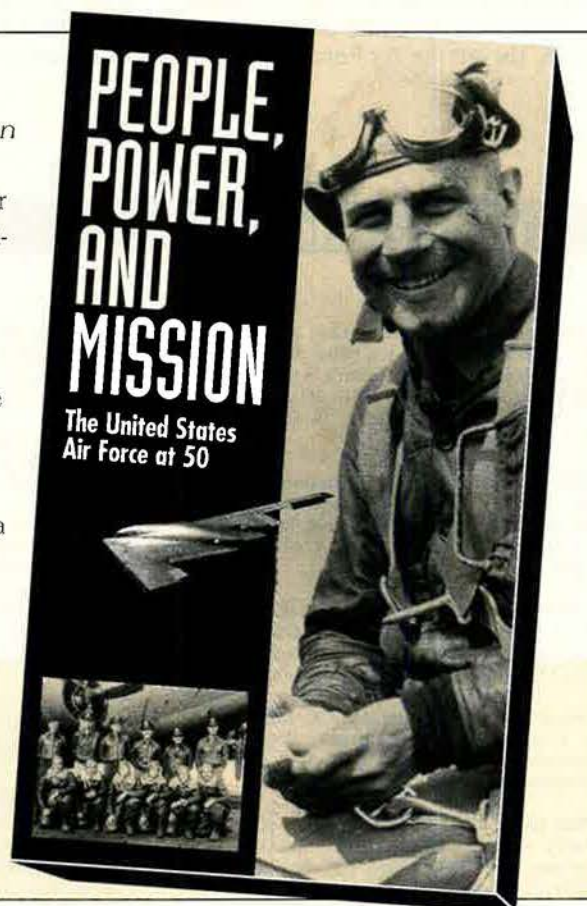
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Seeking information on or contact with Americans stationed at air base 105, Evreux-Fauville, France, 1966-67, who knew **Fernande Merham**. Also seeking **Thomas Campbell, Cooper, Richard Darton, Curtiss Hammond, Holinger, McGuire, Edwing Scott, and Stafford**. Contact: Betty Merham, 84 ave. Artistide Briant, Apt. N22 Bat. A, Evreux-Navarre, France, 27000.

Seeking personal accounts and photos from **EC-121R (Batcat) crew members** stationed at Korat AB, Thailand, during 1960s and early 1970s. Contact: R.C. Herr, Concordia University-St. Louis Center, 10805 Sunset Office Park, Sunset Hill, MO 63127 (stlherr@swbell.net).

Seeking B-29 IP Lt. Col. **Chuck "Boney" Weber or Webb**, who commanded Air Force Helicopter Tng. Det. 1 at Ft. Rucker, AL, 1970-72. He may have retired in Tennessee, and his daughter's nickname was "Punkin." Contact: R. Malcolm, PO Box 220029, Deatsville, AL 36022.

Seeking **98th BG** members who ditched in the Pacific in December 1948 and were picked up by the aircraft carrier **USS Rendova**. Contact: Leslie Lennox, 6316 Juneau Rd., Fort Worth, TX 76116.

Seeking contact with any member of the 1943 aviation cadet class at **Mississippi State College** in Starkville, MS. The cadets shipped out in July 1943 to Santa Ana AB, CA. Contact: Robert V. Banks, 841 Hamlet Ln., Westlake, OH 44145-1679.

Seeking contact with members of **Aviation Cadet Class 42-E**. Contact: Edward V. De Groff, 1431 S. Ocean Blvd., #26, Pompano Beach, FL 33062-7343 (954-785-7558) (EDegroff@aol.com).

Seeking contact with anyone stationed at **NATO 2d Allied Tactical Air Force headquarters** in Moenchengladbach, Germany, from 1963 to 1966, with the 1141st Special Activities Sq, including **John A. Edwards, John Irish, Anthony Monefusco, Patrick Rafferty, Donald B. Skipper, Bill Sullivan, and Donald J. Van Houdenous (sp?)**, as well as British airmen stationed there. Contact: Lawrence R. Valencourt, 145 Autumn Horseshoe Bnd., Newark, DE 19702.

Seeking contact with or information on **Lt. Merrill A. Burt** of the 857th BS, 492d/801st BG, whose B-24 crashed at Lyon, France, Feb. 6, 1945. Contact: Alan Cathers, 405 Kresson Rd., Cherry Hill, NJ 08034-3359 (609-428-3388).

Seeking contact and with and **patches** from anyone who served in the F-102 units **31st, 32d, 327th, and 509th FISS**. Contact: Sheryl Bateman, 3212 Flintbrook Cir., West Jordan, UT 84084.

Seeking a color photocopy of the 429th TFS emblem or **patch**. Contact: David W. Schill, 132 Harding Ave., Moorestown, NJ 08057 (609-234-2273) (fax: 609-234-2914) (DWSchill@aol.com).

Seeking information on a **22-year-old female pilot** who was 5'1" and 108 lbs and by the end of 1942 had her private pilot license with 26 solo hours and was working toward her commercial rating. Also seeking a **20-year-old male pilot** who was 6'1" and 146 lbs and was and was possibly an AAF flight instructor. They married in December 1942 in the Dallas, TX, area. Contact: Charlotte Baker, HCR 82 Box 114, Kimberly, OR 97848 (541-934-2970) (j-c-barker@juno.com).

Seeking contact with **Gerald Eugene Tara**, a corporal with Eighth AF, stationed near Peterborough, UK, 1944-45, and who was from Martinez, CA. Contact: Peter J. Corke, 19 The Orchard, Otter Valley Park, Honiton, Devon, UK, EX14 8ST.

Seeking information about **Lt. Douglas Meghiede (sp?)**, who may have enlisted in NY, once lived in Belchertown, MA, and was a member of a B-17 crew lost over Europe in 1944. Contact: S.G.

Tribe Jr., 5110 Equestrian Dr., Sierra Vista, AZ 85650 (520-378-3227).

Seeking contact with **Ben Bradley**, who was stationed in the UK in 1954. Contact: Andrew C. Stuart, 14 Tanfield Ln., Northamptonshire, UK, NN1 5RN (01604-621576 or 01604-638880) (fax: 01604-639608).

For a book on Alaskan Air Command, seeking information, photos, and **patches** from ACW members from the 1950s-70s and members of the **18th, 64th, 65th, 66th, 433d, and 449th FISS** who flew F-94 and F-89 aircraft during the 1950s. Contact: Gordon D. Homme, PO Box 91117, Anchorage, AK 99509-1117.

Seeking a parts manual and leads on parts for restoration of **F-84F #526600** and information on its history. Contact: Walt Powell, PO Box 192, Slippery Rock, PA 16057 (724-738-2432). ■

If you need information on an individual, unit, or aircraft, or want to collect, donate, or trade USAF-related items, write to "Bulletin Board," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Items submitted by AFA members have first priority; others will run on a space-available basis. If an item has not run within six months, the sender should resubmit an updated version. Letters must be signed. Items or services for sale, or otherwise intended to bring in money, and photographs will not be used or returned.

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Pieces of History

Photography by Paul Kennedy

A Tip of the Hat



In civilian life, hats may blow in and out of fashion, but they have always been an essential element of military attire. From the World War II 50-mission-crush service hat to today's stiff blue version, a hat has been needed to complete the Air Force service dress uniform. Even the fatigue uniform (now Battle Dress Uniform) has its own hat—the ball cap—plain green, now replaced by BDU

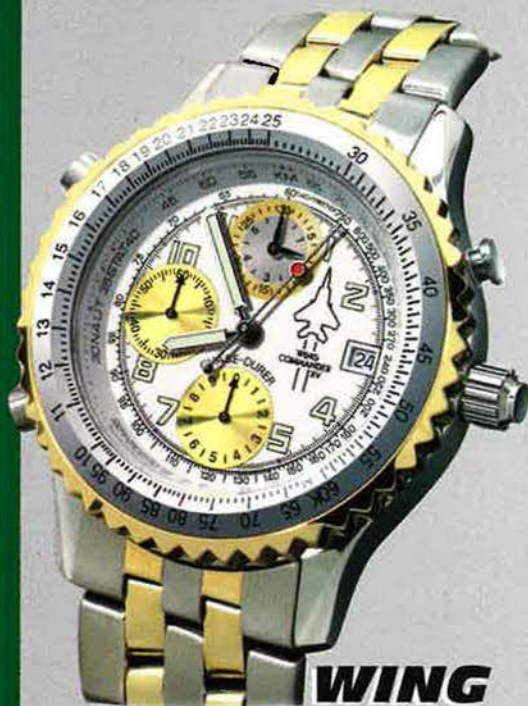
camouflage. The life of the 50-mission hat didn't extend much beyond the establishment of the Air Force as a separate service in 1947. The pith helmet died along with bermuda shorts and knee socks—thank goodness.

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