SELECTED WORKS
1990-1994

Merrill A. McPeak

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Of all the Air Force's faults, its greatest has always been the fact that it has made its work seem too easy.

—Gen Henry H. ("Hap") Arnold

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Foreword

Don't ever expect Air Force people to just let change happen. We get ahead of change, shape change, make change work for us.

—Gen Merrill A. McPeak

General McPeak became the 14th chief of staff of the Air Force in the fall of 1990, as the nation was beginning to adjust to the reality of Western victory in the cold war. Desert Shield was ongoing; Desert Storm was only a few weeks away; other international crises—Bosnia, Somalia, Rwanda, Haiti—lay ahead. A significant downsizing of resources available to the Air Force had been under way for half a decade, and there was every reason to believe this trend would continue. In such circumstances, the Air Force could have adopted a "wait and see" attitude, just doing the best job we could with the hand we were dealt. Instead, General McPeak launched the most far-reaching reorganization in our history, often getting "ahead of change" at a pace that confounded the Air Force rank and file.

This volume is a collection of documents authored by General McPeak. These documents cover the period from late October 1990—when he was confirmed as chief of staff—to March 1995, after his retirement from active service. Many of the documents are speeches, but there are also briefings, messages, congressional testimony, a press conference transcript, a letter to the president-elect, two magazine articles, an Air Force policy directive, and the only letter to an editor written by the general during his tenure. Read individually, each document presents an account of his perspective on an important issue. Together, these documents add up to a remarkable body of work that at the same time is both wide-ranging and has an impressive constancy of themes.

Reinventing the Air Force and related issues are and will be much-discussed topics in the classroom, at the conference table, or around the coffee machine. This book preserves for Air Force members and future military scholars the words and thoughts of a true innovator—a man who led us through a period of unprecedented change.

JAY W. KELLEY
Lieutenant General, USAF
Commander
Air University

Gen Merrill A. McPeak

About the Author

Gen Merrill A. McPeak was chief of staff of the US Air Force from 27 October 1990 to 25 October 1994. He entered the Air Force in 1957 as a distinguished graduate of the San Diego State College ROTC program. He commanded nearly every kind of Air Force organization and held key staff positions at wing, numbered air force, major command, and Headquarters Air Force level. A command pilot, he logged more than 6,500 hours, principally in fighter aircraft. He flew two years as a solo pilot with the Thunderbirds and flew 269 combat missions as an attack pilot and high-speed forward air controller in Vietnam.

Education

1957	Bachelor of arts degree in economics, San Diego State College.
1970	Armed Forces Staff College, Norfolk, Virginia.
1974	National War College, Fort Lesley J. McNair, Washington, D.C., and—concurrently—master's degree in international relations, George Washington University.
1979	The Executive Development Program, University of Michigan Graduate School of Business.

Assignments

1. November 1957–January 1958, student, Officer Preflight Training, Lackland AFB, Texas.

2. January 1958–January 1959, student, pilot training, Hondo AFB, Texas, and Vance AFB, Oklahoma.

3. February 1959–December 1959, student, F-100 combat crew training, Luke AFB, Arizona, and Nellis AFB, Nevada.

4. December 1959–August 1961, F-104C pilot, 436th Tactical Fighter Squadron, George AFB, California.

5. August 1961–May 1964, F-100D pilot, 79th Tactical Fighter Squadron, Royal Air Force Station Woodbridge, England.

6. May 1964–August 1965, fighter staff officer, Tactical Evaluation Division, Headquarters Third Air Force, South Ruislip Air Station, England.

7. September 1965–December 1966, F-104G instructor pilot, 4443d Combat Crew Training Squadron; later, F-104G weapons officer, 4510th Combat Crew Training Wing, Luke AFB, Arizona.

8. December 1966–December 1968, demonstration pilot, US Air Force Air Demonstration Squadron ("Thunderbirds"), Nellis AFB, Nevada.

9. December 1968–January 1969, F-100D fighter pilot, 612th Tactical Fighter Squadron, Phu Cat AB, Republic of Vietnam.

10. January 1969–August 1969, operations officer; later, commander, Operation Commando Sabre ("Misty" Fast FACs), Phu Cat AB, Republic of Vietnam.

11. August 1969–December 1969, chief, Standardization/Evaluation Division, 31st Tactical Fighter Wing, Tuy Hoa AB, Republic of Vietnam.

12. January 1970–July 1970, student, Armed Forces Staff College, Norfolk, Virginia.

13. August 1970–August 1973, air operations staff officer, Mideast Division, Directorate of Plans and Policy, Headquarters US Air Force, Washington, D.C.

14. August 1973–June 1974, student, National War College, Fort Lesley J. McNair, Washington, D.C.

15. June 1974–April 1975, assistant deputy commander for operations, 1st Tactical Fighter Wing, MacDill AFB, Florida.

16. April 1975–June 1975, student, French language training (en route for duty as air attaché to Republic of Cambodia), Foreign Service Institute, Washington, D.C.

17. July 1975–June 1976, military fellow, Council on Foreign Relations, New York City.

18. July 1976–July 1977, commander, 513th Combat Support Group, Royal Air Force Station Mildenhall, England.

19. July 1977–July 1978, vice-commander, 406th Tactical Fighter Training Wing, Zaragoza AB, Spain.

20. July 1978–February 1980, assistant chief of staff, current operations, Allied Air Forces Central Europe, Boerfink, West Germany.

21. February 1980–June 1981, commander, 20th Tactical Fighter Wing, Royal Air Force Station Upper Heyford, England.

22. June 1981–October 1982, chief of staff, Headquarters US Air Forces Europe, Ramstein AB, West Germany.

23. October 1982–May 1985, deputy chief of staff, plans, Headquarters Tactical Air Command, Langley AFB, Virginia.

24. May 1985–June 1987, deputy chief of staff, programs and resources, Headquarters US Air Force, Washington, D.C.

25. June 1987–July 1988, commander, Twelfth Air Force, and commander, US Southern Command Air Forces, Bergstrom AFB, Texas.

26. July 1988–October 1990, commander in chief, Pacific Air Forces, Hickam AFB, Hawaii.

27. October 1990–October 1994, chief of staff, US Air Force, Washington, D.C.

Flight Information

Rating:	Command pilot, parachutist.
Aircraft flown:	More than 50 types. Achieved mission-ready status in F-4, F-15, F-16, F-100, F-104, and F-111.
Awarded pilot wings by:	Germany, Spain, Mexico, Thailand, Yugoslavia, France, Israel, Russia, Bulgaria, Venezuela, and Poland.

Major Awards and Decorations

Defense Distinguished Service Medal

Distinguished Service Medal with oak leaf cluster

Silver Star

Legion of Merit with oak leaf cluster

Distinguished Flying Cross with oak leaf cluster

Meritorious Service Medal

Air Medal with 13 oak leaf clusters

Air Force Commendation Medal with three oak leaf clusters

Vietnam Service Medal with four service stars

Republic of Vietnam Gallantry Cross with Palm

Author's Preface

Washington can be a busy place. So it was only after my retirement from active service that I found time to pull together some of the documents that helped give definition and dimension to issues that surfaced during my period as Air Force chief of staff. To any brave soul who struggles through this volume, it will seem that I talked too much. I thought so at the time. The reader can take some solace in knowing that much was left out, unlikely as that may seem.

In fact, had we found a practical way to do it, I would have included three other documents. The first is *Emblems of the United States Air Force* (4 vols.). This work, in which Maj Tim Collins played a large role, finally baselined and standardized Active, Guard, and Reserve patches, something that needed to be done in connection with preserving Air Force heritage.

A second set of volumes, *Blueprints for the Objective Air Force*, was prepared with the assistance of Lt Col Danny Gardner. This very important work describes where we are headed (and, maybe more important, where we are *not* headed) with our organizational structure. It "creates facts" and therefore helps us believe that the problem is boundable, manageable.

Finally, toward the end of my tenure, Congress established a commission to study and report on "roles and missions." I spent a good deal of time in front of this commission, making many of the same points other airmen have made in the long debate and adding something of my own perspective. My briefing material is summarized in *Presentation to the Commission on Roles and Missions of the Armed Forces*. Among others who helped, Dr Rebecca Grant of Rand Corporation, Maj Gen Chuck Link, and Col Rich Lewis deserve special mention.

By and large, the documents that do appear here are in their original form. Where needed to clarify meaning, some minor

editing was done. A few footnotes give context to perishable material.

I deeply appreciate the help of Maj Kurt Stonerock, who did much of the work that made this volume possible.

Arlington, Virginia
9 January 1995

Chapter 1

Three Themes for the Future

Speech, Air Force Association National Symposium, Los Angeles, California, 26 October 1990

Thank you, Ollie [Crawford, AFA national president].

So, it's great to spend a little time with this knowledgeable, dedicated group of aerospace leaders. For many years, the Air Force Association has provided strong support to the Air Force and to the understanding of this country's air and space needs. We need you now more than ever.

I'm sure you're all familiar with the Washington budget process, if we can call it that. This year has proved to be one of the most difficult in recent memory. And, I don't believe it will get easier anytime soon. But I didn't come here to spread the Washington blues. I came to talk about the Air Force and a couple of important issues I see ahead of us. But before looking at the future, let me talk briefly about the Air Force of today.

First of all, a blinding glimpse of the obvious: we have a lot going for us in the Air Force. We've got smart people—dedicated people—good people. We have great people in the Air Force. Our readiness is sky-high. Our equipment is the world's best. Our sustainability is good. Our operating tempo is right. Our training is realistic. We understand our tactics and doctrine. We have great leadership at the sharp end. We work well with sister services and allies. I don't say this in a boastful way, but this is the wrong time for anyone to mess with the United States. Your Air Force is ready for prime time.

And, I believe Operation Desert Shield is proving just how capable and ready our forces are—Active, Reserve, and Guard. Within five days of getting Secretary Cheney's order to go, we had five full fighter squadrons and a contingent of AWACS aircraft in place, ready to defend Saudi Arabia. Our airlift forces have been involved in the most massive support operation since the Berlin airlift. As of last Friday, we had flown almost 4,000 airlift missions, moving 145,000 tons of cargo

and 160,000 passengers over the 7,500-or-so miles required to get equipment and personnel into position. Our tankers have flown over 34,000 hours and off-loaded well in excess of 29 million gallons of fuel. Throughout the force, morale is great.

And, although the changing international security situation and the budget cuts are causing adjustments, our modernization programs are on track—so far. We have focused our efforts on one large weapon system per major program area: the B-2 for strategic bomber modernization, the C-17 for airlift, and the advanced tactical fighter* for air superiority. But these, in combination with other important modernization programs—advanced cruise missile, AMRAAM, ICBM modernization, Titan IV, Joint STARS, KC-135 re-engining—ensure that the Air Force will continue to be a well-balanced, powerful combat force into the future. The Air Force is doing a lot right today.

Now, what about the future? I'd like to lay out for you my thoughts on three themes that I feel will help characterize the years just ahead of us: integrity, openness, restructuring. Let me discuss each of these in some detail.

First, integrity. Let's face it, many in America are skeptical about the sincerity, honesty, and candor of public officials. Since the Air Force is, of course, a public institution, some of this has rubbed off on us. Our image has been hurt. We must correct this misperception. The public, the Congress, industry, and the press must believe in our integrity. No matter how bad the problem, no matter how difficult the circumstances, the Air Force as an institution does not, will not, and cannot accept anything less than absolute, rock-solid, uncompromising integrity.

Integrity is so important that we can't stand even the appearance of its absence. Let me give you a couple of examples of what I mean. The first involves the use of the F-117 in Panama. The mission for the night of 20 December 1989 was to put ordnance close enough to two barracks to stun and disorient but not kill the Panamanian troops sleeping within. The aim points were in open fields about 50 meters from the two barracks buildings.

*The F-22.

Now, for starters, an open field is maybe not the most precise aim point. In addition, target-area winds caused the pilots to switch targets just prior to mission launch. To further confuse the problem, the F-117s ran into unexpected weather conditions at the target. So, the pilots ended up dropping on aim points that were just slightly different than planned. Call it the fog of war or Murphy's Law. Anyway, one pilot hit less than 100 meters from the intended target; the other was over 100 meters.

Now, I've dropped a few bombs. And I've had days when I'd have been proud of such scores. But, today we've come to expect better results. The real problem was that the initial reporting to the general public mentioned only that (1) the bombs went precisely where they were aimed (which was true) and (2) the purpose—to stun and disorient the Panamanian troops—was achieved (which was also true). But there was more to the story, and it trickled out over time, with the result that it looked to some like the Air Force had slanted the initial reports for its own purposes. A subsequent investigation cleared the Air Force of wrongdoing, but the damage had been done.

The procurement of the B-1B is another example of where appearances hurt the Air Force. As many of you recall, the B-1A was canceled in April 1977. Following the change in administrations, the B-1B program was initiated in September 1981, with a funding ceiling and a requirement to field the aircraft in only five years—a difficult task. But the Air Force delivered 100 aircraft under the cost cap and ahead of schedule. I recently flew the B-1B. It's very impressive—even to a fighter pilot—and is the most effective bomber in the world today. It was, and is, a true success story. But, not the whole story.

The electronic countermeasures (ECM) issue has cast a shadow on our good work. We made a bad mistake in assuming the ALQ-161 was far enough along to keep pace with the highly concurrent development and production of the aircraft. We knew that ECM was mission-essential and we thought—and said—that we had it in hand. But we did not grasp the magnitude of the problem until we were fielding the aircraft without a robust, adaptable ECM system.

In retrospect, we should have recognized the ECM problem sooner. We could have done better. We learned many lessons. But, as before, the ECM story was taken out of context and used to create the perception that the Air Force had lied about the B-1B—again, the appearance of a lack of integrity.

The final example I would point to is the view held by some that we tell only part of the story when we announce a base closure. For instance, in December 1988, the Department of Defense announced the closure of Norton AFB, here in southern California. In that announcement, we indicated we intended to leave the Ballistic Missile Office in place and relocate the two airlift wings to March AFB.

In the months following this announcement, a lot happened in the world. East/West tensions were reduced. Dollars got scarcer. And, the Defense Management Review was initiated to improve efficiency in the department. These three events forced a scrub of our entire force structure. This, in turn, led to major adjustments, including the deactivation—instead of relocation—of Norton's two airlift wings and an initiative to move the Ballistic Missile Office from Norton to Space Systems Division in Los Angeles. Announcements to this effect were made last January.

We didn't anticipate these further changes before the original Norton closure announcement was made. No one can be faulted for not foreseeing the changes that have taken place in the world since December of 1988. As in the other examples, the Air Force had no intent to deceive or keep appropriate information from the public. But, because so much is at stake for the people whose lives will be changed and because we switched signals so soon after the original announcement, it was almost inevitable that there would be a serious backlash, including attacks on our integrity.

Now, I'm convinced we do not have an integrity problem. But these and other examples you can think of combine to give the appearance of an integrity problem, and it just will not do.

How do we correct it? First, we are lucky to have the right guy—Secretary Don Rice—in charge. His complete integrity is well known, recognized, and unquestioned. He gives us the best possible leadership as we seek to burnish our image. Just

having him as secretary will help. As for the Air Force's top uniformed leadership, let me say this: we will make mistakes. We won't make many because we know our business. But, we'll make some mistakes. They will be honest mistakes. We will never cut corners.

That leads me to the second subject that I see as a guiding theme for the Air Force of the future—openness; openness with the Congress, with the press, with the public, and with our own people.

Mike Dugan was on the right track. I'm sure you're familiar with his initiatives to open up the process. He issued the much-discussed "laminated card" to reporters with names and phone numbers of key staff officers. He informed the internal Air Force of important issues through weekly messages. He talked frequently with members of Congress and the press. He sent an open letter to all Air Force generals describing his belief on openness and the need for increased internal and external dialogue. His approach was correct, and we should continue what he began.

Healthy dialogue is important to any organization. The Air Force has the channels for open communication—public affairs offices, base newspapers, commander's calls, meetings, conferences, many others. We must use all these tools. We have an important story to tell, and we need to tell it.

By the way, a healthy dialogue includes listening to opposing views inside the organization. Openness is a two-way, and often a rough-and-tumble, process. I want to be told when I'm wrong. I hope that won't happen too often. But, I've noticed that the only people who will tell me I'm wrong are the ones who actually respect me. And I'm more interested in the substance than the appearance of respect.

We must instill this kind of respect—this kind of openness—at all levels of command. Air Force people are willing and ready to practice openness—we just need to empower them. For me, it's straightforward—the right way to do business. Some people believe that openness has its costs. I believe it ought to be relatively painless; it ought to be easy to do.

And that brings me to the last theme I see in the future of the Air Force—restructuring. As Gorbachev has found, re-

structuring (perestroika) will not be as easy as openness (glasnost). It doesn't need to be more difficult, but—as we all understand from our own experience—anytime you attempt to reorganize, the affected area immediately develops antibodies. But, make no mistake, international events and internal pressures will reshape the military services. The Air Force must adapt or go the way of the dinosaurs.

It is almost certain that we will be a smaller Air Force in the years ahead. But, our purpose, our goal, our mission, will not change. The only reason any of us are in this blue suit is to produce combat capability to defend the nation. We must now undertake to review the way we do business at every level—from squadron to Air Staff. Our goal is to ensure we are adapting, evolving, continuing to be relevant—that we have it right, that we are well organized—with the measure of merit being combat capability—today and tomorrow.

I hope to apply several operating principles as we restructure. First, we should try to eliminate layers, to streamline and flatten our organization. Second, we should use a total-quality approach, aiming to eliminate low value-added activities. Finally, whenever possible, we seek actively to combine authority and responsibility so that we have true accountability for performance at each level.

The Air Staff won't be exempt from a relook. And, quite frankly, I think some reduction is feasible. Today, we are projecting an Air Force that is over 20 percent smaller than it was in the mid-1980s. In addition, we are reducing our management structure at the major commands by over 30 percent. It seems only logical that the Air Staff should undergo a similar reduction. So, in my view, we should aim to cut the Air Staff by up to 30 percent. Doing so will require that we focus on the important, which is not a bad idea on its own merits anyway.

So, these are the concepts I see helping form the Air Force of the immediate future—integrity, openness, restructuring. We have a lot to do. But, we are up to the challenge.

The Air Force has a proud heritage. Our dedication, our capability to defend this nation remain strong. When we're needed, the Air Force will be there, and we'll be in great shape. I know the AFA will be right there at our side.

Chapter 2

Toward the Future Air Force: Merging Strategic/Tactical Missions

*Remarks, Air Force Association Tactical Air Warfare Symposium, Orlando, Florida, 31 January 1991**

I think it's a tribute to the importance we put on the AFA and to this particular symposium that so many people were able to attend. It's been a period of some activity in Washington and at Langley, so I know you understand what this meeting means to us.

I'd like to begin by saying just a few words about how we're doing in Desert Storm. I was there recently—left just a couple of days before the show started—did quite a bit of flying, visited 16 of the bases, and I can tell you that it's a very, very impressive effort.

We're putting up on the order of 1,500 sorties a day—we, the US Air Force—which is more than 60 percent of the entire allied air effort. We've done a lot of the night work, we've done a lot of work in heavily defended areas, we've done a lot of work that required precise delivery. Our contribution has been significant quantitatively and significant qualitatively as well. The results have been excellent.

As you know, Iraq had the world's sixth-largest air force, with some pretty good equipment. This was not a trivial air force, and we utterly disorganized it with a small fraction of the United States Air Force. We continue to do the damage required. It will be, for instance, a long time before Iraq has a nuclear research program again.

Our losses, on the other hand, have been very light—although, of course, we feel the pain of any loss. But, to date, based on the gloomy forecasts of attrition analysts over the years, our losses have been much lighter than we had any reason to expect. It turns out, in my judgment, that air de-

*These remarks were informal, delivered without a prepared text.

fense systems always look like Superman before the fight and like Clark Kent after the fight. In any case, that's what happened here. As a consequence, our losses have been light.

We continue to maintain very high in-commission rates thanks to Bob Russ (commander, Tactical Air Command and commander in chief, US Air Forces Atlantic), because of the magnificent work being done by CENTAF Rear. That is Bob Russ in action, continuing to send forward the logistic support, the expertise needed to keep that operation going. Our in-commission rate for every aircraft in the theater hovers around 93 percent. If I didn't know the people involved, I would think they were lying. It sounds too good, really. Our people around the Air Force have been doing great work.

It's too early to draw definite conclusions or say what the lessons to be learned are from this exercise, but I think one lesson is obvious. I would express it in terms of the worth of the entire Air Force—its *value*. The spotlight is on the aircrews, as well it should be. None of us have any complaint about that. But if you go over there and look at what's happening at each of those bases, then you see the contribution of the security policeman, and the cook, and the MWR guy, and the civil engineer, and the communicator, and the medical people, and so forth. It is absolutely staggering to see the magnitude of the entire Air Force operation. We in the Air Force and those closely associated with the Air Force understand that. We work with it every day. But *the worth of the entire complex of skills that we have assembled and call the Air Force* provides an important lesson.

Another way of thinking about the whole Air Force effort is to think about the spotlight which is now on technology, and that, too, is proper. I think we're learning an unforgettable lesson in the value of stealth and precision guided munitions. That's technology, that's leading-edge stuff, and it's all very good that we learn that lesson. But from my point of view, when I talk about the whole Air Force, I talk about the rest of what goes into making for proficiency in combat. What's winning over there is Red Flag; what's winning is the Fighter Weapons School. I flew a sortie as number two in a four-ship F-15 flight sweeping ahead of a 40-ship of F-16s. It happened to be the guys from Shaw who are now at Al Dhafra. We had

Weasels and EF-111s and tankers, and we had Italian Tornadoes as opposition air. The entire package was briefed by a young captain, a Fighter Weapons School graduate, and I just want to tell you that I was never as good as that guy, when I was good!

Technology is important. We need to enter the fight with an edge, no doubt about it. But what's striking is the value of the human factors in combat—the training, the flying time, the long-term investment in O&M that produces a fully trained force.

The spotlight is on TACAIR. But what strikes you when you see it up close is the magnitude of the support activities that go into making that whole package. We couldn't do this without the tankers—the Strategic Air Command tankers. We could not do it. We could not have set up over there and begun to operate without the utterly unsurpassed performance of the military airlift guys. And, we could not have supported the theater without the C-130s that do the in-theater repositioning of assets.

So, when I say what we have learned is *the value of the whole Air Force,* I mean the value of all the bits and pieces, all the career fields, all the human factors and training as well as technology, and all of the kinds of aerospace capabilities that we bring together in our comprehensive Air Force.

As I said, the spotlight is on TACAIR, so now I'd like to switch and talk for just a few minutes about the future role of TACAIR. I would like to apologize in advance, because I have not had a chance to copy these thoughts out and make them into a speech that I can read to you. So, if you'll bear with me, what I would like to do is just think about the question of the future of tactical air, think aloud, offer some ideas—some of which may be relevant, some of which may not—and then we can get in a dialogue, hopefully, during the question-and-answer period.

First, when you try to imagine what could happen to tactical air, you really have to start by defining the meaning of *tactical.* What does that word mean to us? Names are very important. When we think about problems, we use words to think about them. So, to manipulate our mental concepts, we have to have a fair idea of what it is we mean when we say *tactical.*

There was a big controversy after the Air Force was formed in the late 1940s about what subdivisions we should use to categorize airpower—whether we ought to have a Tactical Air Command and a Strategic Air Command. People like Spike Momyer and others down at the Air University were bitterly against any subdivision of that kind. Their argument was we had spent years trying to convince the Army that airpower was an indivisible entity, and the minute we got it to ourselves, we started dividing it up again into little compartments. It was controversial, but it seems to me that subdivision was right. In the beginning, it was a rather straightforward proposition because the Strategic Air Command supported long-range nuclear deterrence. We all knew that. Tactical Air Command, on the other hand, supported the airpower needs of the theater commander.

But, it seems to me that those distinctions have gotten fuzzier and fuzzier over the years, and in other ways, the division between tactical and strategic is flawed. One such flaw is that one man's tactical is another man's strategic—in other words, it is a relative concept. For the US, invading Panama was a tactical operation—for Noriega, it was strategic.

We've seen other aspects of this problem. In Vietnam, we used B-52 Arc Light strikes for close air support while the bulk of the "strategic" effort, up north around Hanoi, was flown by the Thud. So who's doing tactical, and who's doing strategic? We have, as a matter of fact, almost the exact duplicate of that situation in Desert Storm today, with the "strategic" campaign being conducted largely by fighter aircraft and the B-52 being used to attack troop concentrations.

From my point of view, the difference between strategic and tactical is very fuzzy. It no longer is the case that one is nuclear and the other conventional. Tactical forces have been nuclear-capable for many years, and SAC now has not only conventional capabilities, but some of its aircraft are dedicated to conventional missions; some bombers no longer have a connection to the SIOP. So strategic and tactical no longer mean nuclear and conventional; they no longer mean short-versus long-range; they no longer have much to do with payload. The F-15E can carry a bigger payload over longer distances than World War II strategic bombers. Bob Russ sent 18 squadrons

nonstop to Saudi Arabia. Can you say that's not strategic in terms of the range of the aircraft? Does it have anything to do with the number of engines? You could say tactical is anything with two engines or less, except the TR-1 has got a single engine, and Bob operates four-engine airplanes—AWACS and ABCCC and so forth. So, I no longer know what the division between tactical and strategic is. It seems to me that the categories maybe never made much sense when applied to aircraft and certainly are less and less relevant.

I tell you, it's worth considering whether we ought to eliminate the terms when describing Air Force major commands. If we did that, we might think about a different kind of organization, one in which one organization had responsibility for nuclear war—central attack against large enemies, like the United Kingdom usage of "strike command"—and one command dedicated to conventional war, fighting over whatever ranges and at whatever spot in the world combat took place. We might call that operational air command or contingency air command or air command or whatever you want to call it. But such a concept would get us out of this business of the blurred distinctions and the consequences that spring from them.

The problem with the tactical versus strategic concept is that it's pernicious because it gets in our way when we begin to think about how to employ air. Therefore, I feel we need to think about reorganizing some of our wings on a mission-type basis and mix up some of our capabilities.

For instance, we are considering organizing a wing at Mountain Home AFB, Idaho, that, notionally, would have F-15Es, F-16s, F-15Cs, tankers, AWACS, and perhaps some kind of connection with B-52s, although B-52s would probably not be based at Mountain Home. In other words, we would form a composite wing, the purpose of which would be to go to any spot on the earth quickly and conduct immediate air operations. By the way, there's a very interesting example of that kind of operation under way right now at Incirlik. In the postwar era, when we start doing our analysis of what's happened in the Persian Gulf, pay attention to what's going on at Incirlik today. In any case, when I think about the future role of tactical air, the first trend I identify is this blurring of distinctions

between tactical and other kinds of conventional air applications and the organizational consequences that might spring from that trend.

There's another trend I would like to point to that I think has implications for the future of tactical air. It seems to me that on a strategic level—and here I mean *strategic* in a different sense, so you see how complex this problem gets when you use these terms imprecisely—looking at America's broader, worldwide strategic objectives, we are moving from a period of a garrison air force, with a very large forward presence overseas, to a period of an expeditionary air force, with an emphasis on rapid reaction by US-based forces. We never were a totally forward-based, garrison air force. And, in my judgment, it will be many, many years before we lose entirely our forward presence overseas. So, I'm not talking about taking the pendulum from one side and swinging it clear over to the other, but simply talking about the trends you could identify here.

It seems to me that we're moving from a period of garrison air force and garrison mentality to an expeditionary air force with an expeditionary mentality. So these are the two trends I see—the blurring of the distinction between strategic and tactical, which would move us toward composite structures under a single air commander, and the requirement to have an expeditionary air force that moves quickly from a CONUS location to a forward position and is ready to fight immediately when it gets there. These are the two trends I think we need to prepare for in the future.

What hardware requirements would these two trends argue for? I think many of the requirements we have already stated will remain the same. These trends don't require us to make a big heading change.

Maneuverability will be required. Maneuverability is required on the tactical level to allow the pilot to be able to outturn an opponent. Maneuverability is required at the strategic level for a different reason. At the strategic level, this country must be able to maneuver on the world stage. In a sense, it seems to me we argued for many years that we were going to move from a situation where we had a bipolar world—the US in a cold war with the Soviet Union—to a mul-

tipolar world in which there would be a lot of players on the world stage.

That prediction has turned out to be wrong. We've moved from a bipolar world, all right, but we're now in a unipolar world, with only the United States having the economic and diplomatic and moral and military power, for instance, to put together the kind of coalition we've just put together in the Persian Gulf. One consequence of the unipolar nature of this world is that, for the foreseeable future, we have a responsibility to act in instances like the case in the Persian Gulf. Therefore, it's in this sense that I say the United States has to be able to maneuver on the world stage. In a tactical sense, we have to have maneuverability to defeat an opponent; in a strategic sense, we have to be able to maneuver as a nation; and, at an operational level, it seems to me maneuverability is exactly the concept needed.

The Navy and the Marines talk about maneuverability on the world's oceans—they call it the maritime strategy, and I agree with them. It is a good way to think about the need to maneuver on that part of the earth's surface covered by water. Our Army also has a maneuver strategy. The AirLand Battle doctrine* really is a concept of maneuver on the battlefield.

But the Air Force is the maneuver force par excellence. At the operational level, the Air Force needs to be able to take forces quickly, wherever needed, and employ them immediately. That notion should size and shape our hardware requirements.

We need agility; we need slimmed-down command and control structures. In my judgment, over the years, we've spent a heck of a lot on command and control, and we've got a pretty creaky system out of that, so we need to review what we're doing there. But with composite structures of the kind I'm talking about, we would have a much-reduced need for precise command and control.

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*AirLand Battle represents the US Army's basic fighting doctrine—not a strategy. Developed in the early 1980s, it was called AirLand Battle in recognition of the inherently three-dimensional nature of modern warfare. It reflects the structure of modern warfare, the dynamics of combat power, and the application of the principles of war to battlefield requirements. Today, the Army's war-fighting doctrine is called "Army Operations."

There are some other technology thrusts that I think will be important. Stealth offers the prospect of restoring surprise to the air engagement. Surprise carries with it almost overwhelming operational advantages. So, I think stealth will be important. There is a sense in which the F-117, the ATF,* and the B-2 will render all other air forces obsolete.

Precision attack munitions are also very important, especially in the sense of the expeditionary response that I'm talking about. It's not a good idea to load yourself down with C-5s having to carry lots of munitions somewhere or boatloads of munitions that are going to arrive 30 days after you're ready to go. The only answer is to have fewer munitions that can be delivered with great precision. We have to have precision guided munitions to make this concept of expeditionary air forces successful.

R&M (reliability and maintainability) is important because we are not going to be able to drag around the heavy logistics tail and all the maintenance capability that three-level maintenance requires of us. In addition, we need better fuel efficiency in engines—again, because it's hard to truck the fuel where we will need to go to operate.

Let me stop there and summarize. First, your Air Force is giving pretty good account of itself in the Persian Gulf today. When you think about the lessons that spring from that, you have to open your eyes a little bit, because a lot of very good things are happening.

Second, the merging of the strategic and tactical missions into a single kind of activity and the requirement to move from a garrison to an expeditionary mentality seem to me to open at least some thoughtful, provocative avenues for thought as we move into the twenty-first century.

*The F-22.

Chapter 3

Desert Storm: The Air Campaign

DOD News Briefing, 15 March 1991

Mr Pete Williams (ASD Public Affairs): Throughout the campaign, throughout the time that Operation Desert Shield and especially Desert Storm were ongoing, our briefings were from the perspective of the overall operation—from Lt Gen Tom Kelly and Admiral McConnell and Captain Herrington—and there have been a lot of requests from you all to go into somewhat more detail about specific parts of the operation. Of course, General Schwarzkopf has given the big view, especially with an emphasis on the ground campaign, but many of you have been interested in a little more detail about how the air part of the campaign was prosecuted. We've been talking to the Air Force about pulling together just such a briefing, and I think it's great for all of us that the guy the Air Force decided to come up with was none other than the chief of staff of the Air Force. He's here today to discuss the air campaign with you. He'll have a presentation to make which will last around 20–30 minutes—it's a very thorough walk-through of exactly how it was all done. When General McPeak is finished with his presentation, he'll then be happy to take your questions for another 20 minutes or so. I imagine the whole operation here will take about an hour.

With that, it's my pleasure to introduce to you all the chief of staff of the Air Force, Gen Tony McPeak.

General McPeak: Thank you, Pete. I'm delighted to be here today to tell an American success story—a great victory achieved against a strong enemy and with little loss on our part. It is largely a story about airpower, a success story for US and coalition air forces. But I need to remind myself and everybody that we were part of a larger air, land, and sea campaign— what we call a combined-arms operation—in which all of the services made a very important contribution and, of course, all of our allies as well. I hope you'll forgive me, now, if

I talk mostly about the air campaign for the rest of this time, since that's my piece of the thing to talk about. You can bring me back from time to time and remind me that everybody else played an important part.

Iraq invaded Kuwait on 2 August 1990. The president, as you know, subsequently made the decision to intervene. We were given a deployment order on 7 August. We began flying squadrons to the theater immediately (fig. 1). The first squadron arrived in-theater in 34 hours. Since 15 of those 34 hours were flying hours for this particular squadron, that meant our first squadron launched in less than 20 hours from getting the deployment order here in Washington. Altogether, about 25 fighter squadrons flew nonstop into the theater.

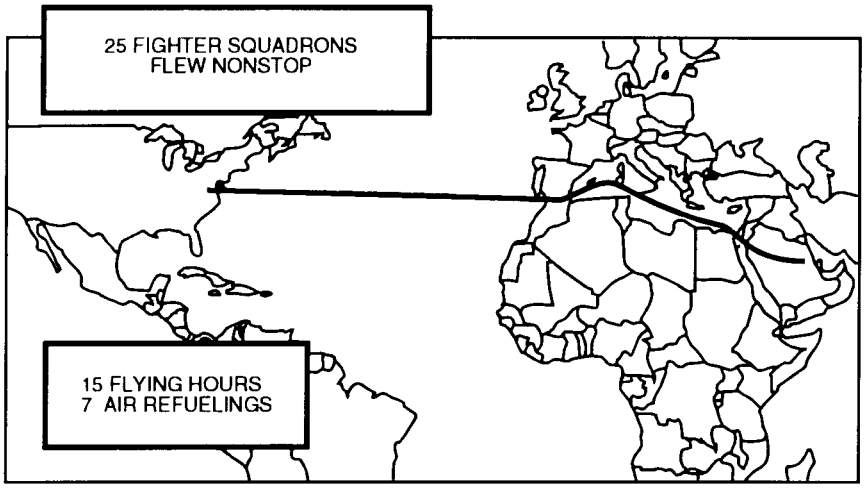


Figure 1. Desert Shield Deployment

In figure 2, I show only a few of the places around the country from which these combat elements came. In all, about 46 percent of the combat force stationed in the continental United States was deployed. A couple of locations are of interest here—we had National Guard units from Syracuse, New York; from McEntire, near Columbia, South Carolina; an Air Force Reserve unit—A-10s—from New Orleans, and so forth.

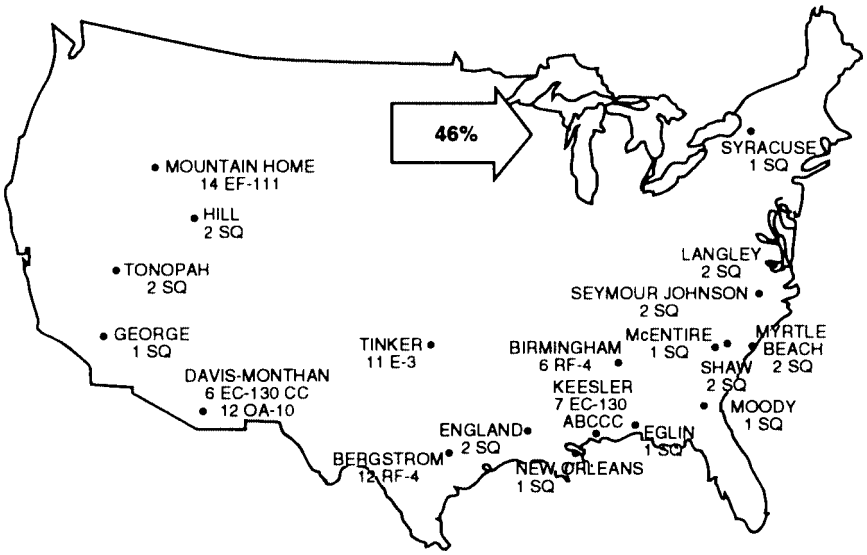


Figure 2. Combat Units in Desert Shield

This movement was really made possible by a lot of units not shown here. First of all, tankers—the flying gas stations—and airlift. We have on the order of 600 tankers in the Air Force, and as many as half of them have been involved in this exercise at one time. This was certainly the largest airlift in history. We moved an army halfway around the world and set it up from scratch. It's something like moving Oklahoma City—all of its people, all of its vehicles, all of its food, all of its household goods—halfway around the world. In essence, we did the equivalent of a Berlin airlift every six weeks—a magnificent performance and one only the United States, I think, could have achieved.

The buildup resulted in this kind of a force structure (fig. 3) going into the area of operations. Day zero—7 August, deployment day—the only fixed-wing aircraft that were in place were the Saudi and Kuwaiti air forces. By day five, they had been joined by five US Air Force squadrons and some Navy carrier air, and we began to feel a little more relaxed about our ability to defend Saudi Arabia if the Iraqis decided to continue the attack to the south.

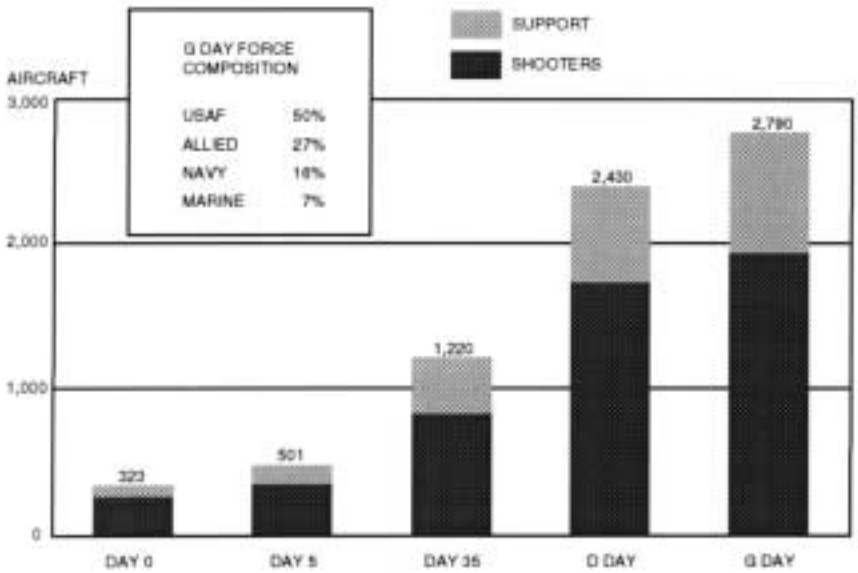


Figure 3. Desert Shield Coalition Airpower (Fixed-Wing)

In five weeks, we had a pretty good overall air capability, both offensive and defensive. At this point, we outnumbered the Iraqi air force. That was about the size of our phase-one deployment. It stayed pretty level until 8 November, when the president directed phase two of the buildup. Between 8 November and D day, which was the opening of the air operation, you can see the fixed-wing coalition air forces roughly doubled in size. This chart breaks out shooters—that is to say, fighter and bomber aircraft—from in-theater support: tankers, airlift, electronic warfare aircraft, and so forth. Notice that from the beginning of the air campaign to the start of the ground operation—G day—there was an additional increment. These were other coalition partners that joined after the initiation of hostilities. In the end, by G day, when the land operation kicked off, the composition of the coalition air force is shown here. About half of this was United States Air Force, but the other breakout is shown.

Figure 4 tries to show how prickly the air defense setup was in Iraq. Basically, this is a fairly strong opponent—the world's

Figure 4. Iraqi Air Threat

fourth-largest armed forces and the world's sixth-largest air force. As you can see here, they started with on the order of 1,000 aircraft, some of them very good aircraft—Mirages, F-ls, MiG-29s, Fencers, and so forth—with a very good infrastructure, widely dispersed around the country. They had a good offensive capability with both their long-range aviation and Scud missiles and an air defense setup that can be described, I think, as state of the art—perhaps as many as 17,000 surface-to-air missiles; on the order of 9,000 to 10,000 antiaircraft artillery pieces; very modern radars, all lashed together with high-tech equipment; lots of computer data links, fiber-optic connections; many of the principal control nodes

hardened, buried under concrete bunkers; and so forth. This is a first-class air defense, not a lightweight opposition, that we had to operate against in the opening hours of the air war.

I want to spend a little bit of time talking about our concept of the air campaign (fig. 5), and this is going to get a little complex, so I apologize in advance. For openers, like the other elements of the air/land/sea campaign, our target was the field army deployed in the Kuwaiti theater of operations. The alliance mission was to expel that army from Kuwait.

- TARGET: FIELD ARMY DEPLOYED TO KTO
- MISSION: EXPEL FROM KUWAIT
- CONCEPT:
  - PREVENT IRAQI DISRUPTION OF ALLIED AIR OPERATIONS
  - DESTROY IRAQI OFFENSIVE AIR THREAT
  - ISOLATE AND ATTRIT THE FIELD ARMY
  - SUPPORT ALLIED GROUND-FORCE OPERATIONS

Figure 5. The Air Campaign

On the air side, our concept really is summarized here. First of all, we knew we needed to operate in Iraqi airspace, so he was going to have the home-court advantage. We had to penetrate into his territory. To do that, we had to take apart and disrupt his ability to stop us from coming in. In other words, we had to *dis*integrate his integrated air defense setup. Second, we wanted to make sure that we ourselves—our own forces in Saudi Arabia and elsewhere—did not come under attack by his offensive air threat. We needed to destroy his long-range aviation and Scud missile capability. Taken together, these two steps would give us air superiority.

After we achieved that, we wanted to isolate the Iraqi field army, cut it off from its source of supply and reinforcements, and then attrit it with the object of wearing it down to the

point that when we did intervene on the ground, our ground forces would not take heavy casualties. Finally, at the point where our ground forces intervened, we wanted to give strong support to our guys on the ground.

A little further refinement shows that our original concept of the air campaign (fig. 6) divided it into four phases. Phase one was planned to last a week—seven to 10 days, we projected. This would be the air superiority phase, aimed at destroying Iraqi integrated air defenses and their offensive capability and disrupting their command and control setup—attacking the brains and nervous system of the Iraqi ability to control their own forces.

After doing this, we projected that we would turn to the field army deployed in Kuwait, but we felt we'd need a short phase here—perhaps a day, day and a half—to suppress surface-to-

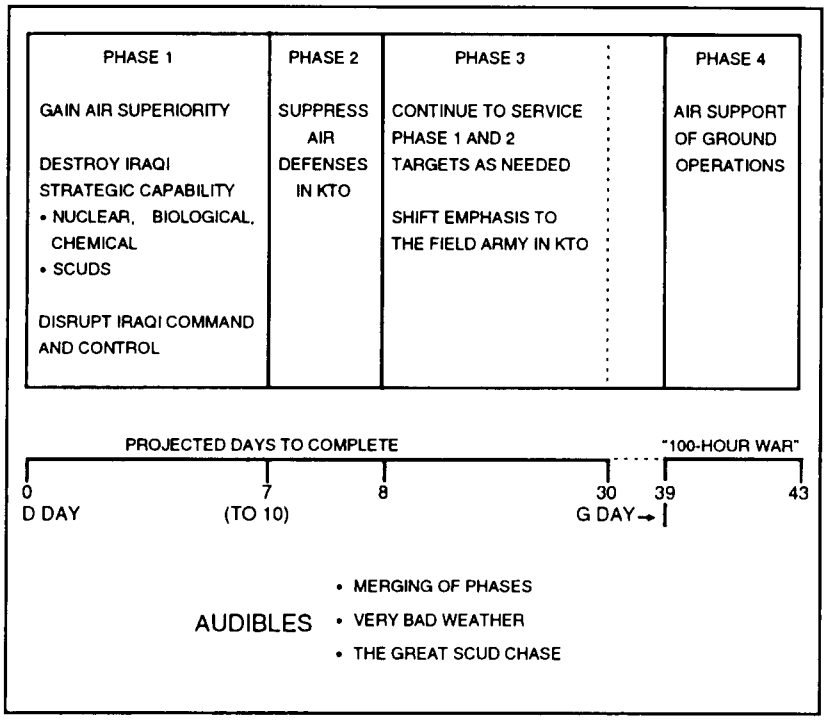


Figure 6. Concept of the Air Campaign

air defenses in the Kuwaiti theater of operations. This would not be a robust integrated air defense network but more the kind that a field army carries with it—mobile systems—and, therefore, not near as serious a problem as the integrated Iraqi air defense. So, we projected perhaps a day to do that.

The longest phase—phase three, from about the end of the first week until the end of the first month—would be an emphasis on the field army in Kuwait, and we would continue to service these phase-one and phase-two targets as necessary to keep them down.

Finally, in phase four, when our land forces jumped off, we intended to give support to that operation.

As it turned out, this was the so-called 100-hour war—the four-day war from day 39 to 43. And, as a matter of fact, G day slipped to day 39. So the first three phases were not done in 30 days, as we originally projected.

This, as I say, was what we had in mind as a concept at the beginning. I will say this isn't the way it actually worked out. There were some audibles called at the line of scrimmage. One of them was that these phases tended to overlap and finally did essentially merge together. They merged, really, because the president decided to double our combat force in November, so we had more than enough airpower on the scene to do the phase-one job at the beginning, and we simply diverted the extra air to begin on phase three. So there was no time from day one on that the Iraqi ground forces were not under heavy air attack. By the way, this is also something General Schwarzkopf wanted. He was particularly interested in attacking ground forces from day one. In essence, this is his concept of the operation. All pieces of it were his concept, including the air piece. We, naturally, executed according to his concept.

I'll come back and talk about some other stuff in a second, but I want to talk for just a few moments about the opening minutes of the air war, because they dramatically influenced the outcome of the entire war.

I don't know where you were on the evening of 16 January here in Washington—the early morning hours of 17 January in Baghdad. If you were like me, you were home watching TV. CNN reporters in the Rashid Hotel were out on the balcony reporting that they couldn't see anything up in the sky, and that was an

accurate report. The Iraqis were seeing the same thing. They were seeing a situation that we had been showing them since August. AWACS, airborne radar aircraft on our side of the Saudi border, were looking in to keep track of what the Iraqi air force was doing (fig. 7). They were accompanied by aircraft in what we call combat air patrols or CAPs. These are F-15 interceptors up there to protect AWACS and to react to any probe out of Iraq. As I say, these AWACS orbits and CAP points had been there for months, were something the Iraqis were used to seeing.

Here, General Schwarzkopf exercised a brilliant bit of air deception because south of there, and just beyond the radar warning capabilities of the Iraqi radars, our attack aircraft were forming up in orbits with tankers so that they were able

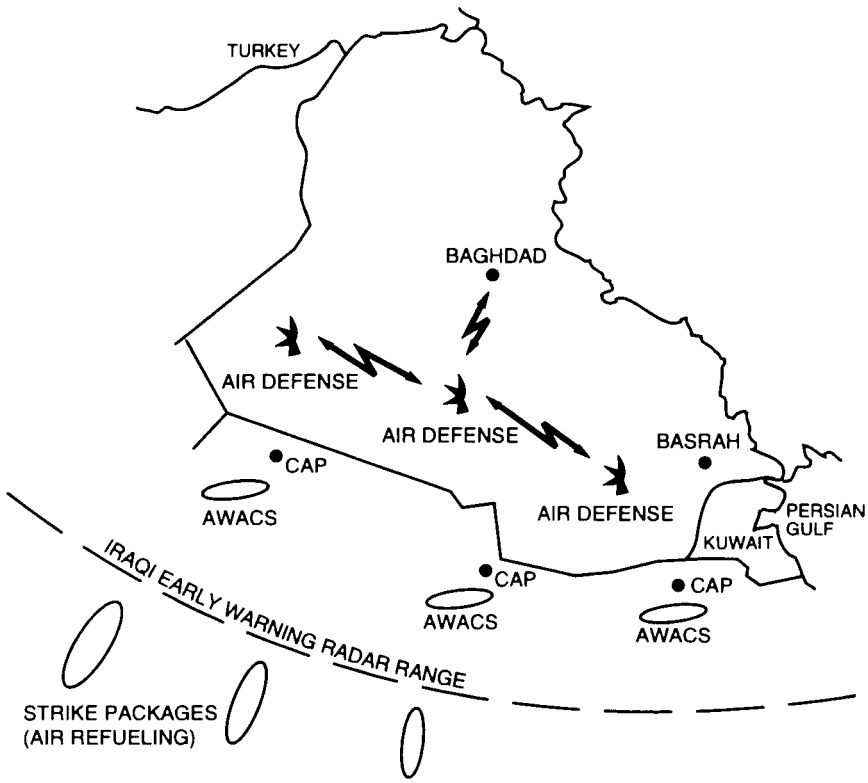


Figure 7. Iraqi Picture (Before H Hour)

to top off their fuel at the last moment before heading on into the target area.

Here's what was really happening (fig. 8). Our stealth aircraft—low-observable aircraft which Iraqi radars could not see—jumped off at H hour (actually slightly before H hour) and blinded the Iraqi early warning system by knocking out these radars and then proceeded on into Iraq to begin to work on the

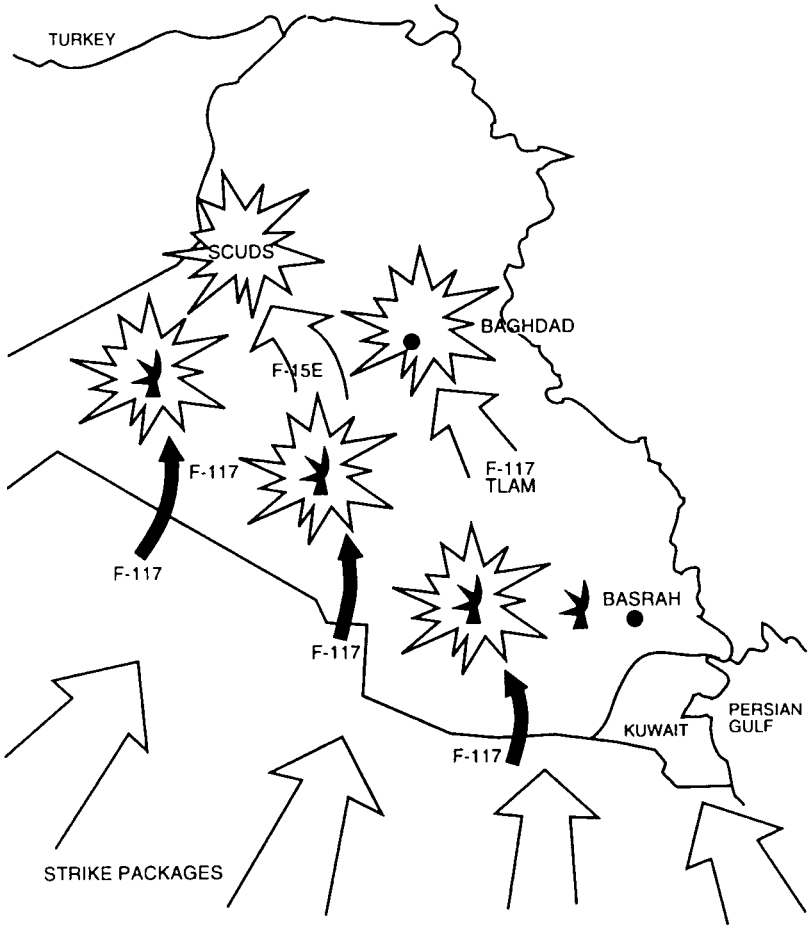


Figure 8. H Hour Attacks

rest of the strategic targets—principally the command and control apparatus, the fighter defense direction system, and so forth. They were accompanied by the Tomahawk missiles fired by the Navy from the Persian Gulf, the so-called TLAM.

I think we achieved tactical surprise—at least the CNN newsmen on the balcony of the Rashid Hotel seemed surprised when they reported that a nearby telecommunications building was being attacked. That was an accurate report.

Having opened up the gate, other strike packages rushed through (fig. 9). We hit very hard. This was a massive attack in the very beginning moments of the war. We attacked all of the strategic targets that I've spoken of—electrical power, communications, air defenses, and so forth. It was a very heavy attack, very precisely delivered. In my judgment, the Iraqi air force never recovered from this opening shock. We took the

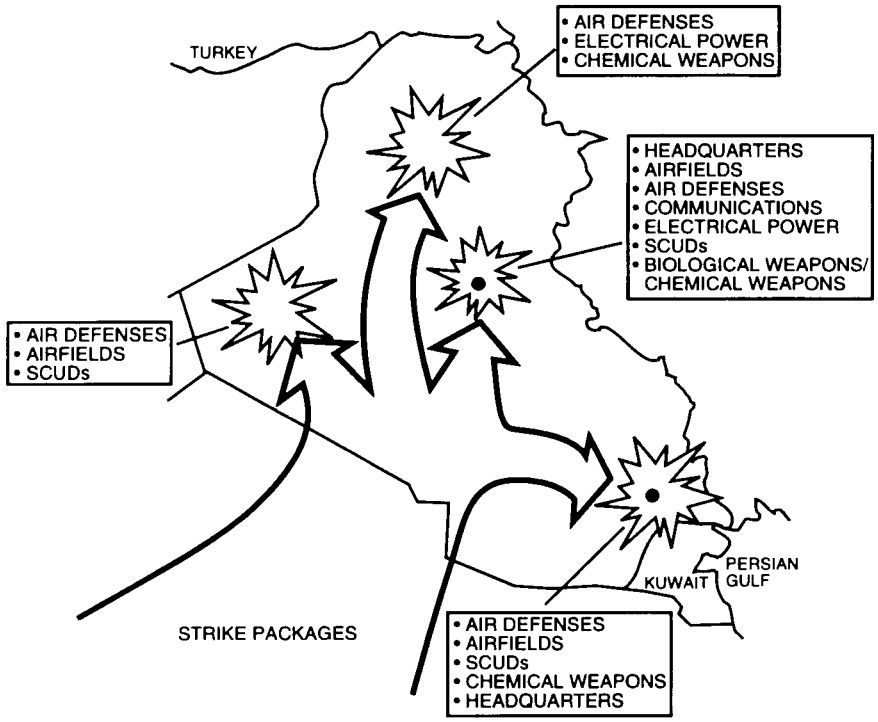


Figure 9. Day-One Targets

initiative at the beginning, and we held it throughout the rest of the war.

The special role played by the 117 is, I think, worth saying a little more about. Under these triangles (fig. 10), I've marked the locations of the first-day targets of the 117s. We didn't have a lot of 117s in-theater. As you can see, they are only 2.5 percent of the force that we deployed there. They attacked 31 percent of the targets that were hit on day one. As you can see, they and the TLAMs did all the work in the heavily defended downtown Baghdad area. They also attacked key parts of the air defense system throughout Iraq.

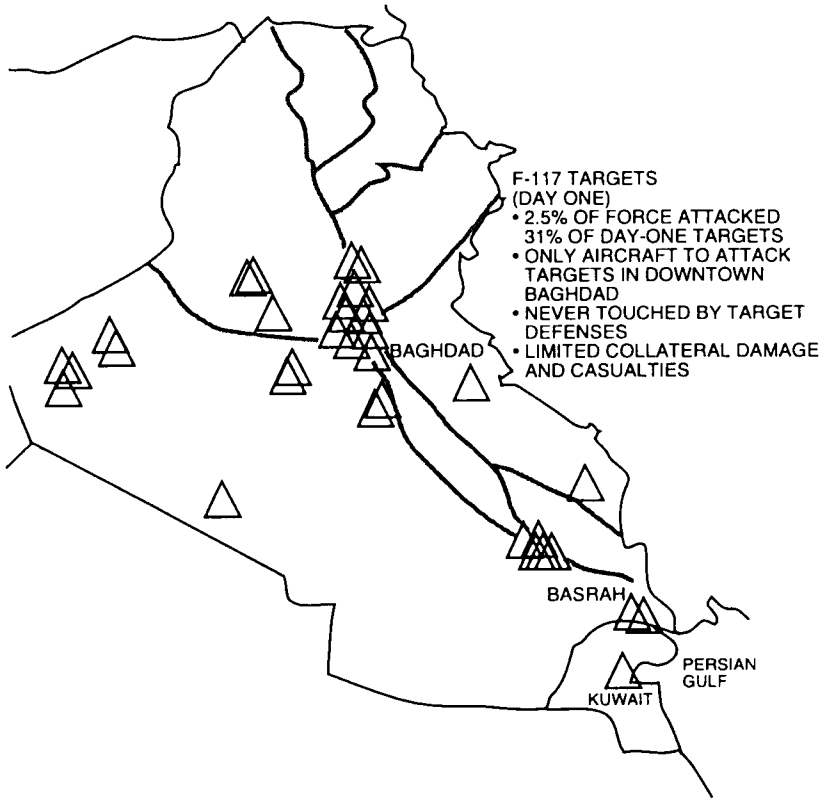


Figure 10. Stealth Contribution to Desert Storm

The 117 has been operational now for nearly 10 years. It still represents the state of the art for operationally fielded technology. As far as we know, it was never tracked by any Iraqi radar. It has certainly never been touched by bullets or SAMs or anything else. We operated for 43 days with this aircraft completely invulnerable, so far as we know. It was never touched by target defenses.

I want to make a little more on this point here, because with the combination of stealth and precision attack capability in the 117, we were able to attack targets very discreetly. We did not carpet bomb downtown Baghdad. As a matter of fact, this is obvious to anyone who has been watching on television—the pictures of Baghdad neighborhoods untouched, people driving around, walking around on the sidewalks, and so forth. We took special care to make sure that we attacked only military targets, and we attacked them quite precisely. Aircrews were informed to bring home the ordnance if they weren't sure they were locked to the right targets. We made very few mistakes. I'm quite proud of the fact that we achieved high levels of destruction against military targets with minimum collateral damage.

As I say, there were several audibles called (fig. 11). Things didn't proceed precisely according to our script. I talked about the merging of the phases. The weather was, perhaps, the thing that hurt us the worst. This was certainly the poorest weather in 14 years in the Baghdad and Kuwait area. I say 14 years, because we in the Air Force only have 14 years of good climatological data. Maybe this is the worst weather in 100

- MERGING OF PHASES
- WORST WEATHER IN 14 YEARS
  - LOW CLOUDS PREDICTED 18% OF TIME
  - ACTUAL 39%
  - LOST 40% OF PRIMARY TARGETS, FIRST 10 DAYS
- THE GREAT SCUD CHASE
  - GREATER IMPACT THAN EXPECTED
  - IMPROVISED TO FIND BEST TACTICS AND FORCE MIX

Figure 11. Audibles

years, for all we know. It was at least twice as bad as predicted. As a consequence, we lost a lot of targets, especially to the 117s; where low cloud cover prevented them from acquiring the target, they simply brought the munitions home.

Another factor different than expected was the amount of effort we put on chasing Scuds and the way we had to improvise and figure out how to handle the Scud problem (fig. 12). We thought from the beginning that we would have to attack Scuds. What surprised us was we put about *three times* the effort that we thought we would on this job. Of course, we attacked the known Scud, fixed Scud-firing positions. The Scud is a missile that flies to a known range. Its range can't be regulated after it's fired. If you were going to attack Haifa or Tel Aviv, we can draw a circle and figure out about where you have to launch it from; or if you were going to attack Riyadh or Dhahran, we know where those launch boxes are. So we attacked the firing positions that had obviously been set up at launching sites, but that wasn't enough. Mobile Scud launchers

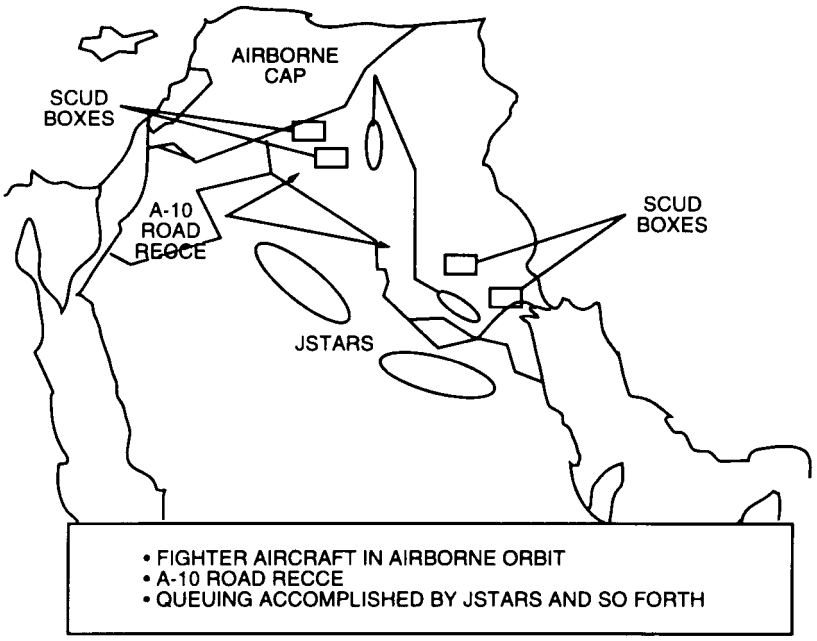


Figure 12. Operational Procedures for Scud Chasing

operated at night, drove into these launch boxes, and fired. So we had to do a lot of road recce, even with the A-10s. This old, slow aircraft was used to run up and down the road and try to find mobile launchers.

Probably the most effective thing we did was to put F-15Es in airborne CAPs right overhead the Scud launch boxes. Then we used JSTARS, which is an airborne radar system now under development—not fielded yet, but in engineering development. JSTARS finds and tracks moving ground targets. So with it, we track vehicles. When we found one that looked suspicious, then the JSTARS aircraft directed airborne CAP F-15Es to perform on-the-spot, ad-lib attacks.

Being in one of these F-15E CAPs is roughly the same as flying from Washington, D.C., to Chicago, going into an airborne orbit for three hours, conducting a precision attack, and then flying back to Washington, D.C. A tough job for some of these guys, but they did it very well.

I'm going to show you some of the results here from our Scud attacks, starting with the attacks on fixed launch sites. Fixed sites are identifiable by the layout of the launcher and the trenching associated with power generation and other utility support for the site. These are relatively straightforward, easy first attacks, because we knew where they were.

[Shows cockpit videotapes.] Here's an F-15E attacking a fixed site. Here's another fixed site being attacked by an F-15E.

We also attacked Scud storage. We can identify Scud storage bunkers by the configuration of the roads leading in and out. Finally, there were the mobile Scud launchers. They even started hiding mobile launchers in culverts along the highway, so we had to go attack the culverts.

Altogether, using all of these various combinations, improvising and so forth, I think we had a pretty good impact on Scud launchers. As you see (fig. 13), the Scud average launch rate was five a day for the first 10 days. I show here, in black, the Scuds launched on Israel. They had a heavy launch rate here. In gray are the launches into Saudi Arabia. The first 10-day launch rate of about five a day was cut in the last month to about one a day.

But really, there was an even more profound impact than that, because from about day 36 on, they began launching Scuds from out of the boxes. We had driven them out of the boxes, so they no

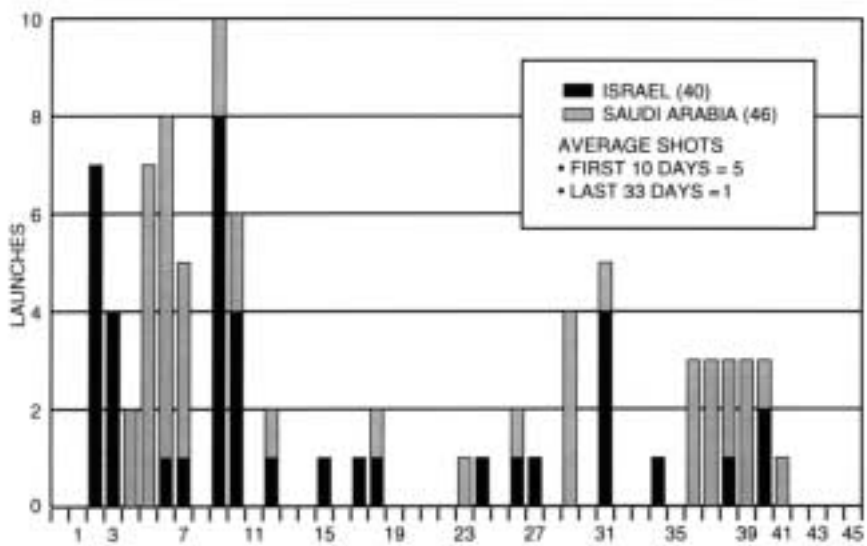


Figure 13. Scud Launches

longer could launch as many on Riyadh and Tel Aviv—in other words, urban targets. Some of these were actually launched against military targets—for instance, King Khalid Military City, in the north part of Saudi Arabia, was attacked. We forced them to improvise, and we sharply reduced the number of launches they could make through a combination of these tactics.

Skipping to the end, throughout the entire 43 days, the coalition air forces put up about 110,000 sorties. As shown in figure 14, the US Air Force flew nearly 60 percent of that total. We dropped about 88,500 tons of ordnance. Again, the US Air Force contribution was major.

This one is of particular interest to me, because in my judgment, it was the precision munitions that did the most important work. As you see (fig. 15), the US Air Force did about 90 percent of that. It might interest you to know that this is about half again as much precision tonnage as we dropped through the entire war in Vietnam. In 43 days, in other words, we far exceeded our tonnage of precision guided munitions in a war that lasted eight or nine years.

I want to talk a little bit about activities of the Iraqi air force (fig. 16). Here, I talk about shooters—in other words, fighter

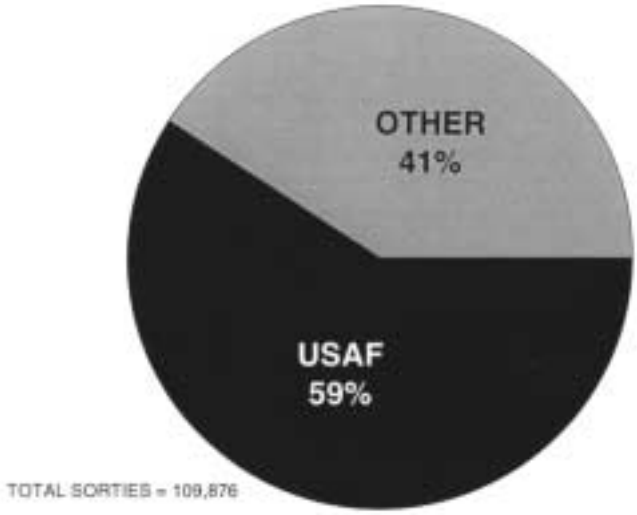


Figure 14. Air Effort from D Day to Cease-Fire

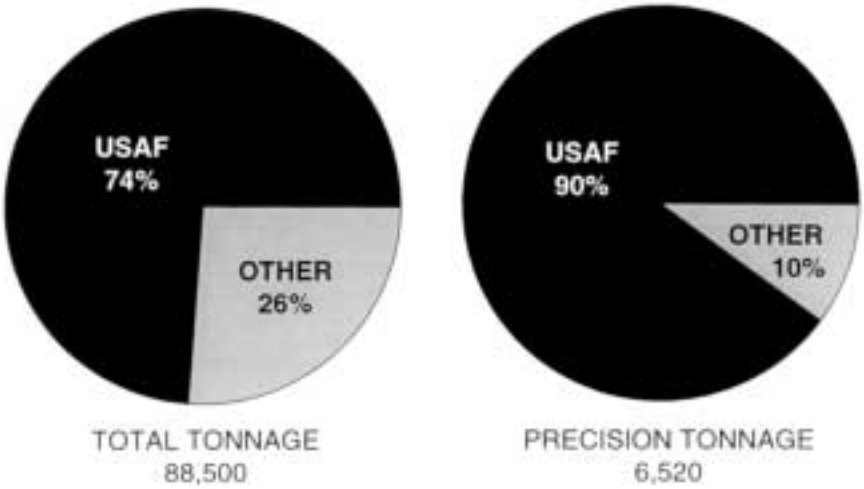


Figure 15. Tonnage Expended (US Only)

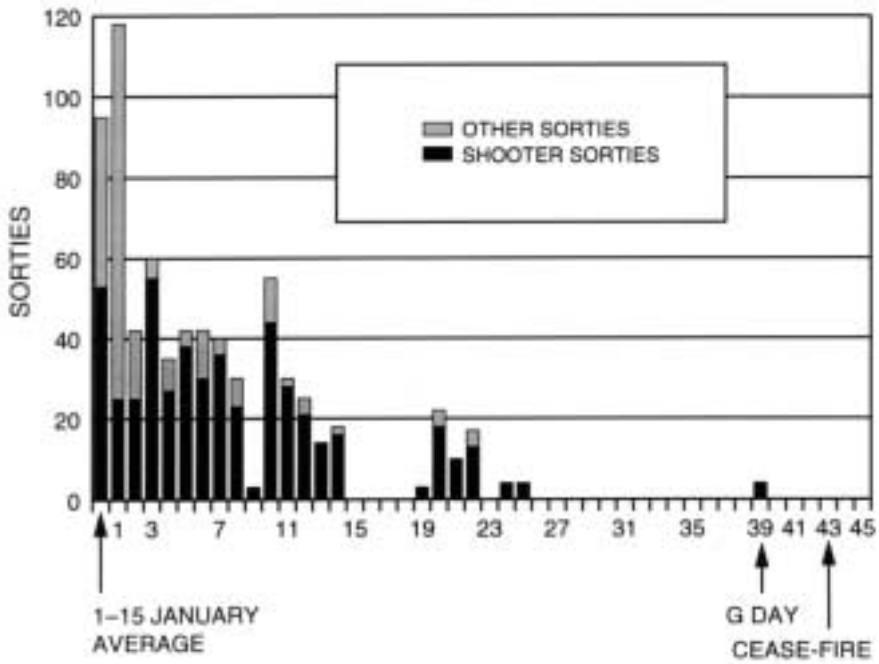


Figure 16. Iraqi Flight Activity

and bomber sorties that they flew—and other sorties: support, transport, and so forth. The comparison here is the number of sorties the Iraqi air force was flying in the first two weeks in January, before the war began. You can see they were flying about 100 sorties a day, almost 60 of which were shooter sorties. Day one is the first day of the war, out to G day—day 39—and the final cease-fire on day 43. Notice that they put up a pretty good show here for the first two or three days. The first day in particular, they had a lot of support sorties. On day three, they gathered themselves together and put up quite a few fighter sorties.

After that, this effort really wasn't very good. It was markedly down from what they were doing in peacetime. It looked to us as though they stood down on the ninth day of the war. These clumps of activity (days 10–14 and 20–22) are the flights to Iran. Essentially, it looks as though the Iraqi air force gave up around day nine and tried to leave town. Then the entire

effort went brain-dead for about two weeks. Finally, here on G day—day 39—we had two more flights. These also were flights to Iran.

I want to talk specifically about flights to Iran (fig. 17). These were the ones that we tracked. Support aircraft—transports mostly, as you can see—went out in the first week or so of the war. Note the day-nine stand-down and the two big groups of flights to Iran and then the final flight out with the last two aircraft.

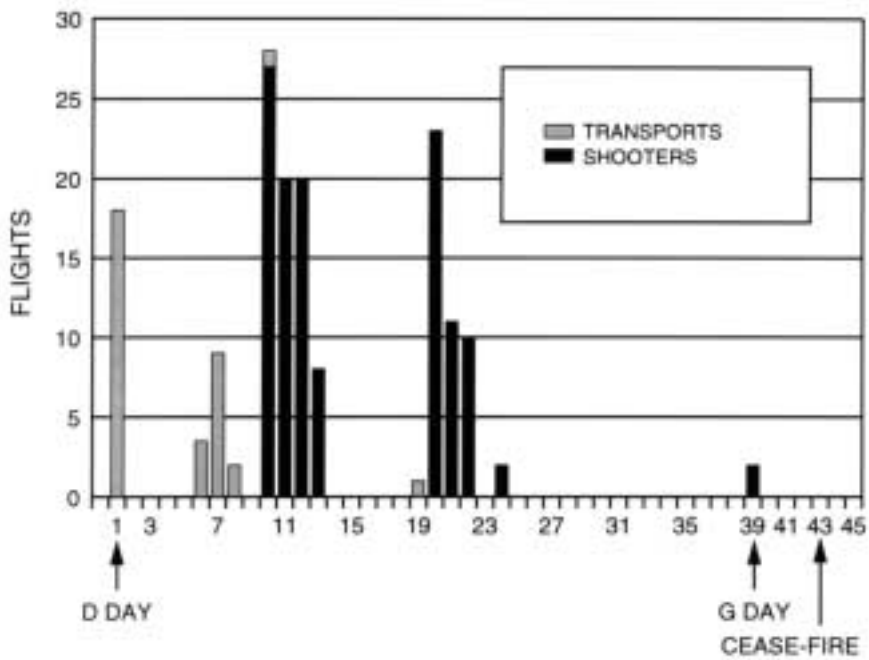


Figure 17. Iraqi Flights to Iran

What happened is that about day seven, we decided to attack Iraqi aircraft in their aircraft shelters. I think they made a decision that since they were no longer safe in shelters, they would have to leave. Then they started out to Iran. Around day 13, we put an air CAP along the Iranian border and began intercepting aircraft coming out of Iraqi airspace and into Iran, so they quit going to Iran. Around day 19 we pulled that airborne CAP down because it looked to us as though they had

stopped going to Iran, and they went back at it again. So we were kind of playing a cat-and-mouse game here. As I say, that was essentially the end of the story.

Q: All those are one-way trips?

A: Yes, these to Iran are one-way trips.

Figure 18 is a scorecard on aerial victories. A total of 35 air kills were recorded by all the coalition air forces. The US Air Force shot down 31 of those 35. As you can see, we had a fairly good fight on our hands—at least some kind of a fight—for the first three days. We got half of our kills in the first three days. Then there were groups of kills registered against aircraft fleeing to Iran.

Q: Does this include the helicopters?

A: No, fixed wing only, as it says.

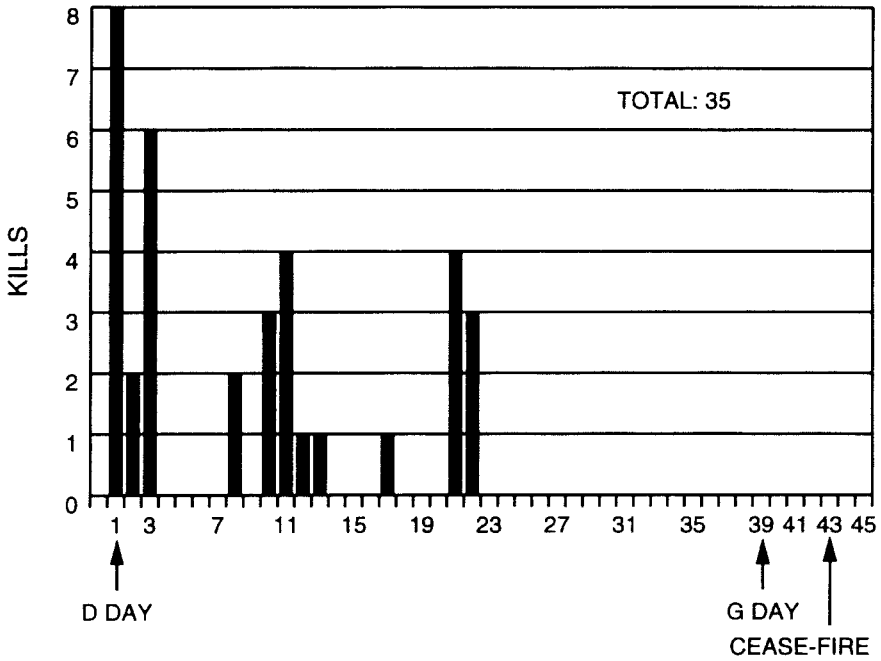


Figure 18. Coalition Fixed-Wing Kills (Air-to-Air)

Figure 19 summarizes Iraqi air force attrition: 122 aircraft flown to Iran—in other words, most of the aircraft out of the fight went to Iran—35 air-to-air kills; other aircraft destroyed on the ground; some accidents they had, including some aircraft that crashed trying to flee to Iran; and some aircraft captured by our ground forces during the ground campaign.

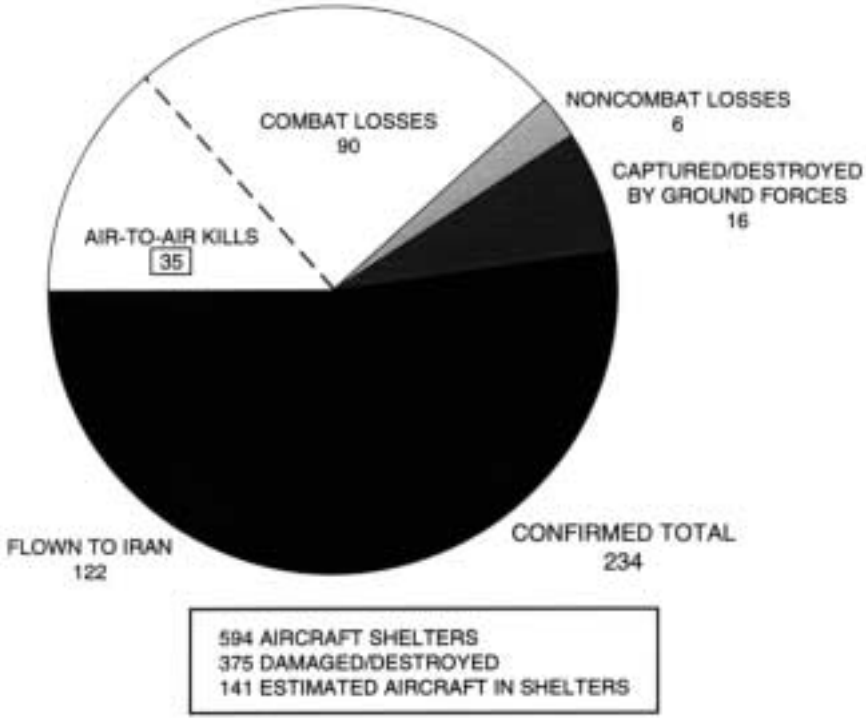


Figure 19. Iraqi Air Force Attrition

I said they had about 600 shelters. We attacked the majority of them. We estimate there were a large number of aircraft inside these shelters, but these are not counted as confirmed kills. Our confirmed total aircraft out of the fight—234.

Once we had achieved air superiority, our next goal was to cut off the deployed field army. As Chairman Colin Powell said, first we're going to cut it off, and then we're going to kill it. Part

of cutting it off was to destroy the Iraqi ability to supply and reinforce that army down in the Kuwaiti theater of operations.

During the course of this operation, we tracked 54 major bridges (fig. 20). Some were important to us because they were on the road system out to the launch boxes for Scuds, and we wanted to prevent movement of mobile Scuds. But most were important to prevent the reinforcement of the deployed field army. Once we had destroyed the major bridges, the Iraqis threw across pontoon bridges, and we went after them also.

Finally, after we had cut off the field-deployed Iraqi army, we went to work on major categories of equipment (fig. 21). You

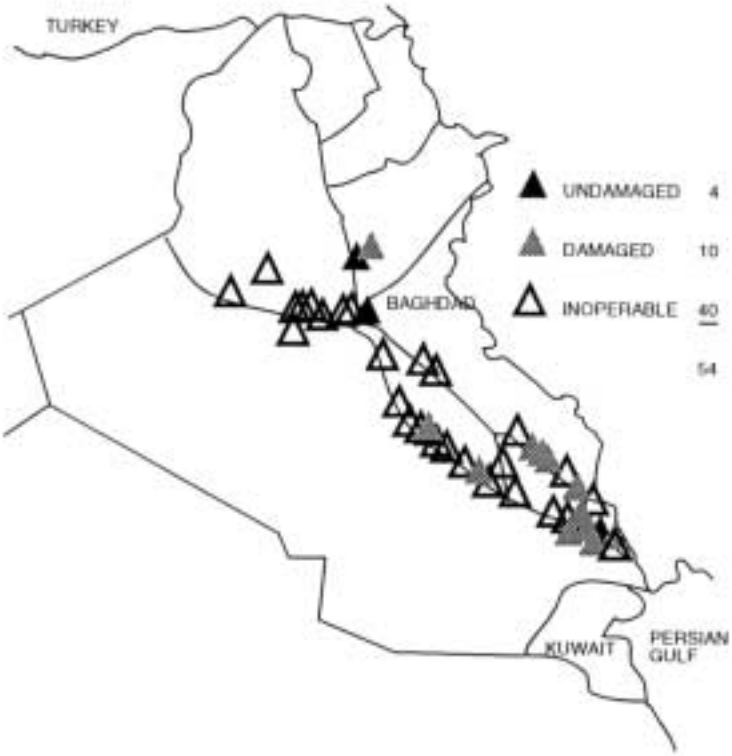


Figure 20. Bomb Damage Assessment: Railroads and Highway Bridges at Cease-Fire

see our estimates of how many tanks were in the Kuwaiti theater of operations, how many other armored vehicles, how much artillery. Here is the estimate on G day—the official estimate of what we had destroyed by G day, by the time the ground forces started moving—and the current official estimate. I believe strongly that we were very conservative in our claims. Once we actually did push in on the ground, it was obvious that we had achieved destruction rates well above something like the 50 percent we may have been claiming in all classes of major equipment.

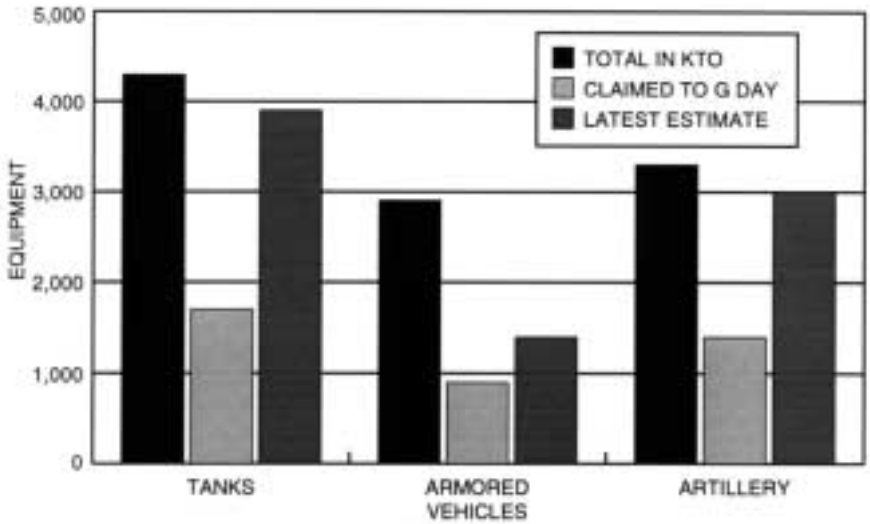


Figure 21. Iraqi Equipment Destroyed

As I say, I think we achieved very large levels of destruction prior to G day, and I'm convinced that made the job a lot easier for our ground forces.

Let's talk about our losses. We had low losses, but we had some losses. Figure 22 shows that the US Air Force lost 14 aircraft in combat and some others through noncombat causes. That's a number I regret. I don't like losing 14 aircraft, but it's one aircraft every three days or so of combat, and no one would have ever believed that we would lose only one

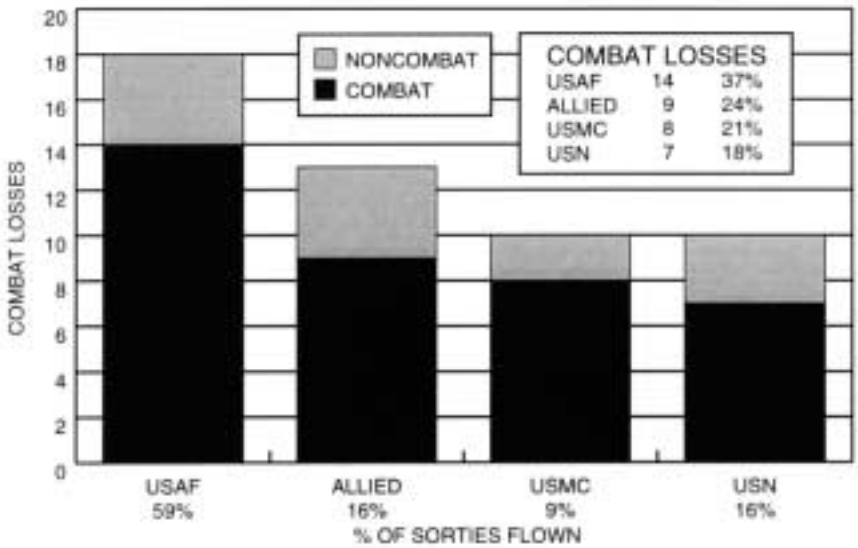
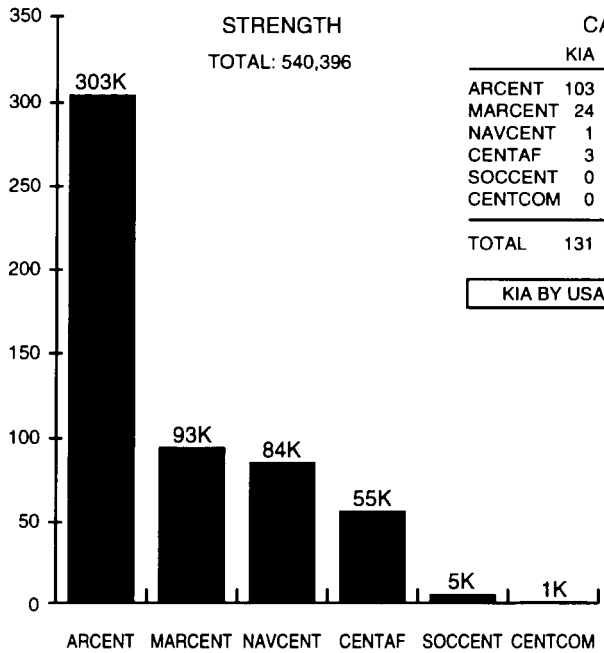


Figure 22. Coalition Air Attrition

aircraft every three days. The other losses are coalition partners and the Marines and the Navy.

One more word on casualties (fig. 23). CENTAF is the Air Force's part of Central Command. As of the latest official figures yesterday, we had three killed in this whole operation. We're still tracking three missing, and we won't be happy until, as the president says, we get a full accounting of that. These 14 missing against SOCCENT are also Air Force personnel. They were aboard a special operations gunship.

One other point. In two separate instances, the United States Air Force attacked friendly vehicles. We destroyed both of those vehicles, and we killed 13 of our own people—marines in one case and Brits in another. That's two separate mistakes that we made. We attacked probably something on the order of 10,000 vehicles. These mistakes were made in the fog of combat, heavy fighting on the ground. They were both done at night—it's a very difficult problem, to do this kind of thing at night. We certainly deeply regret this kind of thing. It's a problem we work on all the time. I feel badly about it. My only consolation is by the grace of God and dint of hard work,



CASUALTIES

	KIA	WIA	MIA	NONCOMBAT
ARCENT	103	235	0	1,166
MARCENT	24	91	0	562
NAVCENT	1	8	5	67
CENTAF	3	0	3	52
SOCCENT	0	0	14	9
CENTCOM	0	0	0	0
TOTAL	131	334	22	1,856

KIA BY USAF FRIENDLY FIRE: 13

Figure 23. Personnel

perhaps we saved a few who might otherwise have been claimed.

Q: General, there was also a report of marines who died in. . . .

A: I'll take your question in just a second.

Let me finish by talking about the lessons we learned in this business (fig. 24). Perhaps it's better to say *relearned,* because some of these are old lessons. First of all, talk about great leadership—our president is batting 1,000 on this thing, and 300 will get you in the Hall of Fame. With him, Secretary Cheney, and the chairman, I think you got really an all-star cast there. I know I've got my team in case we have to go after anybody else. On the scene, Norm Schwarzkopf. Very few field commanders have ever mastered the art of more than one form of warfare. He's proved himself to be the absolute master of sea, air, and ground warfare. His name joins that very short list of true, brilliant American generals. By the way, his air-

- CRUCIAL TO HAVE GOOD LEADERSHIP
- GLOBAL REACH OF THE AIR FORCE
- A SINGLE CONCEPT OF OPERATIONS
- IMPORTANCE OF AIR SUPERIORITY
- FLEXIBILITY IN EXECUTION OF AIR OPERATIONS
- CONTRIBUTION OF STEALTH TECHNOLOGY
- DESTRUCTIVE POWER OF PRECISION GUIDED WEAPONS
- IMPORTANCE OF QUALITY PEOPLE AND REALISTIC TRAINING

Figure 24. Lessons (Re)Learned

man, Chuck Horner—a guy I've known since we were lieutenants—always has known his business and proved it again. As the architect of the air war and the guy who executed Schwarzkopf's concept of air operations, he did a magnificent job.

Second, the US Air Force can go anywhere in the world very quickly, and it will have tremendous destructive effect when ordered to do that by the president.

It is important that we had one concept of operations—General Schwarzkopf's concept—for the air, land, and sea campaign. It was very important they all marched to the same set of orders.

Air superiority once again proved its importance.

Our flexibility to improvise, make up tactics, and so forth, was very important.

Stealth, in combination with precision guided munitions, I think, has certainly the potential to revolutionize warfare.

Probably the most important lesson—we have quality people that are well trained, very competent, and they proved it.

Figure 25 is meant to be a little bit of humor. I want to say a word or two about the Iraqi air force. I think they did rather well under the circumstances. They're a pretty good outfit. They happened to be the second-best air force in the fight. Having the second-best air force is like having the second-best poker hand—it's often the best strategy to fold early. I think

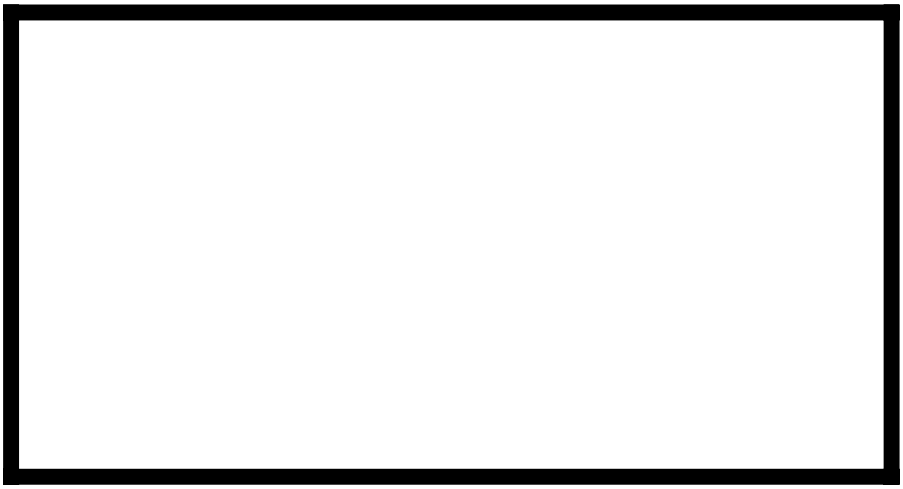


Figure 25. Group Portrait of Iraqi Air Force

they folded early. The lesson for us is we do not want ever to enter combat with the second-best air force.

That's it, ladies and gentlemen. I'd be willing to take your questions.

Q: Since you say they folded early, is there enough of an element left there to worry about? Do you feel prepared to start up an air war again with the forces you have on the ground, given the troubles that are now in Iraq and the fact that troops are now starting to come home?

A: In my judgment, it will be a generation before the Iraqi air force recovers to anything like its previous strength—at least a generation. That doesn't mean they won't be capable of isolated air action. They can begin the building process right away, and so forth, but their infrastructure is heavily damaged. Their airfields, their maintenance facilities, their operational facilities, their aircraft shelters. Their aircraft are gone. The ones that did survive are mostly out of the country. A generation of pilots and crew chiefs and mechanics and air leaders have certainly vanished. I think it will be a long time before they constitute a significant threat again.

Q: What about your assessment of what we have on the ground now?

A: We're in great shape.

Q: Could you start up an air war again if it's necessary?

A: We have aircraft on orbit right now, there, who can do whatever Schwarzkopf and the president ask them to do.

Q: When you say the F-l17 was 2.5 percent of the air assets, is that the bombers?

A: The shooters. Two and a half percent of the shooters.

Q: Can you assess the contribution that Navy aviation made to the war and whether their planes brought something to it the Air Force didn't have or whether it was basically redundant?

A: They made a tremendous contribution. It was not redundant. They were tremendously effective in everything they did. The CNO may brief you on that one of these days. I'm just absolutely delighted we worked together with the Navy as partners in the coalition air force.

Q: Late in the war, you were continuing to strike targets in Baghdad. Reviewing the map, it looked like 900 to 1,000 sorties a day against strategic targets. Can you give us some sense of breaking down the strategic targets and what kind of things were you still hitting in Baghdad weeks into the war?

A: We were not flying 900 sorties a day late in the war against strategic targets. Beyond that, I think I'll duck the question.

Q: Can you give us any sense of what percentage of laser guided bombs hit their targets?

A: I don't have any good data on that. If I had to give you a guess, I would say on the order of 90 percent.

Q: You were talking about taking out the bridges. Did you take out every bridge over the Euphrates?

A: No, we did not.

Q: How many did you take out, and why did you leave some standing?

A: We took out very nearly all. As you see, we had about 40 out of the 50-odd that we were tracking that were in the water

at the end. We didn't get them all. It only lasted 33 days, and we really didn't start on bridges until about day seven to 10.

Q: It looked like the RAF was doing a hell of a job on the bridges. . . .

A: The RAF did a first-class job on everything they tried to do. It was an honor to be involved with them in this effort.

Q: At the end of the ground war, the Army was saying that going after the Iraqi soldiers was sort of like clubbing baby seals. At this point, the Air Force also swooped in on one of the convoys going from Kuwait into Iraq. Was that an excessive use of violence? Number two, what about Iraq's use of combat, fixed-wing aircraft now flying in Iraq from place to place? Are you concerned about that?

A: I'm not sure there is any fixed-wing flying—combat aircraft flying today in Iraq.

Q: The last few days?

A: No, I don't think there have been any, but I really ought to tell you to direct that to Riyadh.

Q: If there were, would you be concerned about that?

A: Yes, I would. But my level of concern would depend on the circumstances—how many, what direction were they going, that sort of thing. So it's a tactical judgment that should be made on the spot.

As far as attacking retreating troops, I think you have to understand a little bit about military history. When enemy armies are defeated, they retreat—often in disorder—and we have what is known in the business as the exploitation phase. It's during this phase that the true fruits of victory are achieved from combat, when the enemy is disorganized. The alternative is we should never attack a disorganized enemy. We should wait until he is stopped, dug in, and prepared to receive the attack. You may recall how disappointed Lincoln was with General Meade when he failed to pursue Lee south from Gettysburg. It certainly prolonged the Civil War, and many more young Northern and Southern men died as a consequence. All American generals should remember that lesson.

If we do not exploit victory, then the president should get himself some new generals.

Q: But you don't see the pictures of that as looking like excessive use of violence?

A: That is exactly what happens when a rout occurs, and the enemy retreats. It's a tough business, but our obligation is to *our* people and to end the war quickly in the most humane way possible. It often causes us to do brutal things. That's the nature of war.

Q: Can you give us more details on the B-52 operations? Is there a judgment that more aircraft were needed, and what led you to conduct those operations from great distances?

A: B-52 operations can be conducted from great distances, and we did that. I'm not sure I understand your question.

Q: I understand that additional B-52s were called in at later phases. Can you give us some details on when that occurred and why those judgments were made? How many aircraft were. . . .

A: After the opening of combat operations, some of our coalition partners agreed to allow us to conduct operations. That accounts for the growth of the shooter and support aircraft from D day to G day. We had the capability to operate those aircraft, and we did.

Q: Going back to an earlier question about targeting soldiers, one of your primary targets that you mentioned was the Iraqi ground forces throughout the theater. Could you tell us what considerations, if any, were given to either trying to kill as many of these soldiers or not kill them, what kinds of munitions were used? Could you have wrought even more destruction than you did, say by use of napalm or other types of weapons? Explain a bit of the decision-making process of that and the impact it had on human life.

A: This is a tough business, so I don't want to exaggerate the length to which we went to try to keep from killing people. But we did drop leaflets and so forth. We made it clear that our targets were equipment targets. We said in our leaflets, "Move away from your equipment; you'll be safer." We said we will not attack anybody walking north, and we didn't. We at-

tacked equipment in every case. So I think we tried to disarm the Iraqi army as humanely as possible.

Q: Could you elaborate a little bit on the point at which the Iraqi aircraft began going to Iran, and was that the result of some precision bombing by stealth aircraft? Second, do you know if we captured any Scud missiles in the areas occupied by allied forces?

A: On the second one, I do not know that. Again, I think Schwarzkopf would be the right guy to take the question. I believe that after about day seven, when we stepped up our attacks on aircraft shelters, a decision was made by the Iraqi air force that they had to leave in order to survive. In the first two or three days of the war, we made it obvious that with a ratio of 35 to 0 in the air, they couldn't survive in the air. But we also subsequently made it clear they couldn't survive by staying parked in the aircraft shelters, and that's the point at which I think they decided to leave.

Q: Can you tell us what the F-l17s, what targets they hit in Kuwait City, and did that occur right at H hour?

A: The targets in general were aimed at air defense operation centers, communications, command and control.

Q: General Horner in Riyadh said the one aircraft that he most could have used in this campaign was the B-2 stealth bomber. Given the utter collapse of Iraqi radar defenses and the relative impunity with which we were flying, do you agree or disagree with General Horner's yearnings for the B-2? Would the B-2 have made any difference?

A: I think the B-2 will make a tremendous difference when fielded. The principal difference will be its reach. In other words, with the B-2, we'd have a stealthy aircraft roughly equivalent in signatures to the F-117, although a huge airplane—that shows you how far stealth technology has come in the last 10 years. This aircraft will have stealthy characteristics but be able to go from CONUS secure operating bases and with one refueling, reach any part of the earth. So of course it would have had some value in a situation like Iraq. But for my money, the principal value would be to take con-

ventional weapons long distances and attack very quickly whenever the president decides to do that.

Q: These JSTARS that can identify mobile targets, could they identify them well enough to distinguish between a truck that might have a Scud and a Jordanian oil tanker? Or are they just identifying large moving targets?

A: I can't answer the question. I'm not sure.

Q: You went into the war thinking how many of your aircraft were going to be shot down. When you take a look at the overall picture, you flew 60 percent of the sorties but had only 30 percent of the aircraft losses. Why did the Air Force do better than the others? Was there any fratricide in the air? Did the allies shoot down any other planes?

A: Quite frankly, I thought our losses would be somewhat higher. In the internal deliberations leading up to the decision, I said we might lose as many as four or five aircraft a day. My private hunch that I sort of had in my hip pocket was less than that, but you know airpower advocates over the years have gotten themselves in trouble by bragging too much about what we're going to do, so I added a little fudge factor in there. But I certainly—even in my most optimistic, wildest dreams—would not have said we would lose one aircraft every three days in this kind of an operation.

US Air Force losses were gratifyingly low. I can't offer any explanation for that. We do have the world's only operational stealth airplane, and since it wasn't scratched, that tended to skew the results in our favor. But all of the services did extraordinarily well—the Marines, the Navy, the allied air forces. This was a first-class operation. Having said that, am I proud of the performance turned in by the United States Air Force? You bet.

There was no case of blue-on-blue fratricide any time during the war. I've already talked about our air-to-ground fratricide, but no air-to-air fratricide. It's remarkable, when you think we were putting 3,000 sorties or more a day up there. It is a tribute to Schwarzkopf's single concept of the operation, management of it centrally, and everybody singing off the same sheet of music. A remarkable performance.

Q: Given the level of damage that the air war alone inflicted on the Iraqis and the fact that by the time the ground war started, they were surrendering to television minivans and pilotless reconnaissance planes, is it conceivable that by continuing the air war alone for another period, the Iraqis would have been totally defeated without a ground war?

A: My private conviction is that this is the first time in history that a field army has been defeated by airpower. It's a remarkable performance by the coalition air forces. But there are some things airpower can do and does do very well and some things it can't do, and we should never expect it to do very well—that is to move in on the terrain and dictate terms to the enemy. Our ground forces did that. I think, by the way, again, they did a remarkable job. First, we weren't so sure we were making the right move when our ground forces—the 25th Mech and the armored divisions up there in contact with the Republican Guard—stopped and offered, really, a merciful clemency to the Iraqi ground forces. But that's the kind of thing ground forces can do, and I think they did a magnificent job.

Q: You said at the beginning that Iraq had the sixth-largest air force, and you said they were not a lightweight opponent, and yet by day nine they were practically out of business. I'd like you to explain whether, besides the precision weapons and all that, was morale over there so bad, were the planes so bad, the pilots, did they overestimate their own airpower? What happened?

A: I think they picked the wrong time to lean on President Bush. The ultimate answer to that question is, This is not the right time to pick on the United States. What we have here is armed forces—Air Force, Navy, Marines, ground forces—that have had a decade of reasonably good funding—good O&M funding so that we've had good flying-hour programs, good steaming hours for our Navy, good maneuver training for our land forces. So they just ran into a buzz saw. It's not that they were featherweight opponents; it's just that they picked on the wrong guy.

In my judgment, only the United States Air Force could have disintegrated that air defense system as quickly as we did with

such overwhelming shock power that it totally stunned the Iraqi air force, and—in essence—the issue was decided in the first few hours of the engagement.

Q: What does this tell you about Soviet equipment, Soviet doctrine, Soviet tactics? If you were the chief of staff of the Soviet air force, what would you tell your boss?

A: The commander of the Soviet air force is, for the first time in living memory, younger than the chief of staff of the United States Air Force, and I've read some of his writings—he's a very interesting guy. I think he sees a need to change the way the Russian air force operates. So I would say good luck to him. It may well be that he's right on that one.

Q: Can you tell us, besides the F-117 and the F-15E, what were some of the new weapons that you used in this war that hadn't been used before, and can you tell us, did you use any cruise missiles?

A: I don't have at my fingertips a good answer. We did employ some precision, especially precision guided munitions that we hadn't used before. One thinks of the Tomahawk immediately. The munition used by the F-l17 is a case-hardened 2,000-pound bomb that we have not used before. But no, I don't think there were a lot of strange, new munitions. Most of our air-to-air kills were achieved by the Sparrow missile we used in Vietnam—20 years old or older, a product-improved version of it.

Q: Did you use any Air Force cruise missiles?

A: I can't help you with that problem.

Q: What about AWACS? There was an awful lot of air traffic in the air. How were they successful? What were some of the reasons for their success in sorting out and maintaining that air traffic?

A: That's their mission. They're a highly capable system. They handle large numbers of air targets. They do that routinely, all the time. The people on board the airplane are highly trained, and the radar is very good, so it performs well.

Q: It's been widely reported that rotary-wing aircraft and other forces participated in those first few hours of attack

against the early warning system, and I wonder if you could help us get a more integrated picture of how they fit into those crucial few hours.

A: I can't help you on that.

Q: I wonder if you could talk about Reserve forces. What did they contribute, and what would your assessment be of their performance and their readiness?

A: On the air side, the Reserve forces did a magnificent job. The Syracuse Guard unit—Hancock Field, "Boys from Syracuse"—was over there and turned in a magnificent performance. So did the McEntire F-16 outfit and the New Orleans Reserve unit. We also had some reconnaissance help from RF-4Cs of the Reno Guard. Much of our airlift was performed by Guard and Reserve forces and a lot of the aerial tanker force. So in general, they were ready when called on, they were moved immediately, and they were employed the minute combat began, so that argues that they're highly trained and ready to go, and I'm very proud of their performance.

Q: Can you give any kind of percentage, like the percentage of sorties that they flew? Second, if your Reserve forces were so ready and so useful, what could other services learn from that? What is the reason that they were?

A: I think it's an easier problem for the Air Force, because the nature of our mission means that it's one that experienced people—pilots, for instance—can serve a tour in the Air Force, get out, go find a job as a pilot in civilian life, and join a National Guard or Reserve unit, so they continue to polish their flying skills. It's not exactly the same as some other combat skills that other services may have to train for. In any case, whatever the reason, the total force policy works for the Air Force, and we're very proud of their performance.

Q: You described a 30-day air war as what you had initially expected.

A: No. Through phase three, and then that would be followed up by the land part, in which we would do phase-four air support.

Q: Okay, but as it turned out, you went a full 39 days before passing to the ground war, and you cited a couple of

reasons. Were they the only reasons, or was progress overall a little bit slower than you had anticipated?

A: I believe we made progress about on schedule. General Schwarzkopf is the one that said we will attack on day 39. He set the timing on that. He could have done it on day 30, or he could have waited until day 46, or whatever. For him, weather was a big consideration, too, because weather has an impact on land-force operations. In any case, he picked the right day. We had some obstacles to overcome. As I say, the principal one was very bad weather. We worked around it, and we worked around the diversion of a significant portion of our combat power on the Scud problem. But I think it's kind of coincidental that G day was day 39 instead of day 30.

Mr Williams: General, thank you very much.

Chapter 4

Organize, Train, and Equip

Speech, Air Force Association National Convention, Washington, D.C., 18 September 1991

Good afternoon. It's September, and three great things happen every fall. The leaves turn nice colors, it cools off on the golf course, and AFA holds the best annual convention anywhere. This event is always a highlight for the Air Force and for anyone interested in aerospace. It's the Paris Air Show without jet noise.

I've been chief of staff for 10 months now. It's been an exciting period for the Air Force and for me. In these 10 months, Chuck Horner planned and executed the most successful air campaign in history. Airpower came of age as a decisive element in combined-arms operations, capable of dominating warfare to achieve major international objectives. Note that I said "combined-arms" operations, for Desert Storm was very much that, featuring as it did a magnificent ground attack through Kuwait and Iraq by our soldiers and marines, and an absolutely leakproof blockade imposed by our sailors—and maintained to this day. There will be other contingencies in which we airmen play only a supporting role. But no serious person I know denies that, this time, our number was called, we carried the ball, and we scored.

As a new service chief, I guess one of the first questions Secretary Don Rice and I discussed was, What is it the services are supposed to be doing? The answer to that question is well known to many in this audience, but it is interesting enough—for me at least—to spend a little time on. The answer is, The services are supposed to "organize, train, and equip" forces and provide them for employment to a user—commonly a unified commander. "Organize, train, and equip" but not "employ." Kind of an interesting position to be in, if you are someone who has spent a lot of years as an employer—and employee—in the airpower business. OK, if our job as a service

is to "organize, train, and equip," then a logical starting point is to ask the question, Are we properly organized?

I want to take some time today to talk a little about how Secretary Rice and I are answering that question. Organizational theory does not normally make for an ideal after-lunch speech. But I think this topic may be important enough to keep you awake and maybe even provide some cocktail conversation for later this evening.

First of all, it's obvious to everyone that there is an enormous amount of change taking place all around us. The breathtaking developments we see in the international environment certainly would seem to require a major relook at the whole defense establishment, including the Air Force. But, in itself, that's not a conclusive argument that the Air Force must change. Indeed, in the wake of our success in the Gulf, people have asked, Why change now? This question is especially appropriate in view of the unusually far-reaching nature of the proposals we are making—perhaps the most important set of restructure initiatives since the Air Force was established as a separate service.

The bottom line is that change is unavoidable, in any case. No human activity is static. In addition, there is a forcing function: declining public support for defense spending. It is tempting to think that this is a recent phenomenon, but we are now about six years into a steep budget decline. It may interest you to know that this year, 1991, the Air Force is operating with essentially the same budget we had in 198110 years ago, near the start of the Reagan buildup. Previous secretaries and chiefs have already faced up to a rather substantial decline in resource availability. Thank goodness they knew how to change, to make the adjustments that preserved our combat punch, as demonstrated in Desert Storm.

But, we are projected to go down further—perhaps dramatically further. Our best-case projection is that defense spending will fall below 4 percent of the GNP by 1995, the lowest level since the last time the Russians were our allies. The Air Force as a whole will get at least 25 percent smaller. Cuts of this magnitude, on top of those already made, rule out the "business-as-usual" approach. If nothing else makes us change, the resource slide will.

Secretary Rice and I have absolutely no intention of presiding over the decline of the Air Force. Therefore, we will instead press for a top-to-bottom restructure as the best way to sustain our combat capability as we get smaller.

Our back-to-basics approach is built around five themes. The first theme is *decentralization*. We seek to push power and authority down from headquarters and out from the center. In our judgment, the real work of the Air Force is done by teams—sometimes rather small teams—located at the point of contact. We want to empower these teams, to give them more authority over how they do the job. Basic policy will still be set at headquarters. But the idea is that we should not get in the way as teams of people who know what they are doing improve the way they go about their day-to-day business.

The second theme is to *strengthen commanders*. A guiding concept here is that field commanders have mission responsibility. We must be able to hold them accountable for results. Accordingly, we need to increase their authority to achieve results.

Third, we want to *streamline and flatten* the organizational structure. Our basic structure is the chain of command. For me, the chain of command needs to be treated with some reverence. It is an almost holy concept, and it is our duty to strengthen it—where we can. There are a very large number of links in the chain running from the president to the lieutenant who actually pulls the trigger. The system cannot be relied on to work unless we make these links as durable as possible.

Fourth, we will *consolidate, where it is practical to do so.* We must achieve economies, but we will be very careful here, because consolidation so often goes hand in hand with centrali- zation, which we see as the enemy. However, if done properly, we can bring resources together under a single field commander who has responsibility for a particular mission and still advance the decentralization concept.

Finally, we will *clarify functional responsibilities* and untangle some staff responsibilities that have become obscure over the years. Let me start at the bottom, base level, and work my way up the chain to show how these five concepts are given practical application.

Our basic combat unit is the squadron, the team that flies and fights. It is important to understand that the basic team is the aircrews that fly and the crew chiefs that service our aircraft. However, this is not the way we usually organize. Typically, a wing-level deputy commander for maintenance owns the aircraft. The crew chiefs that service, fix, and generate them are in a squadron under this deputy commander. Our idea is to re-create the basic team, to return responsibility for on-aircraft maintenance to the flying squadron commander. Such a move makes it clear that the mission of the Air Force is to fly and fight and that the flying squadron commander is the team quarterback for that mission.

Another initiative is to do away with the three colonel-level deputies for operations, maintenance, and resource management that currently exist in our wings and to squeeze these functions into two group-level commands. Thus, in the future, flying squadron commanders will report to an operations group commander. The various logistic support squadrons—supply, transportation, and a squadron responsible for maintenance off the flight line—will report to a logistics group commander. This "three-into-two" idea is an example of streamlining and consolidating. It is also an example of replacing "deputies"—not quite commanders, not quite staff officers—with "commanders," further strengthening the chain of command.

The next notch up is the basic business level of the Air Force—the wing. And, indeed, a lot of the Air Force's most important business is done by the wing.

At wing level, our organizing principle will be "one base, one wing, one boss," and—where possible—make that boss a general officer. Where we can make it happen, the wing commander will, in fact, command the entire base and all the resources associated with it. We will move away from stovepipe organizations that report to some absentee owner. That's why communications and weather personnel now work for the wing commander, rather than in a specialized, functional command.

As we reorganize wings to include lots of different kinds of activities under one commander, we will end up with many of what we're calling *composite* wings. This term means, simply, that such wings operate more than one kind of aircraft. We

have started moving toward this concept at Seymour Johnson AFB in North Carolina. We used to have two wings there—a fighter wing with F-15Es and a tanker wing with KC-10s. Each wing reported up separate command channels to different major commanders. Today, the reorganized 4th Wing operates both the tankers and fighters, so it's a composite wing.

The composite wing is by no means a new idea. For years, many Strategic Air Command wings have been composite, operating both bombers and tankers. Other wings, such as the 89th at Andrews AFB, Maryland, or the 52d at Spangdahlem AB, Germany, have been de facto composite for a long time.

However, we are building two new composite wings from the ground up. One such wing will be at Mountain Home AFB, Idaho, where F-15Cs, F-15Es, F-16s, tankers, and AWACS* will form a unit designed for quick air intervention anywhere in the world. At Pope AFB, North Carolina, we will assemble a wing of A-10s, F-16s, and C-130s and build an airland team with the 82d Airborne Division.

Not all of our wings will be composite. Many will still be organized around a single type of mission equipment, ready to go wherever necessary and be integrated with other systems at the point of use.

Some have raised the issue of cost of composite wings. But, creating the composite wing at Seymour cost nothing except the loss of a headquarters. The secretary and I can stand such costs. Send us more! And the great majority of our composite wings will follow the pattern of Seymour. In other words, we will simply consolidate into one wing—an existing composite operation at one of our bases. This kind of move can only generate savings, as we reduce headquarters and streamline our operations.

I spoke of making our wing commanders generals. How on earth are we to do this? We are already stretched pretty thin for generals, and the number available is being worked down quickly. Congress has directed that we must cut 59 generals out of our hide by 1995, so much head scratching will be needed just to keep pace with this mandated drawdown.

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*Subsequently, bombers were added to the objective force structure of the 366th Wing, Mountain Home AFB, Idaho.

Still, isn't it a shame that we have virtually no generals commanding our wings, where so much of the actual work of the Air Force is done? As this year began, we had only three general officers serving as operational wing commanders. One commands the airlift wing at Lajes in the Azores, one of our smallest major installations. One, at the fighter weapons wing at Nellis AFB, Nevada, is not the installation commander. And the last, at MacDill AFB, Florida, is on a base that will soon lose its wing and flying mission. It ought to surprise us that we have only three wings commanded by generals and that these are the three. We need to fix this, but where can we get the generals?

We can start by eliminating the air division. Many air divisions exist at bases with two wings, and since these wings will be merging, the need for the divisions goes away. Eliminating the air division makes available 19 generals for reassignment as wing commanders.

The next echelon up is the numbered air force. Numbered air forces are one of our richest sources of Air Force history and tradition. The secretary and I want to preserve and strengthen this heritage. We will retain numbered air forces as an echelon, but as a strictly tactical, highly operational echelon. The commander will have virtually no functional staff. His duty uniform will be a flight suit. The numbered air forces will lose their general officer deputies, freeing 16 more generals for reassignment as wing commanders.

At the major-command level, we have many reorganization initiatives under way. As you know, we are merging Systems Command and Logistics Command into Air Force Materiel Command. We are all very excited about the prospect. When we finish next summer, there will be one commander responsible for life-cycle weapon system support. That is the sort of consolidation which makes good organizational sense. It aligns responsibility and authority. It strengthens accountability. But it does *not* take power or resources from field commanders to bulk up a central headquarters. Once again, what the Air Force loses is a headquarters. In the process, we liberate 17 more general officers.

We will also make major changes to the structure of our operating commands. The old arrangement that still divides

airpower into separate piles of "strategic" and "tactical" capabilities never was valid. Our first chief, "Tooey" Spaatz, said on this subject, "There is no line between strategic and tactical air forces. It is an overall effort, uniting all types of aircraft." (These chiefs of staff know what they're talking about!)

I said that at the flight-line level, the real problem is to produce an ops-maintenance team. In the same way, at the operational level, the problem is to create a team that integrates the whole range of airpower capabilities: bombers, fighters, tankers, lift, recce aircraft, and so forth. Every actual combat application of airpower since World War II has shown that airpower must be employed as a coherent whole. But, while our problem is to *integrate* airpower capabilities, we are organized in a command structure that *dis*integrates these capabilities. Whatever utility there once was in drawing a line and calling some airplanes tactical and others strategic has been overtaken by events. Our organization needs to catch up.

We have now started on this. I've already cited the first example—Seymour Johnson, where KC-10 tankers that formerly belonged to SAC are now part of TAC's 4th Wing. You will see more tankers moving to both TAC and MAC. In addition, stand by for reassignment of conventional-only B-52G bombers from SAC to TAC. As the secretary announced yesterday, we see a continuing series of such steps leading to the eventual merger of SAC, TAC, and MAC into two successor commands, notionally called Air Combat Command and Air Mobility Command.*

Thus, we are set to recover what should the hallmark of any military organization—simplicity in our command relationships. We will organize ourselves along mission lines, not functional lines. We will be ready to employ airpower as an integrated whole.

Finally, at the top of our organization is Air Force Headquarters, a term that encompasses the Secretariat and the Air Staff. As a rule, the Secretariat is supposed to handle what might be called the "business" side of the Air Force, and the Air Staff the "operational" side. On both sides, the job is to set

*Air Combat Command and Air Mobility Command were officially activated on 1 June 1992.

overall policy and to do resource allocation. When the secretary and I started to look at the Air Force Headquarters, we found a number of things misplaced. For instance, responsibility for flying safety—obviously an operational concern—was located in the Secretariat, while supervision of foreign sales of excess Air Force equipment—clearly a business function—was resident in the Air Staff. We fixed that and straightened out other organizational anomalies, with the result that responsibility for oversight of operational requirements is now back in the Air Staff.

At the same time, we found that policy-making for several Air Force functions was being done out in the field. We brought it back. We now have in Washington an Air Force chief of morale, welfare, and recreation who sets policy and does resource allocation for MWR. Similarly, we have brought in the functional chiefs of security police and weather. We have also reorganized the Air Staff to clearly identify functional chiefs. We now have a director for each of the three major logistics functions at a base: maintenance, supply, and transportation. The civil engineer has been separated from the logistics function—just as he is at base level—and reports directly to me.

At the same time we are rearranging functions and clarifying responsibilities, we are cutting the size of the headquarters. We need to do headquarters work—and only headquarters work—and let the field alone to get on with the job. The net result of this approach will be a smaller headquarters with a clearer focus on the policy and resource allocation jobs it should be doing. We will cut the staff by about 21 percent. We're doing our part to solve Washington's traffic congestion. Some of that departing traffic is in nicer cars, because 14 generals will be moving away from Washington, providing another source of line officers for the chain of command. By 1994, 53 of our wings will be commanded by general officers. The 14 who are moving from Washington are among my most loyal fans.

That's my report on the "organize" part of "organize, train, and equip." I suspect some in this audience would wish me to say something about "equip." How we equip ourselves is, indeed, of crucial importance, and I promise to make a speech

about it at a future AFA convention, assuming you invite me back. But my style is to work through a problem in an orderly way, so I suspect that next year's effort may focus on how the Air Force "trains." Accordingly, the "equip" part may have to wait until '93.*

As the secretary and I have grappled with the "organize" issue, we have kept at the forefront our conviction that the most important part of our business is the human part. How our people do their jobs, whether they are satisfied in those jobs, whether they are competent and can be relied upon to deliver a knockout punch when and where the president calls for it, all depend on how we handle the human problem: recruiting, training, leading, keeping good people. But, from a top-management perspective, the key to this human dimension is the structure in which we ask our people to operate. The most basic management decision we make is how to organize ourselves.

That's how it looks, from top to bottom. I'm especially proud that we in the Air Force are stepping up to the need to change. No one made us do it. Congress didn't pass a law telling us we have to reorganize. Secretary Cheney and Gen Colin Powell did not send down the word to shake things up. And we are not driven to change by failure. Quite the contrary. Secretary Rice and I want to reorganize because the Air Force must move ahead, because this restructure is the right thing to do in the face of so many forces for change.

Again, I want to thank all of you for the support you give the Air Force every day. We all share a common vision: a Quality Air Force, an Air Force that never enters the fight as an even match but always as number one. With your help, we will always be ready when the nation calls.

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*See chapter 33, "Year of Equipping the Air Force," a speech that was delivered on 15 September 1993—two years after this one.

Chapter 5

Stepping Up to the Need for Change

Speech, Air Force Association National Symposium, Los Angeles, California, 24 October 1991

During our speeches to the Air Force Association convention in Washington last month, Secretary Donald Rice and I explained the Air Force restructure we are now implementing. Make no mistake, these are the most significant organizational changes made since we became a separate service in 1947. By now, most of you have probably heard about and understand the reorganization. Nevertheless, in view of its importance, I'd like to review some of the rationale for the reorganization and then discuss how the new format fits into the larger plan of where the US military as a whole is headed.

The restructure will enhance our combat capability and improve our peacetime efficiency. It cuts overhead and headquarters. It moves authority from headquarters out to the field, where the real business of the Air Force is done. It strengthens the all-important chain of command. It consolidates activities, where appropriate, but avoids the centralization of power in headquarters staffs that so often is the handmaiden of consolidation. All of these features will make us a more streamlined, more agile outfit.

The merger of Strategic Air Command, Tactical Air Command, and Military Airlift Command eliminates the artificial distinction between tactical and strategic airpower. It will organize us in peacetime to be ready for the integrated use of airpower during conflict. In Desert Storm, we integrated all types of Air Force aircraft, as well as those of other services and coalition partners. The results showed how powerful this kind of integration can be. From now on, Air Combat Command will be organized that way all the time. Our overseas commands, PACAF and USAFE, will be modeled on Air Combat Command. In other words, they will have command of all the air capabilities stationed in their theaters. They will have

their own tankers and theater airlift. We'll be ready for integrated operations all the time.

Reorganization below the major-command level also will better integrate our operations. At many locations, we will tie together existing composite operations by putting them together in one wing. That's already happened, for instance, at Andrews AFB, Maryland; Seymour Johnson AFB, North Carolina; and Kadena AB, Japan; and it's working beautifully. We will create, from the ground up, two new composite wings: one at Pope AFB, North Carolina, teamed with the Army's 82d Airborne Division, and one at Mountain Home AFB, Idaho, equipped for independent air intervention. These and other actions bring together assets at the operational level to practice the combat integration we use in war. Overall, after the restructure, we won't need a five-month rehearsal period like we had for Desert Storm.

The reorganization is necessary for many reasons. I suppose that, in any case, change is inevitable. No human activity is static, and a quick look at the headlines over the last few months confirms that these are definitely changing times. Earlier this month, I visited the Soviet Union. I met with officials from Defense Minister Shaposhnikov down to the pilots on the flight line, and my wife and I enjoyed some wonderful hospitality. A few years ago, the idea of an American service chief taking a friendly tour of Soviet military facilities would have been hard to imagine. Not only did I visit the Soviet Union, but I did so right after the president announced that our bombers and some intercontinental ballistic missiles would go off alert, that we would bring home and eliminate many ground-launched tactical nuclear weapons, and that we would speed up the missile reductions to be made under the START agreement. Change is not just inevitable; it's happening fast enough to water our eyes.

But beyond the scope and inevitability of change, there is a forcing function which drives our reorganization. Our budget is headed south. We know we will be smaller, probably about 25 percent smaller. Our budget this year, in real terms, is about the same size it was in 1981, near the beginning of the Reagan buildup. And, our budget projections show nothing

but continued decline. So, Air Force reorganization is the right move at the right time.

But the Air Force is not alone in facing these changes—the other services have the same situation to contend with. I want to spend a few minutes discussing some of the new thinking in the Defense Department as a whole. As you'll see, Air Force reorganization fits well with the overall planning concept for the US military.

General Powell, the chairman of the joint chiefs, has established a Base Force concept to guide the services in our forward planning. The Base Force is the minimum force we need to implement the president's new national security strategy, which focuses on regional contingencies rather than global war with the Soviets. The Base Force will be credible, both to our allies and to our potential enemies, because it aims to avoid a return to the hollow-force days of the late 1970s. As Secretary of Defense Cheney noted, the hollow force gave us Desert One, while its successor gave us Desert Storm. So, the first idea—and it is an important one—is that the Base Force is smaller but supportable at realistic equipage and training rates. It is a combat-ready force, one that the nation can rely on when we are asked to meet our responsibilities as a great power.

Conceptually, in the Pentagon, we are looking at four basic military force packages. These aren't commands or organizations. They are conceptual force baskets. The four basic packages are strategic forces, Atlantic forces, Pacific forces, and contingency forces. Let's take a look at these four packages and see how the Air Force fits.

Deterrence of nuclear attack on the United States and its allies remains our foremost security objective. The changes I saw in the Soviet Union are profound. The end of Communist party rule portends a total transformation of that nation. President Bush's courageous nuclear initiatives and President Gorbachev's response in-kind promise to make the world a safer place. But even with those hopeful signs, we still have to respect Soviet strategic nuclear capability. They remain the one power that can destroy Western civilization in 30 minutes.

The strategic force, to be led by the new unified Strategic Command announced by President Bush, will provide a solid

deterrent foundation. Strategic Command will be headquartered in Omaha, where SAC will roll up its flag after years of distinguished service. SAC accomplished its mission, and its people can be very proud of the job they did taking us through and winning the cold war.

The new Strategic Command will incorporate the peacetime nuclear alert force—land-based ICBMs, the Navy's ballistic missile submarines, and manned bombers and tankers, if they ever go back on alert. Thus, the point this new arrangement makes is that, while nuclear deterrence is a legitimate mission, it is not a uniquely Air Force mission requiring an Air Force major command. Rather, it is a joint mission requiring a unified command. The Air Force portion of the nuclear alert force will come from our new Air Combat Command. This is exactly the kind of arrangement we have for continental air defense, where TAC provides the alert force to NORAD.

Second, the United States needs an Atlantic force package. Chairman Powell uses this term to embrace a region well beyond Europe, stretching eastward toward the Persian Gulf and Southwest Asia. Our forward-based presence in this region—principally in Europe—is bound to be smaller in the years ahead. We expect to keep between three and four tactical fighter wings in Europe, compared to the seven-plus we have had until recently. But the Atlantic force package includes CONUS-based air units configured for rapid deployment. In this region, we are likely to run into high-tech opposition, as we did recently in Desert Storm. So, this Atlantic force is our baseline for cutting-edge requirements like the F-22 and C-17.

On the other side of the world, the Pacific force *has a vast area to cover. It will include Southeast Asia and the Indian Ocean. From the Air Force viewpoint, this is an economy-of-force theater because the Pacific force will be predominantly maritime. Nevertheless, as we draw down in Europe, PACAF may eventually be as large as—maybe even a little larger than—USAFE. We project one or two wings each in Korea, Japan, and Alaska, as our forward-based contribution to the Pacific force.*

The final base-force package is the contingency force, which will be designed to react to the unexpected and the uncertain. The contingency force will place a premium on speed, mobility,

and lethality—getting to the scene quickly and being flexible enough to answer a range of operational challenges.

The contingency force responds to crises anywhere. The Mountain Home intervention wing fits perfectly with this concept. By the way, I believe the B-2 could well be the centerpiece of the Air Force contribution to the contingency force. Imagine being able to respond rapidly to any spot on the globe with a heavy payload of precision munitions and being able to penetrate any defense! That's the right way to think about the B-2.

The contingency force will also be the main response team for conflicts in Latin America, sub-Saharan Africa, and the island nations. The emphasis on rapid response demands that most of this package come from the active force as opposed to the Guard and Reserve. The Air Force will keep seven fighter wings available for this package, again, from Air Combat Command. Special operations forces also will come under the contingency force.

The Air Force will play a key role in the Base Force. The whole concept leverages decisive airpower capabilities: global reach—global power. In some contingencies, such as Desert Storm, we can expect to be the mainstay. In other cases, we will play a supporting role. Regardless of the role we play, our internal reorganization prepares us better for the future. Our nuclear forces will continue to provide the most reliable leg of the triad—ICBMs—and the most flexible leg—manned bombers. As I've indicated, PACAF and USAFE will have the resources their commanders need for integrated airpower *employment*. Putting all of our US-based bomber and fighter forces under Air Combat Command will accelerate our reaction time and make it easier to assemble integrated air packages. Such packages could reinforce a theater commander or conduct an independent air campaign.

Mobility and flexibility are essential to the Base Force, and the restructure enhances our capabilities in these areas as well. The creation of Air Mobility Command gives us a single Air Force commander who deals not just with airlift, but with the broader problem of mobility and deployability. Tankers play a very big role in that, as illustrated by the Atlantic tanker bridge we built for Desert Shield. At various times, we had as many as 85 tankers committed to this tanker bridge. Therefore, we intend to put the majority of SAC's tankers into Air

Mobility Command, which also will handle worldwide tanker scheduling to maximize the efficiency of our refueling fleet.

Even at the lower-operating echelons, the reorganization fits well with the Base Force concept. Our composite wings will be major players in the contingency force, with its emphasis on quick, hard-punching power. They will train together every day, and they won't need much warning to respond to a fast-breaking crisis. The squadrons in the new wing structure are better suited to deploy quickly on their own, because they will henceforth incorporate their own flight-line maintenance personnel and be responsible in peacetime for their own on-aircraft maintenance. Perhaps most important, the reorganization pushes power and authority down to the field. Our people won't have to wait for headquarters approval to improve the way they operate. The whole thrust of the Base Force is response to change, and the new Air Force structure positions us to do just that.

To summarize, the Base Force is the minimum we will need to meet the future security requirements of the country. It gives us a conceptual framework within which we can best cope with declining resources. The Air Force has unique characteristics and strengths to support the Base Force and the president's national security policy. Our comprehensive reorganization capitalizes on those strengths and keeps us in close formation with the Base Force concept.

I said last month at the AFA convention that I'm especially proud that the Air Force has stepped up to the need for change without someone having to push us. I'm also proud that our restructure fits so well with the chairman's Base Force and with the president's defense initiatives. The other services are also working from the Base Force blueprint, but I think it's fair to say that we are showing the way. We recognized that the world has changed, and our defense needs changed with it. We're in front of that change, and that's the right place for the Air Force to be.

Again, thanks very much to all of you for the great support we get from AFA. You make a big difference for our people and our programs. You take us farther down the road toward being a Quality Air Force, one which always delivers on its promise to fly, fight, and win. With your support, we'll stay ready for the defense challenges of the twenty-first century. Thank you.

Chapter 6

Tomorrow's Air Force

Video Briefing, November 1991

I've been in office for about a year now. During that time our people planned and executed the most successful air campaign in history. Our use of airpower was the key to victory in Desert Storm.

There'll be other campaigns, on other days, when the Air Force will play a supporting role. But the Persian Gulf War has shown that airpower, properly employed, is a decisive military instrument.

Now, as we look to the future, we face difficult choices. I'm convinced that our most important concerns involve people. How our people do their jobs, whether they are satisfied in those jobs, whether they can be counted on to deliver results—all these questions depend on the human dimension: attracting, training, leading, keeping good people.

From an organizational perspective, the critical factor in human performance is the structure in which we operate. The most basic management decision we make is how to organize ourselves. That's why Secretary Rice and I have spent much of my first year working on the structure of our organization. Because our restructure proposals are so far-reaching, I thought it would be a good idea to explain what it is we are trying to do.

Many of the restructuring proposals are, in a sense, symbolized by the logo that we are beginning to use again (fig. 26). This fine, old patch was designed in 1917 by Hap Arnold as the symbol for the Army Air Corps. It reminds us that few of the restructure ideas are really new. The importance of the chain of command, of simplicity in our organization, of the unity of airpower—these are timeless themes that we are trying to build on. So you're likely to see a consistent back-to-basics approach in our reorganization proposals, in much the same way that Hap Arnold's patch reminds us of what is best in our heritage.

AIR FORCE RESTRUCTURE

Figure 26. Army Air Corps Patch

Restructure makes sense, especially now (fig. 27). With the effective end of the cold war, the world is changing dramatically. Therefore, the kinds of things the Air Force will be called

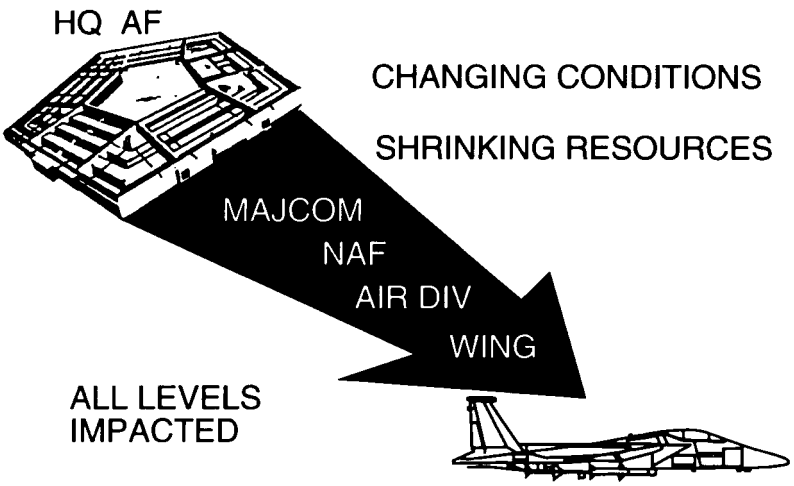


Figure 27. Air Force Restructure

on to do are changing. At the same time, the nation is cutting defense spending. The Air Force is getting smaller. Our need to restructure springs from this set of changes.

Recent events have dramatically reduced the potential for major war (fig. 28). As the cold war thaws and our relations with the Soviets improve, the threat of a global confrontation is diminished. Instead, there is an increased likelihood of regional conflict, similar to Desert Storm. This shift in the threat will almost certainly lead to a reduced overseas presence and a growing need for CONUS-based forces that can be moved quickly anywhere the world.

- REDUCED THREAT OF MAJOR WAR
- REGIONAL CONFLICT MORE LIKELY
- EMPHASIS SHIFTING FROM FORWARD BASED TO EXPEDITIONARY CONCEPT
- INCREASING NEED FOR AGILE, LONG-RANGE FORCES, READY TO FIGHT ON ARRIVAL

Figure 28. Changing World

At the same time the threat is shifting, we're getting smaller in just about every resource category (fig. 29). Money available for us to spend is down sharply. Uniformed end strength will fall nearly 30 percent. Our active aircraft fleet reduces to only about 5,000 airplanes. The number of major installations is falling. In real terms, we're operating the Air Force in 1991 for about the same money we had in 1981, and we're headed further down. Restructuring—getting back to basics—is the only approach I know of that holds out the promise that we can configure for the new world situation, absorb the resource reductions, and come out of the process with a stronger Air Force.

That's right—a stronger Air Force. The secretary and I simply will not preside over the decline of the Air Force. We'll be smaller, but the restructure proposals will make us a leaner, tougher, stronger Air Force.

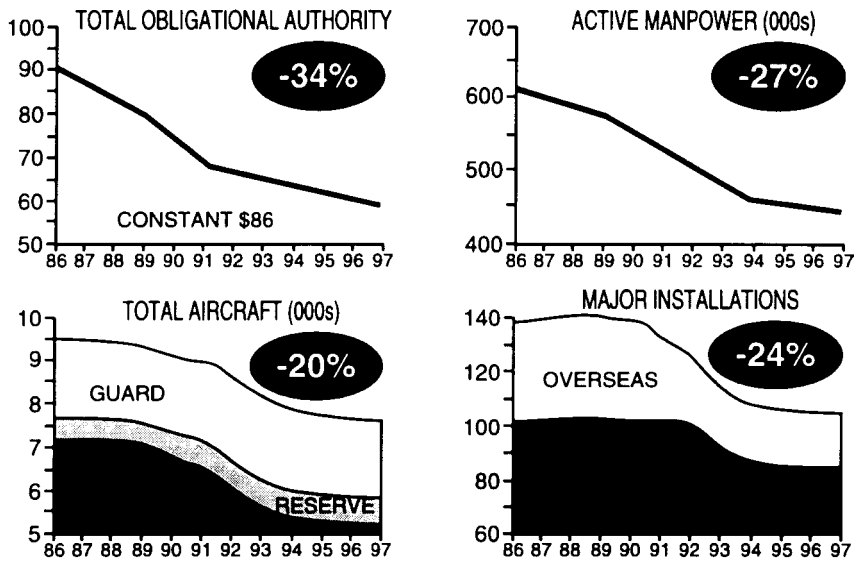


Figure 29. Air Force Resource Base

In order to accomplish this objective, our restructuring tracks to several overarching themes (fig. 30). We will strengthen the chain of command and increase accountability. Where it makes sense, we will consolidate activities in the interest of economy.

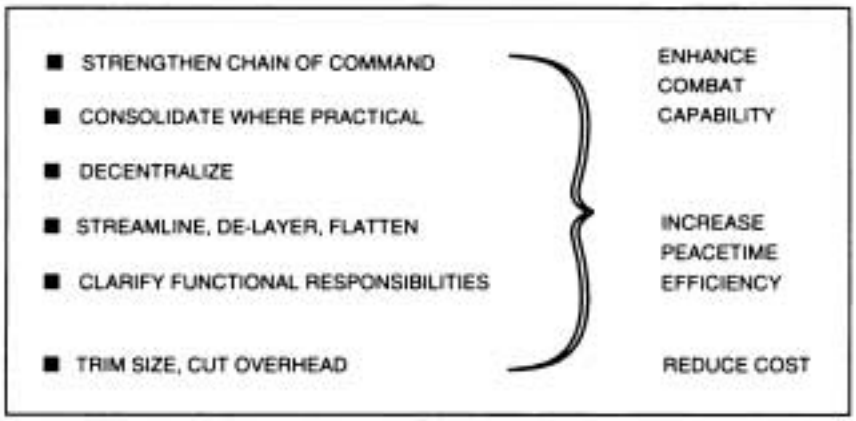


Figure 30. Restructuring Themes

There is a danger here. Often, when activities are merged to achieve economies of scale, power in the organization is moved to the center and up. We must not do that. When we consolidate, we will at the same time act to move power down and out in our organization—away from the center. In other words, we will decentralize so that people on the scene are empowered to do the job better. We want to streamline, take layers out, flatten our organizational charts, while at the same time clarifying the roles and responsibilities of essential supporting functions.

All this because we want to enhance our combat capability and increase efficiency. But, we know that whatever else happens, we must cut costs. As we reduce the size of the Air Force, we will cut out overhead where possible, rather than muscle and bone.

Now let's see how these themes play out our restructure proposals.

As of 1 January this year, Headquarters Air Force had a little more than 3,000 spaces authorized by Congress (fig. 31). These positions were split between the Secretariat—in general responsible for the business functions—and the Air Staff—oriented on

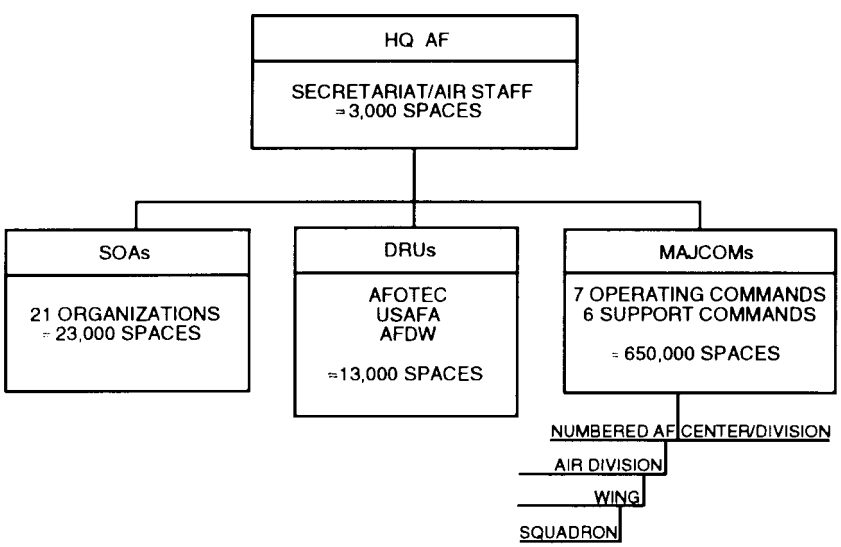


Figure 31. Headquarters USAF: 1 January 1991

operational matters. We also had a group of 21 organizations called separate operating agencies or SOAs that reported directly to someone in the Secretariat or the Air Staff. The SOAs had about 23,000 manpower spaces.

We also had, and still have, organizations called direct reporting units or DRUs—the operational test organization at Kirtland, the Air Force Academy, the AF District of Washington, at Bolling. That's another 13,000 spaces. The DRUs are MAJCOM-like operations, but they're not funded or staffed like MAJCOMs, and they report directly to me. I will say no more about the DRUs. In general, they're well organized, and there is no need for change.

Then, we have most of the Air Force—the major air commands—with about 650,000 spaces, organized into seven operational and six support commands.

This briefing deals with how we have already changed Air Force Headquarters and the SOAs and what we intend to do with the major air commands.

Well, how have things been changed at headquarters (fig. 32)? First, we wanted to focus on the right problem. The logical question is, What are we supposed to be doing here? This turns out to be an easy question to answer because there's

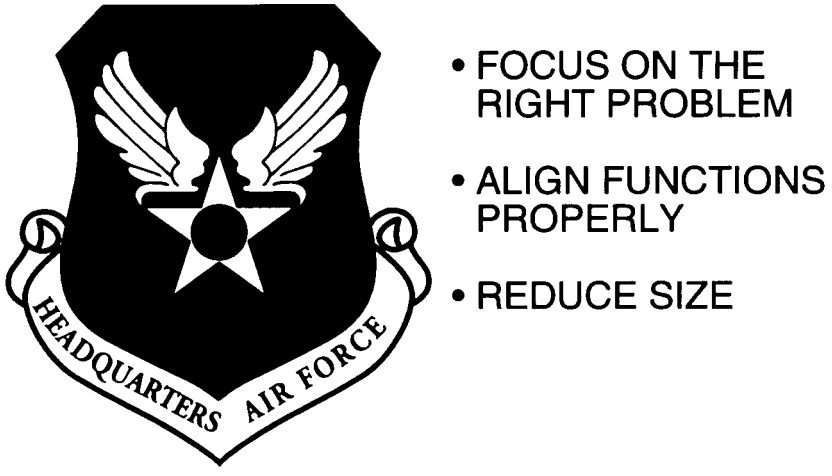


Figure 32. Headquarters Air Force Restructure

Defense Department guidance on the subject. In brief, a management headquarters is supposed to be in the policy-making and resource-allocation business.

So, we asked a number of questions. Who's making policy or resource-allocation decisions for the whole Air Force? Let's make sure they're in the headquarters. And, let's look around the headquarters and see if there's anybody here doing something else. If so, move them to where they belong.

Next, we needed to make sure that we had the functions lined up in a logical way. Finally, we wanted to reduce the size of the whole operation.

Now, I will use the term *objective* over and over in this briefing—in figure 33, for instance—to describe the *objective* Air Staff. By this, I don't mean the Air Staff as it exists today or even as it may ever exist, but a target concept—the Air Staff we are aiming to achieve. You'll see this usage throughout the briefing, when we talk about the objective wing, the objective numbered air force, and so forth.

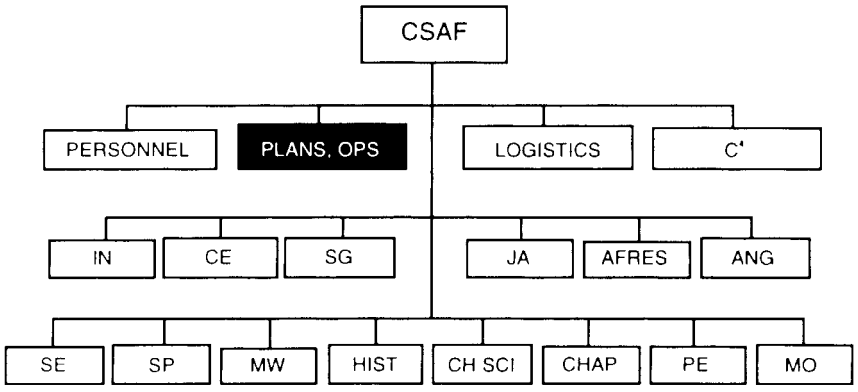


Figure 33. Objective Air Staff

I've highlighted important changes on each chart. In figure 34, I call attention to a change in our Deputy for Plans and Operations (XO). We now have a general officer in XO in charge of keeping track of our hardware requirements—answering the question, What kind of new equipment do we

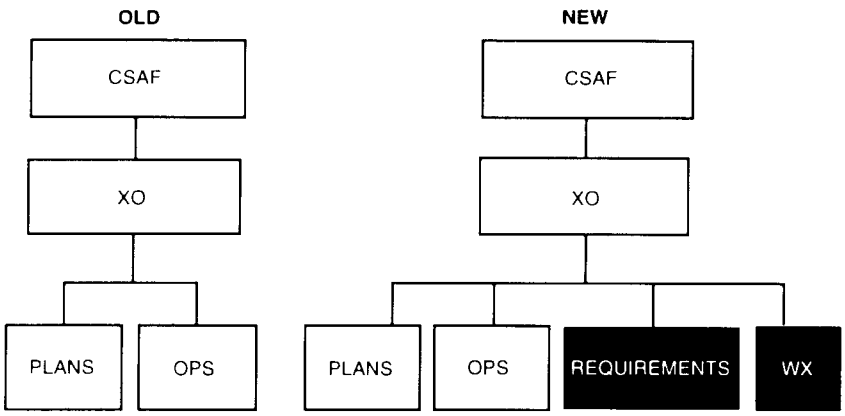


Figure 34. Reorganizing XO

need? Previously, this function had been performed in the Secretariat. So we had the Secretariat, which is responsible for the business of developing and purchasing hardware, also responsible for tracking military requirements. Secretary Rice and I feel that military requirements are properly the domain of the user—military people. So, we moved the function back to the Air Staff and put it under XO.

We also brought the weather function (fig. 35) into the Pentagon—also under XO. Air Weather Service used to be part of MAC, at Scott Field, with six weather wings and more than 5,000 people. That has changed. We now have the senior weather officer, "XOW," working in the Pentagon, and the Air Weather Service has been reorganized as a field operating agency, with only about 1,100 spaces left in it. The functions that need to be centralized, such as "global weather central" are still under Air Weather Service. The weather wings have been disbanded and their former responsibilities turned over to the operating commands. In short, weather restructuring has broken up a functional stovepipe that existed in the Air Force, decentralized weather operations, and moved the head of the function and the associated policy and resource responsibilities to Washington. This is the kind of pattern you will see throughout our restructuring.

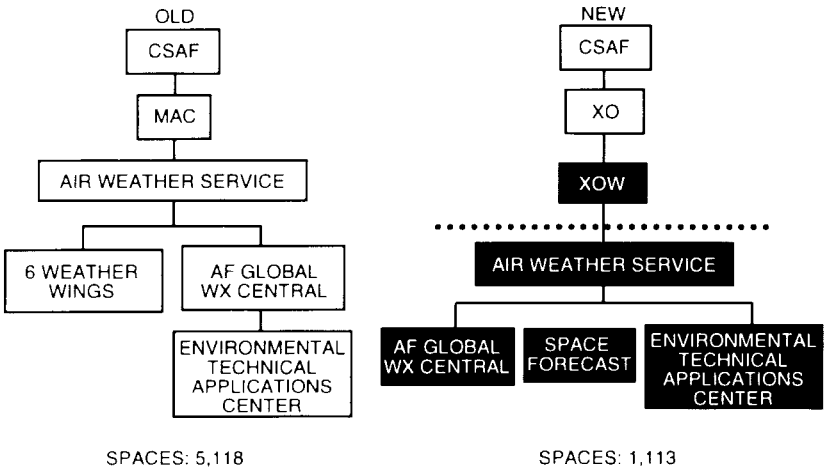


Figure 35. Reorganizing Weather

Next, logistics was also reorganized extensively (fig. 36). The civil engineer has been broken out from logistics and now reports directly to me.

It used to be called logistics and engineering, with engineering and services as part of it (fig. 37). But that's not the way the Air Force really works. At base level, the civil engineer

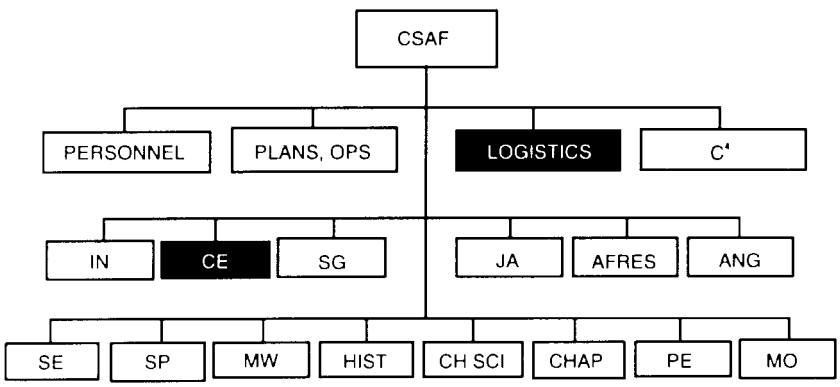


Figure 36. Objective Air Staff

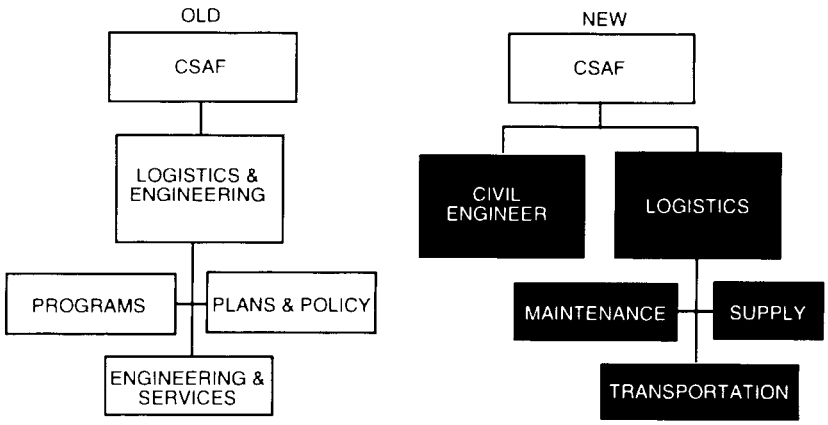


Figure 37. LE to LG

reports to the support group commander, not to a logistics officer. So, we've restructured along the same lines at the headquarters. Also, logistics is no longer organized into abstractions—programs, plans and policy. Now there are actual functions. There is a director of maintenance, a director of supply, and a director of transportation. Accordingly, a lot of people on our bases can look to Washington, where they see two-star Air Staff directors as heads of their career fields. So once again, this was not just the idea of streamlining, but a commonsense approach to clarifying functional responsibilities.

In the same way, we've established on the Air Staff a director of safety, a director of security police, and a director of MWR (fig. 38). Safety, security, and MWR are commanders' responsibilities throughout the Air Force. The safety and security police functions had previously been tucked under the inspector general in the Secretariat, and the MWR business was supervised from San Antonio. For the chief not to have a general officer heading up each of these functions in Washington has always seemed a mistake to me. We have now corrected that.

The Secretariat was also reorganized, although not quite so extensively (fig. 39). As I've said, safety and the security police responsibilities have been taken from the inspector general, and we moved requirements out of acquisition. These func-

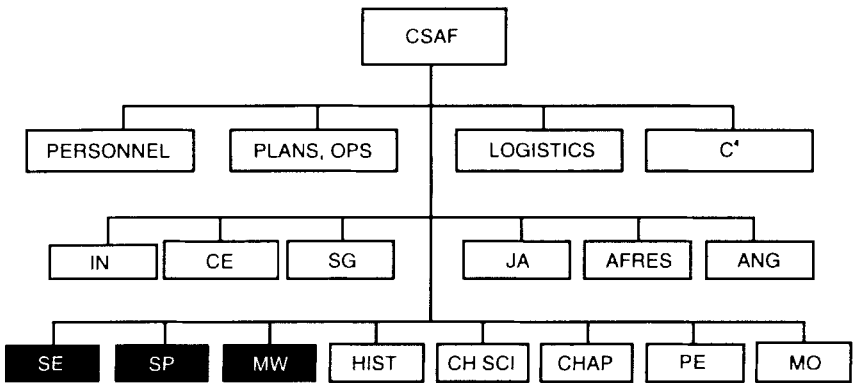


Figure 38. Objective Air Staff

tions are now in the Air Staff. We took the foreign military sales function from the Air Staff and put it under the deputy for international affairs, a kind of a mini-State Department within the Secretariat.

Now I want to talk about the separate operating agencies or SOAs (fig. 40). That's what we used to call them. We now call them field operating agencies or FOAs.

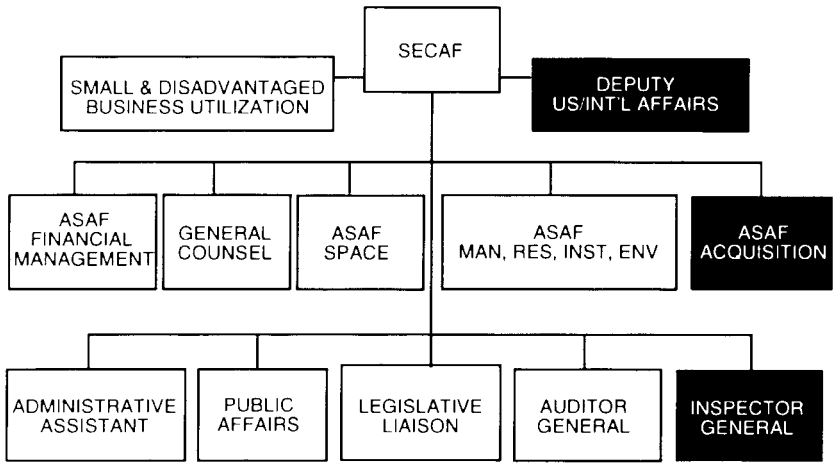


Figure 39. Objective Secretariat

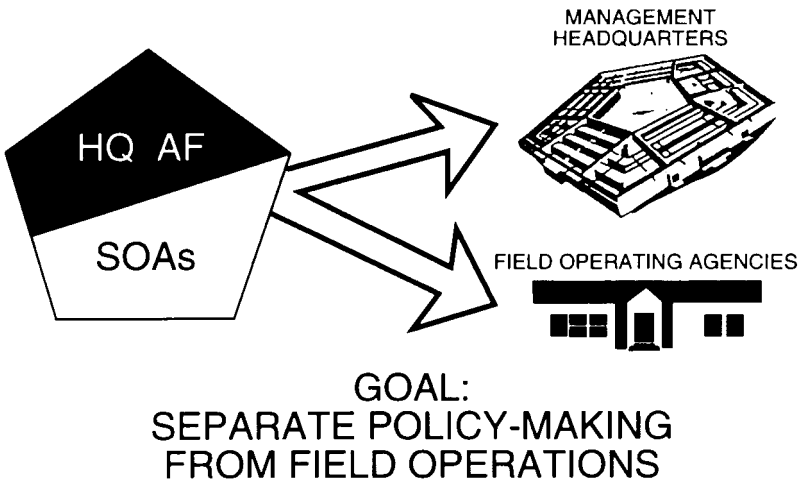


Figure 40. SOAs to FOAs

By the way, there is going to be a lot of name changing in the Air Force—a confusing amount over the next year or so. I ask for your patience on this, but I also ask you to pay close attention to these name changes. What we call an organization is very important. We are trying to baseline names and get them right.

That's why I wanted to make it clear that these are field operating agencies. The idea is they're not in the Pentagon—they're in the field; they have operational or administrative responsibilities. They don't have policy-making or resource allocation responsibilities because that is business for Head- quarters Air Force, not for a field operating agency. Our goal was to clarify responsibility—to clearly separate policy-making, management headquarters functions from field or admin- istrative responsibilities.

The problem with the old separate operating agencies (fig. 41) was that in agency after agency over the years, we had taken pieces of the management headquarters and simply reclassified them into the separate operating agencies. This was an accounting device used to shift manpower billets out of the headquarters and reduce our official headquarters end strength. In the process, many of the SOAs became indistin-

- ORGANIZATIONAL HODGEPODGE
- BLURRED RESPONSIBILITIES
- UNCLEAR LINES OF AUTHORITY
- END STRENGTH ACCOUNTABILITY
- HIGH OVERHEAD

Figure 41. SOA Problems

guishable from headquarters. We created a pool of 23,000 people, all of it overhead. But the worst part was we blurred lines of authority.

For instance, figure 42 shows the way the judge advocate general of the Air Force used to be organized. The JAG was dual-hatted. He was both the judge advocate general and the commander of the separate operating agency called the Legal Services Center. As can be seen, there was no clear line between the management headquarters and the SOA functions. It was a hodgepodge.

Here's the way it looks now (fig. 43). We have the Legal Services Agency, a new name—*agency,* rather than *center*—to make sure everybody understands that this is a field operating agency. There is a real Legal Services Agency, at Bolling, with a real commander who reports to the JAG, with operational but not policy-making responsibilities. For instance, all of the area defense counsels around the world are part of the Legal Services Agency. Functions like that need to be administered centrally but can be separated from the management headquarters, as we have now done.

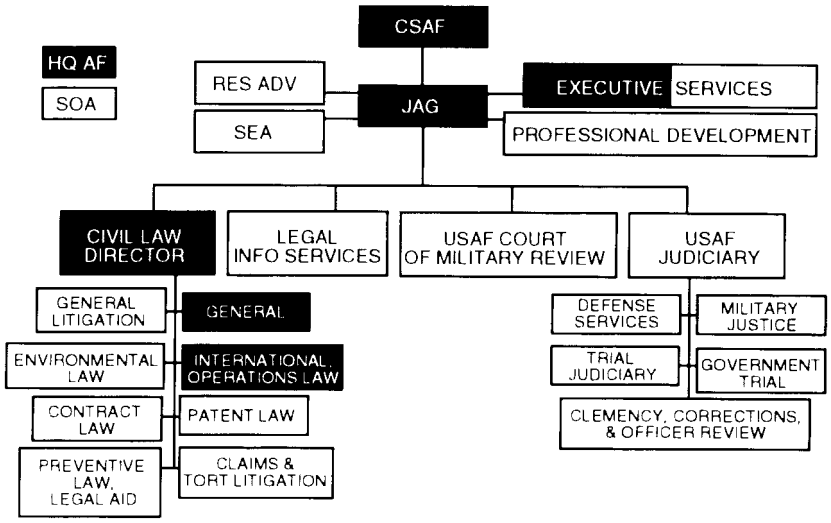


Figure 42. AF/JA—Before

I don't wish to single out the lawyers here, because there were many similar organizational problems throughout the Air

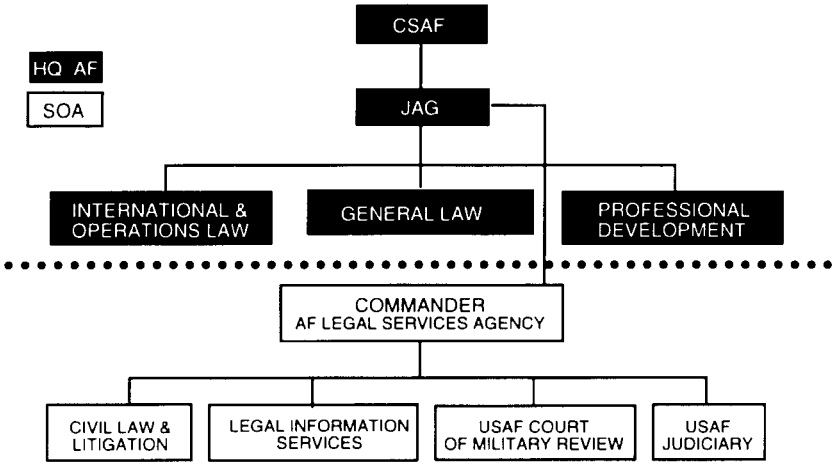


Figure 43. AF/JA—After

Staff. The upshot is we've now reorganized every separate operating agency. We used to have 21 SOAs. We now have 30 field operating agencies or FOAs, because we've created some new ones in the process. We now have about 11,000 people in these 30 FOAs. So, the final scorecard will show we increased the number of FOAs, reduced the number of people assigned to them by 11 percent, and changed a lot of names.

Bottom line, we've cleaned up our act in Washington. Last year Congress asked us to cut staffing to 2,639 people (fig. 44). At that time, we thought we had 3,052 spaces in the headquarters, which meant we would need to reduce by 13 percent. When we actually counted the number of people working in headquarters, we saw we would take even deeper percentage cuts. However, we've now got the number down well below the 2,639 limit. We've cut about 21 percent, more in line with what the Air Force must do in the next few years.

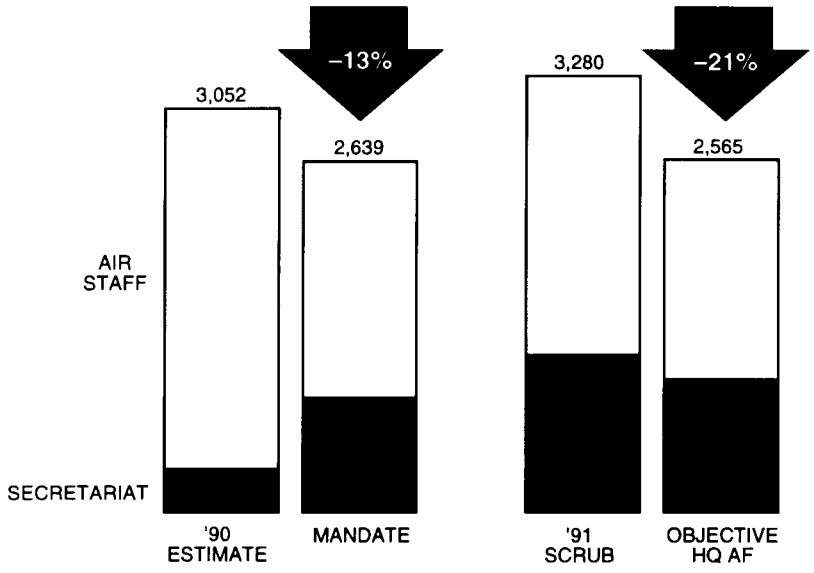


Figure 44. Headquarters Air Force End Strength

By the way, in this process we've reduced the Washington requirement for general officers (fig. 45). For instance, we were

DELETIONS

★★★ DCS/PR
★★★ SAF/FM (RM)
★★ ACS/SA
★★ ADCS/DP
★★ ADCS/LE
★★ ADCS/XO
★★ ADCS/PR

★★ ADCS/SC
★★ DEP/SG
★★ AFCOMS/CC
★★ AFISC/CC
★ DDir/OPS
★ DDir/PLANS
★ DDir/PROGRAMS
★ DDir/SAF/LL

★ DEP DENTAL
★ ASST FOR R&M
★ ASST FOR STRATEGY
★ AFDW/CC
★ AFMPC/CV
★ DIR, INSPECTIONS
★ DIR, SAFETY

-22

Figure 45. General Officer Reductions

able to break loose two three-stars from the Pentagon. They are now running MAC's numbered air forces. In all, we eliminated 22 general-officer jobs.

As I indicated, we also added seven policy-making generals to the headquarters (fig. 46). So, we ended up with a net reduction of 15 general-officer positions.

ADDITIONS

★★ DIR, REQUIREMENTS
★★ DIR, SUPPLY
★ CHIEF, SE

★ DIR, WX
★ DIR, SC
★ DIR, IN
★ CHIEF, SP

+7

Net: Deletions
-15

Figure 46. General Officer Reductions (cont'd)

Now, I'd like to look at each echelon below AF Headquarters and show you what is planned, starting with the major air commands (fig. 47).

At MAJCOM level, our goals should be increased combat effectiveness through airpower integration, clear and simple organiza-

- INCREASED COMBAT EFFECTIVENESS THROUGH AIRPOWER INTEGRATION, CLEAR ORGANIZATION, AND UNITY OF COMMAND
- GREATER PEACETIME EFFICIENCY THROUGH STREAMLINING

Figure 47. Major Command Restructure

tional structure, and unity of command. Naturally, we also want to enhance peacetime efficiencies, but our main concern is combat effectiveness.

Up until quite recently, we've had 13 major air commands (fig. 48). Seven were the operational commands of the Air

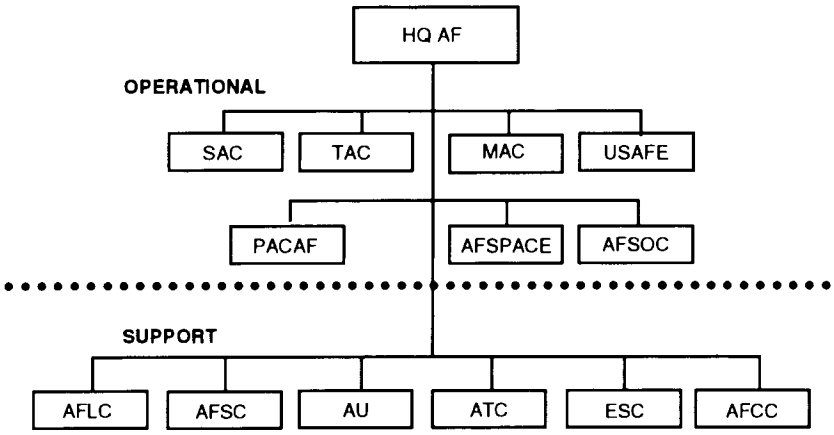


Figure 48. Major Commands Before: 13

Force—SAC, TAC, MAC, USAFE, PACAF, Space, and Special Operations. The other commands—Logistics Command, Systems Command, Air University, ATC, Electronic Security Command, and Communications Command—provided support to the operating commands. Seven of these commands either have seen or will see significant changes. I'd like to take you through that now. Let me start with the support MAJCOMs.

We're reducing Air Force Communications Command to a field operating agency—actually, three field operating agencies—with fewer than 10,000 manpower spaces (fig. 49). When it was a MAJCOM, it had over 50,000 spaces in it. As with the weather support, we've kept some centralized functions back in an FOA and handed the rest of communications off to operating commanders.

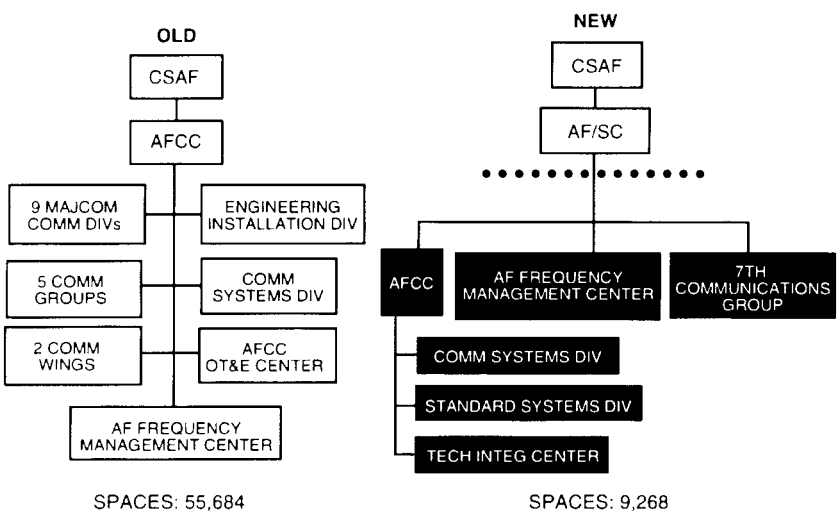


Figure 49. Restructuring Communications

To the extent that we can control it, we want the operating commander—the guy saddled with responsibility for success or failure of the mission—to have direct command of the support he needs to get the job done. That's the sort of arrangement that produces genuine accountability. That's why the Air Force does not have a Personnel Command or a Civil

Engineer Command or a Medical Command. In this regard, an arrangement like Communications Command or the old Air Weather Service really violates our own principles of organization. There's absolutely no question that communications and ADP support are critical to getting the job done. So, now, this essential support belongs to the mission commander.

The Electronic Security Command is also gone, but it's been replaced in a different way (fig. 50). Air Force Intelligence Command has been established to consolidate all intelligence collection and analysis activities, formerly split among a variety of agencies. AFIC will be located in San Antonio.

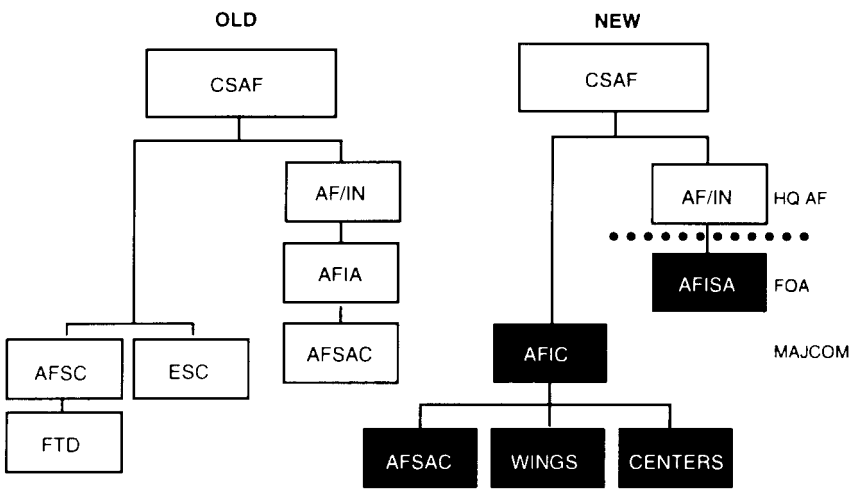


Figure 50. Restructuring Air Force Intelligence

By the way, the operating commanders will continue to have intelligence officers in their units, so they will command their internal intelligence support in the same way. It's just that we've consolidated the part of the intelligence business that must be centrally run.

Now, I'd like to address another ongoing change to the MAJCOM structure. As you may know, we've been hard at work for some time on a merger of Systems Command and Logistics Command (fig. 51). There has been a fundamental change in the

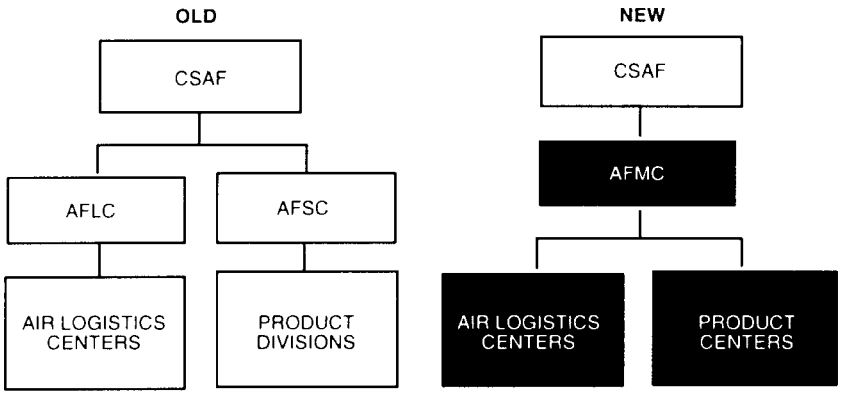


Figure 51. Creating Air Force Materiel Command

way we do the acquisition business. The secretary of the Air Force has an assistant for acquisition who now is the decision maker on all the big hardware programs. So a lot of authority has been taken away from Systems Command. This development really called into question whether or not we still needed two four-star commands or whether combining the acquisition, support, and logistics support activities wouldn't make more sense.

So, we're merging them into Air Force Materiel Command, with air logistics centers and product centers. This one command will be responsible for integrated systems support—cradle to grave. We expect to achieve substantial savings from this consolidation.

I now want to talk about changes in the operational commands. We're going to combine TAC, SAC, and MAC into two commands (fig. 52). The idea is to organize for integrated employment of airpower. We are likely to call the two successor commands Air Combat Command and Air Mobility Command.

Air Combat Command will have fighters; bombers; ICBMs; reconnaissance aircraft; command, control, and communications—like AWACS and the ground radar environment—that support overall operations; some tactical airlift; and some of the tanker force. Besides acting as a provider of reinforcement forces to the overseas commands, Air Combat Command will possess all the bomb dropping, bullet shooting, and support capabilities that we know must be integrated in modern air

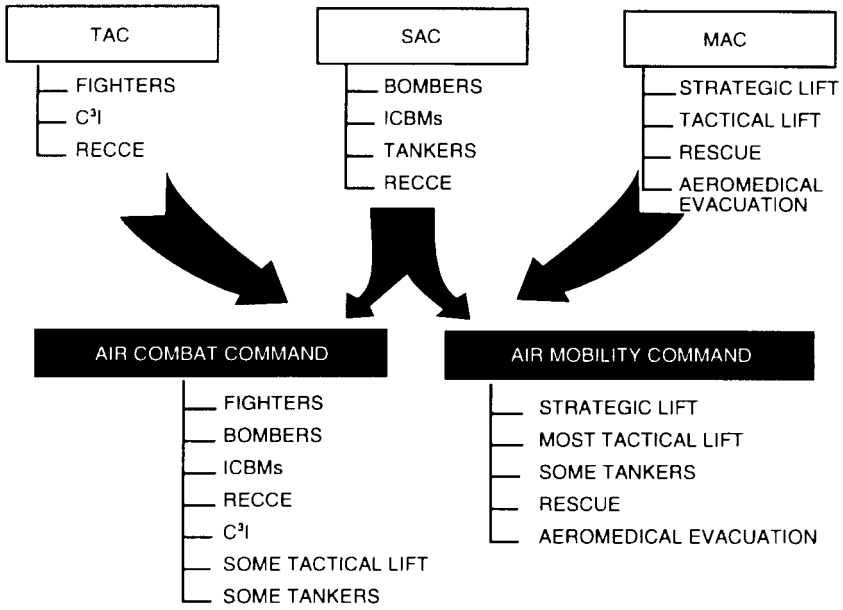


Figure 52. Three into Two: Integrating Airpower

combat. In other words, it will itself be able to conduct independent, integrated air operations.

Air Mobility Command will have the mission of worldwide strategic deployability. It will contain all of the strategic lift (the C-5s and C-141s), most of the CONUS-based tactical lift (the C-130s), and the majority of the tanker force. It will continue to run rescue and aeromedical evacuations.

Transport and tankers really do go well together as elements of strategic deployability. So, most of the tankers will be realigned under Mobility Command, with a few left behind to provide a baseline of tanker support for Combat Command. Notice the theme here—the integration of a variety of aerospace capabilities, organized in peacetime the way we intend to use them in combat.

I think it's been true for a long time that it didn't make much sense to divide our combat force along "strategic" and "tactical"

lines. What's the real difference? In Southeast Asia, we had B-52s doing Arc Light attacks in the south—a kind of close air support—while F-105s did what would have to be called "strategic" bombing in the north. The same situation popped up again in Desert Storm, with F-117 fighters operating inside Baghdad city limits, while B-52s were bombing the Iraqi field army deployed to Kuwait. Which were strategic operations, which tactical?

I would argue that it is a mistake to divide airpower into tactical and strategic compartments. When Hoyt Vandenberg said in 1951 that "air power is indivisible," I think he got it right (fig. 53). So, a theme throughout this restructuring is integration of airpower across the full spectrum of air operations.

> *Air power is indivisible. We don't speak of a "strategic" or a "tactical" Army or Navy, yet those terms constantly are applied to the Air Force.*
>
> —Gen Hoyt S. Vandenberg, CSAF
> 17 February 1951

Figure 53. Strategic versus Tactical

I'd like to step back now and take a slightly different approach. Let's go to a question that came up during Desert Storm—a question that comes up again and again when we deal with expeditionary response to regional conflict. The question is, How should we organize an air force in a theater of operations?

Let's start by looking at how the Army Air Corps did it in World War II. You will recall that, by 1943, we had learned some hard lessons about airpower organization. Our early results in North Africa were not good, and we came to realize the importance of employing airpower as a unified entity. The result was a pioneering document signed out in 1943 that said, in a theater of operations, you normally will have only one air force and that it will have the full range of capabilities—strategic, tactical, air defense, troop carrier, airlift, recce, and so forth (fig. 54).

> In a theater of operations, there will normally be ONE AIR FORCE. . . . The normal composition of an air force includes a STRATEGIC AIR FORCE, a TACTICAL AIR FORCE, an AIR DEFENSE COMMAND and an air service command. An air force may also include TROOP CARRIER and PHOTOGRAPHIC AVIATION.
>
> *Command and Employment of Air Power*
> 21 July 1943

Figure 54. Unity of Command

In fact, that's the way Ninth Air Force was organized for the Normandy invasion in June of '44 (fig. 55). In this case, the theater of operations was Northern France. You had General Brereton with the fighters, pursuiters, and his tactical bombers. He had his own C-47s, dropping paratroopers and supplies. So here's Ninth Air Force, back in World War II, organized in a logical way to integrate airpower in a theater of operations.

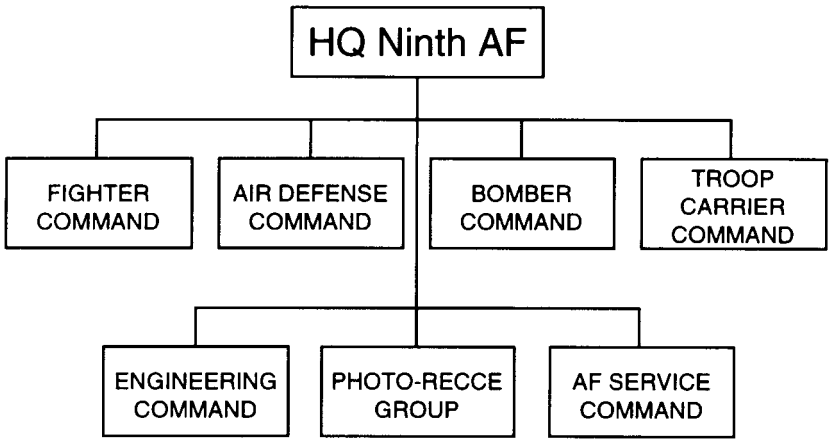


Figure 55. Ninth Air Force (9 June 1944)

Let's contrast that with the way Ninth Air Force was organized for Desert Storm (fig. 56). Here's Chuck Horner commanding both the Ninth Air Force and Central Command Air Forces. Now, he needed to employ the full range of aerospace capabilities. So he had them assigned in-theater. Obviously, the operation of all these assets had to be integrated for operational effectiveness. But, he had actual command of only some of his fighters and some of his electronic warfare assets—those from Ninth Air Force that went to the theater with him. But he did not have actual command of other fighters—for instance, Bitburg's F-15s or the Lakenheath F-111s. He had operational control or OPCON of them, but not actual command. The European units continued to wear their USAFE patches for the entire seven months. General Horner didn't have actual command of his theater airlift C-130s. He had OPCON through the 16th Air Division, but the planes and crews belonged to MAC. He didn't have command of the B-52s or the tankers or the strategic recce. In the case of the bombers, he did have operational control, but SAC has never given up operational control of its tankers. What General Horner had was tactical control. In other words, he could tell the tankers where to go, when to be there, how much to off-load, what frequency to be on, and so forth. Command stayed with SAC.

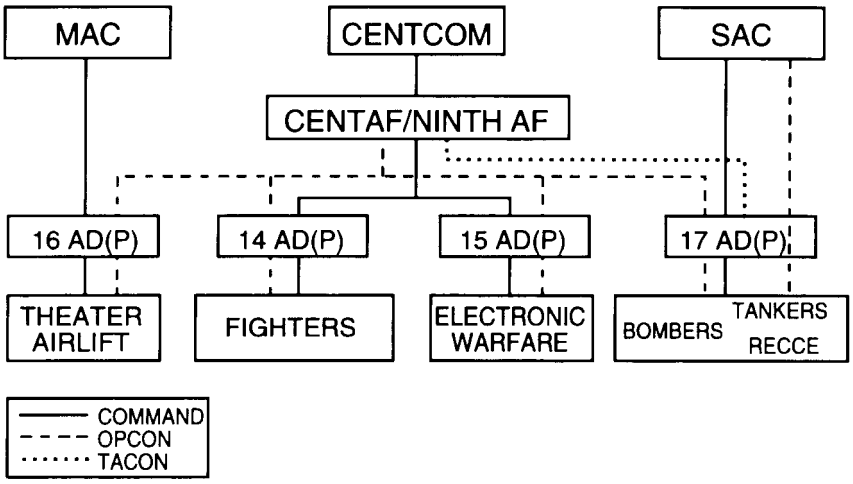


Figure 56. Ninth Air Force (17 January 1991)

Frankly, this wiring diagram doesn't look very good to me. In fact, it looks positively awful, especially by contrast with the much simpler 1944 layout. It's our fault that we let it get this way. Our own basic doctrine calls for command structures that are clear, simple, and easily understood. No one would describe our Desert Storm command arrangements in these terms. Nevertheless, the command worked. But, what made it work, what made airpower so effective in the Persian Gulf, was great leadership—Chuck Horner—outstanding people, and the fine equipment that we have. It sure wasn't that organization chart. Let's face it, we never came under serious attack. We don't really know whether the command structure was tough and durable enough to survive really difficult combat conditions. But, complex and confusing command arrangements like these exist not only for situations like Desert Storm—where we were to some extent improvising—but are also a feature of our day-to-day operations.

For instance, figure 57 shows the way PACAF is organized today. CINCPACAF is the Air Force component commander for Pacific Command, but he actually commands only the tactical air in the Pacific. He does not command theater airlift. The C-130s stationed at Yokota belong to MAC. He does have op-

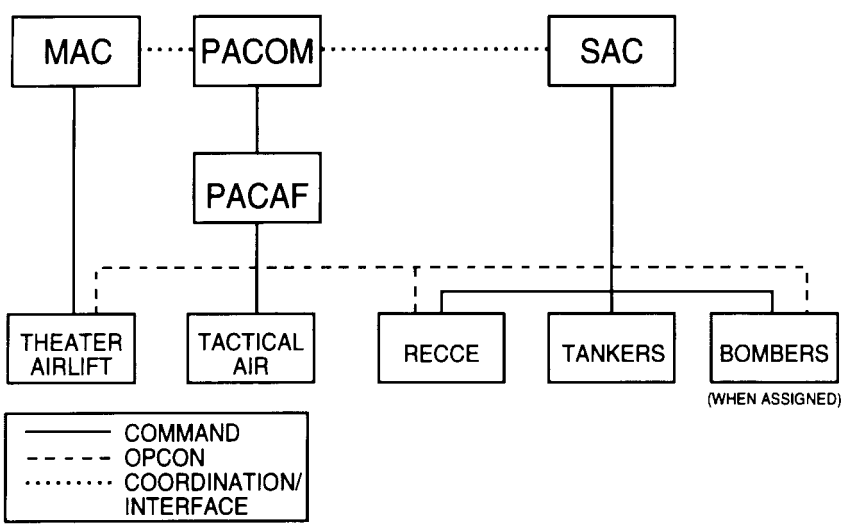


Figure 57. How We're Now Wired in a Theater of Operations

erational control of these C-130s, but he doesn't have command of them. The same is true for the assets we call "strategic." The U-2s in Korea and the tankers at Kadena belong to SAC. So did the bombers that used to be at Andersen. CINCPACAF does have OPCON in each case.

Now, in combat, the operations of all these types of aircraft must be integrated. In fact, that's the commander's principal problem—at the operational level. So, OPCON is clearly needed in combat. But OPCON may not mean much in peacetime. The critical issue in peacetime is command. Our most important peacetime decisions—about personnel and money—follow the command line.

What we've really been saying with this sort of command arrangement is that the theater air component commander can be trusted to integrate and employ all our forces in combat, but he cannot be trusted to command them in peacetime. We should have questioned that logic a long time ago.

Now, figure 58 shows how we propose to reorganize PACAF, which will be typical for USAFE, CENTAF, or any theater air component. CINCPACAF will soon actually command all the Air Force assets stationed in-theater—airlift, tankers, fighters, bombers, and recce. Mobility Command and Combat Command will augment him as required. One man—CINCPACAF

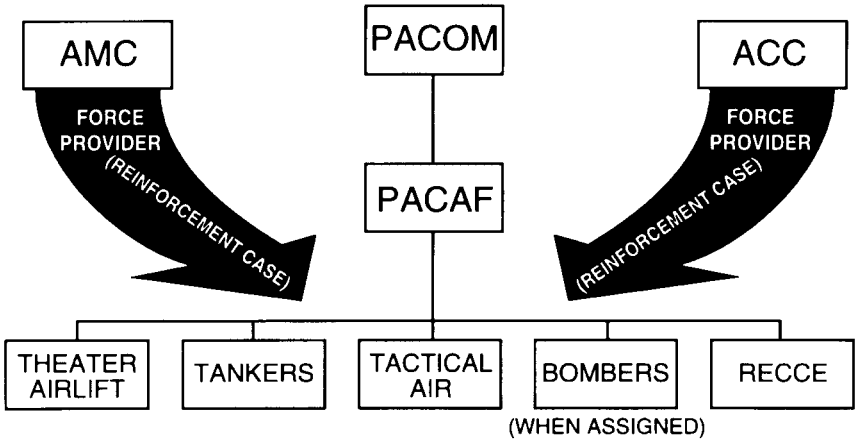


Figure 58. Proposed Wiring

in this case—will be responsible, accountable for integrated air operations in peace, crisis, and war.

Now we can return to the CONUS and take a closer look at Air Combat Command (fig. 59). You can think of it as the stateside version of a theater air force—in other words, a theater air force with the continental US as its AOR. It has all of these capabilities—missiles, bombers, tankers, fighters, and so forth—needed for integrated air operations.

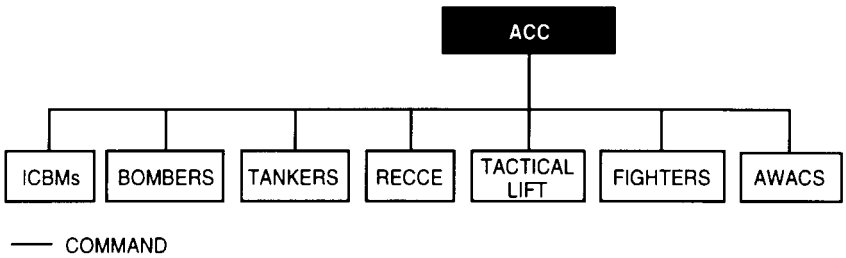


Figure 59. Air Force Major Commands: Air Combat Command

Combat Command will provide alert forces to NORAD in the same way that TAC does today (fig. 60).

In the future, Air Combat Command will also provide the alert force to the new Strategic Command (fig. 61). STRATCOM will have OPCON of the Air Force–provided alert force, similar

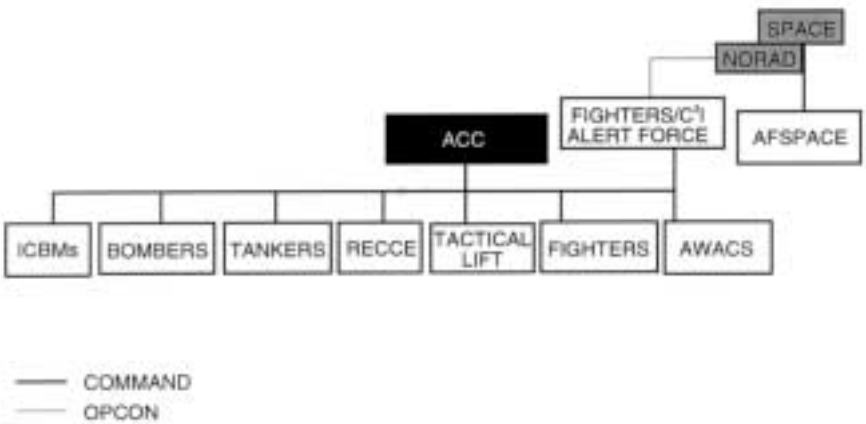


Figure 60. Air Force Major Commands: NORAD Support

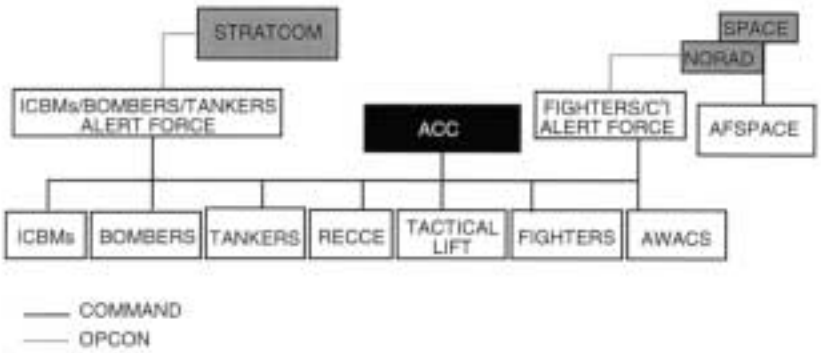


Figure 61. Air Force Major Commands: Strategic Command Support

to the current relationship between Air Combat Command and CINCNORAD.

Let me talk for a second about tactical lift. As you saw, the C-130s overseas will become part of PACAF and USAFE. For instance, the MAC base at Rhein-Main will become a USAFE base, and the C-130 wing at Yokota will become a PACAF wing.

In the States, we're going to start a composite wing at Pope with both C-130s and fighters. The idea is to have a wing that works directly with the 82d Airborne. It will be built around a big C-130 squadron to service the 82d's training requirements and will also have A-10s and OA-10s to provide forward air control and close air support capabilities, and LANTIRN-equipped F-16s for night support. Hence, there will be some C-130s—tac lift—in ACC.

We're putting the composite wing at Pope because the 82d Airborne in many respects is the nation's quick-strike force. It will be used for contingencies similar to Grenada and Panama. You know what happens in combat—it never goes according to plan. We need a wing that works with the 82d Airborne all the time, gets to know them well, can handle the unexpected, and can call audibles at the line of scrimmage. We don't want the 82d Airborne joining up with strangers on the way to the fight.

The new Air Mobility Command will report to Transportation Command, the way MAC does now (fig. 62). It will have the strat lift, most of the tactical lift, and the largest part of the tanker force. Transports and tankers—that's a great fit, when you think about it.

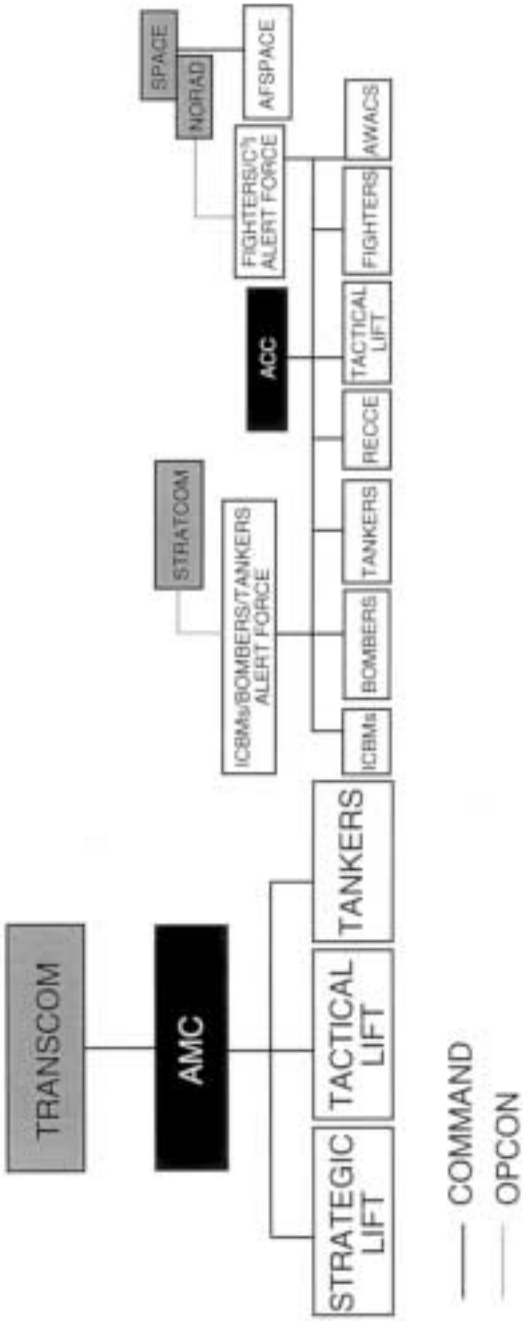


Figure 62. Air Force Major Commands: Transportation Command Support

The problem we have is not simply lift—it's *mobility*, worldwide deployability. That often turns out to require a combination of lift and air refueling. Mobility Command will continue to be the advocate for lift—both strategic and theater—and will assume this role for tankers, as well. That is, Mobility Command will set standards, generate requirements, establish doctrine, and so forth, for both airlift and tankers and will be the gaining command for all Guard and Reserve airlift and tanker units.

The overseas commands (fig. 63)—PACAF and USAFE (and SOUTHAF and CENTAF, when they stand up as air components)—will be mirror images of Air Combat Command. That is, they'll have actual command of the entire range of aerospace capabilities that must be integrated in their theaters.

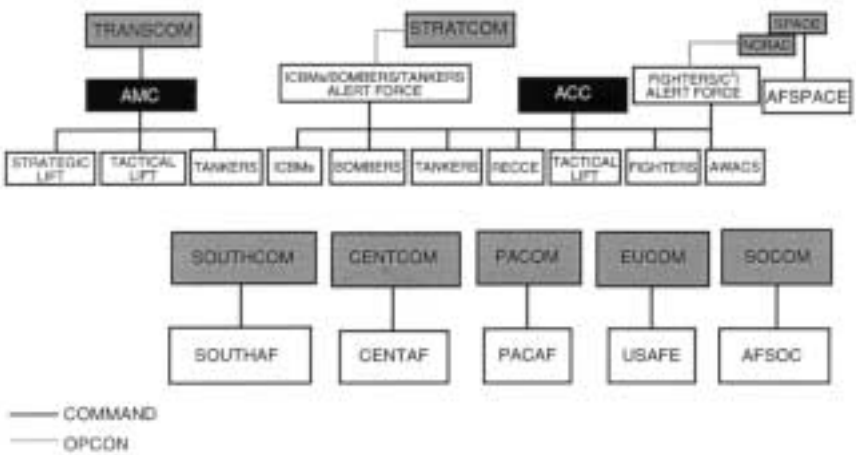


Figure 63. Air Force Major Commands: Overseas Commands

In many ways, special operations constitutes an exception to all that I've said above. The restructuring proposals will apply to special ops units at wing level and below, but as far as theater level is concerned, command arrangements for special operations are separate, distinctive, and not changed by anything we are doing.

To complete the picture of major air commands, we have got the four support commands—Intelligence Command, Materiel Command, ATC, and Air University (fig. 64).

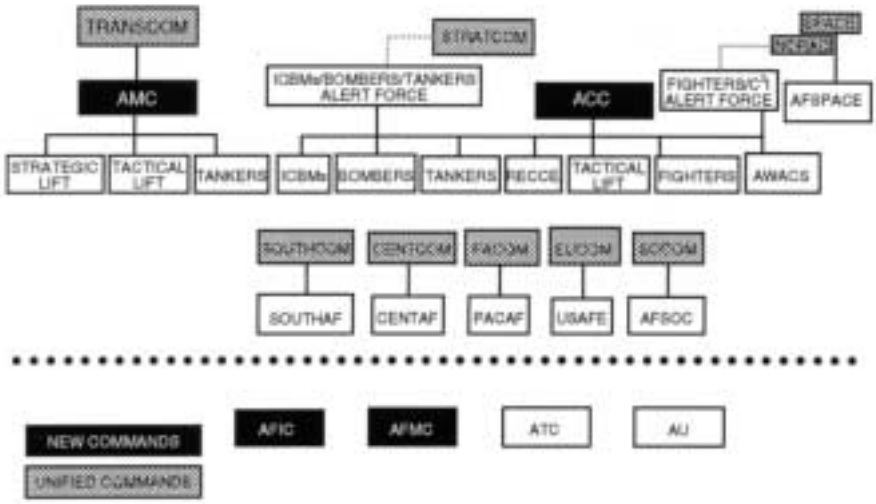


Figure 64. Air Force Major Commands: Support Commands

Overall, we'll go from 13 MAJCOMs to 10 (fig. 65). This allows us to cut overhead as we eliminate three MAJCOM staffs.

The biggest part of the reduction is in the number of support commands, which come down from six to four, whereas the operational commands come down by only one, as we merge SAC, TAC, and MAC into Air Combat Command and Air Mobility Command. This underscores the importance we place on our war-fighting commands.

Now let's talk about the echelons below MAJCOM, and a theme to be noted here is skip echelon staffing (fig. 66). At Headquarters Air Force, we've got every function represented because we must make policy for every functional area.

I expect the major air commands will follow suit. In other words, since I've now got a director of MWR on my staff, I expect the MAJCOM commanders will also have a director of MWR—a colonel who looks after command MWR issues. Such staffing will be lean, not fat, but it will be there. However, numbered air forces won't have this kind of functional staffing. The numbered air force will become a tactical echelon with an exclusively operational orientation. At the wing level, we will find staff functions—like the lawyer and the comptroller and

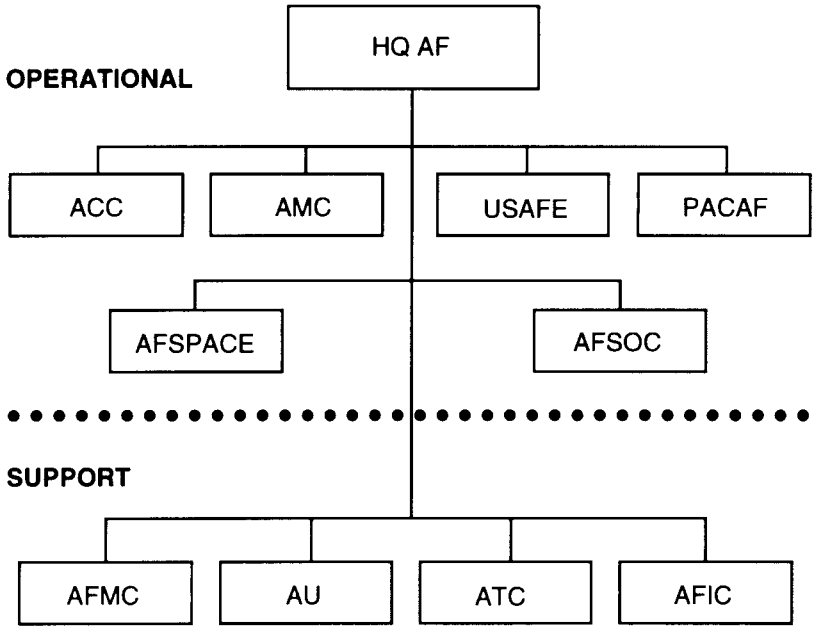


Figure 65. Major Commands After: 10

so forth—and they will communicate vertically to functional staffs above them. But they'll go right by the numbered air force commander. He won't be in the loop.

The group will be like the numbered air force—a very small echelon, operationally oriented. At squadron level, functional heads are often squadron commanders rather than staff officers. For instance, the security police "function" at base level is headed by the security police squadron commander, who reports to the support group commander. But, if he must work a functional security police problem, he'll do that with somebody at the MAJCOM or the Air Staff, because there's not going to be any group or numbered air force security police staff.

So these lines of communication show the concept of skip echelon staffing, with no functional staffing at the tactical echelons.

The air division is going to disappear completely. This will reduce a layer in our organization.

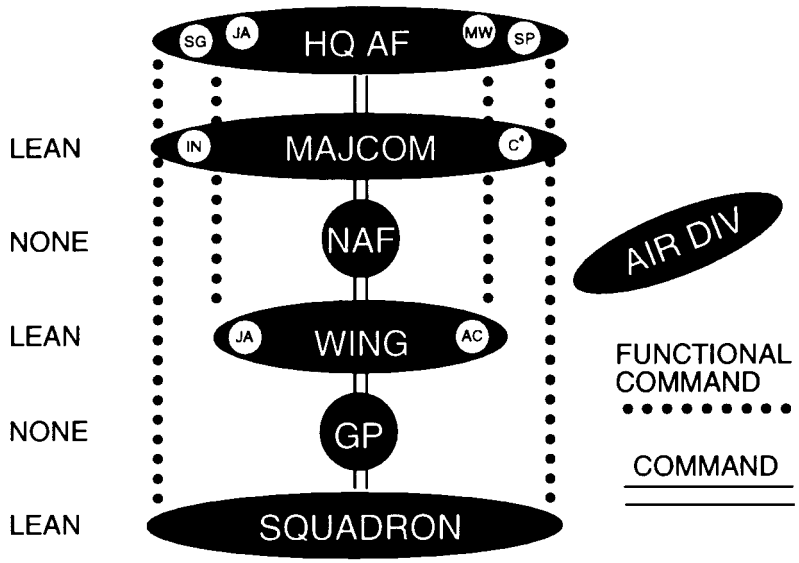


Figure 66. Skip Echelon Staffing

Now let's take a more detailed look at the numbered air force (fig. 67). As I said, our NAFs will be reorganized as a tactical, highly operational echelon.

We have 18 numbered air forces, with almost 3,000 manpower spaces. These are fine, old formations, with a lot of Air Force heritage. We want to keep them. But they'll have to change.

A typical numbered air force headquarters (fig. 68) now has lots of functional staffing—about 200 people, half accounted for in our manning documents in a "combat operations staff." In other words, we have operators, loggies, intel, and so forth, above and below the dotted line. The manpower spaces "below the line" are not officially counted as management headquarters, but the people often perform functionally identical duties. This is another case where we are keeping two sets of books. We need to get out of this mode of operation.

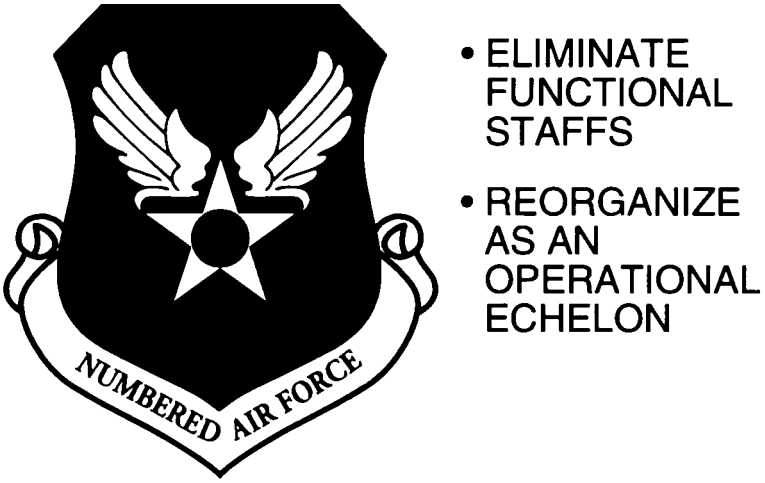


Figure 67. Numbered Air Force Restructure

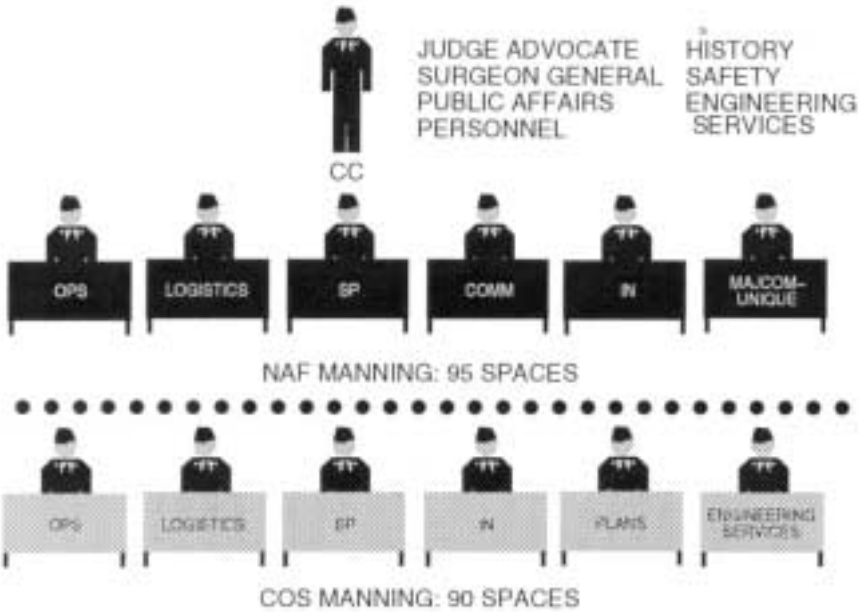


Figure 68. Typical Numbered Air Force

Under the restructuring, the numbered air force is no longer a management headquarters. It becomes a tactical echelon. The commander wears a flight suit or fatigues to work. We're

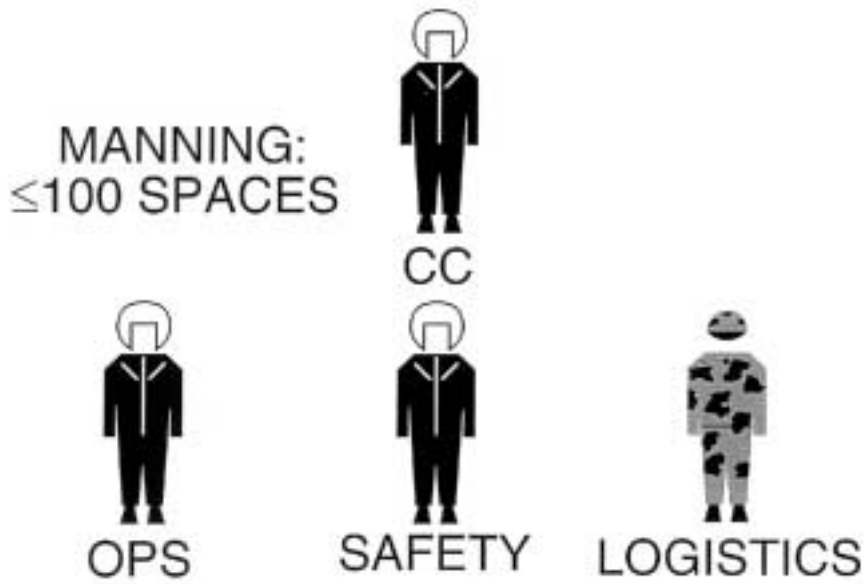


Figure 69. Objective Numbered Air Force

talking about a maximum of 100 people, so we'll cut total NAF staffing about in half (fig. 69).

I see the NAF commander of the future as a kind of inspector general. Chuck Horner is a good model. He flies from base to base, checking on commanders. He is concerned about standardization; he's concerned about safety. He needs a small logistics element because this helps form the basis for a wartime tasking capability. When he goes off to the Persian Gulf or wherever he's going to fight, he'll likely need a 24-hour, seven-days-a-week air control center. So, he needs to have a small nucleus around which to build a combat staff. We need a guy out there who is a hands-on, mission-ready, operational leader as our numbered air force commander.

As I mentioned before, all 19 of the air divisions will soon be gone (fig. 70). Many of them were on bases where we had two wings. The idea is to merge those wings and make one big

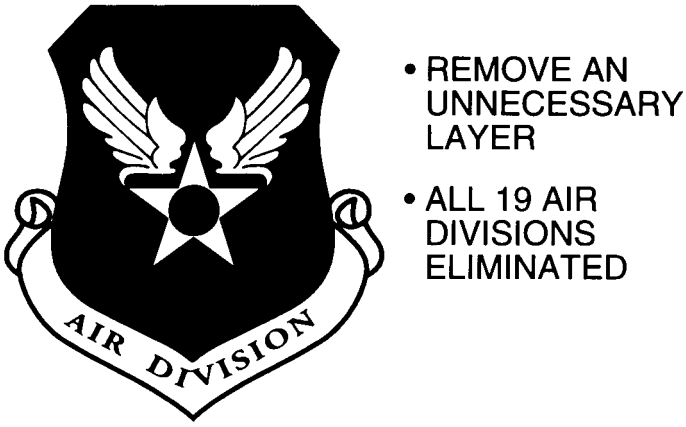


Figure 70. Air Division Restructure

wing. In the overseas commands, MAC and SAC had to have air divisions because of the convoluted nature of our command relationships, which we have now fixed. So, all the air divisions and about 100 manpower spaces are now off the books.

Figure 71. Wing Restructure

Now let's turn to the wing (fig. 71). This is probably the most important part of the briefing because so much real Air Force business is done here—at base level.

The organizing theme for wing restructuring is that on a base we'll have one wing, one guy running it, and—to the maximum extent possible—that guy will be a general officer.

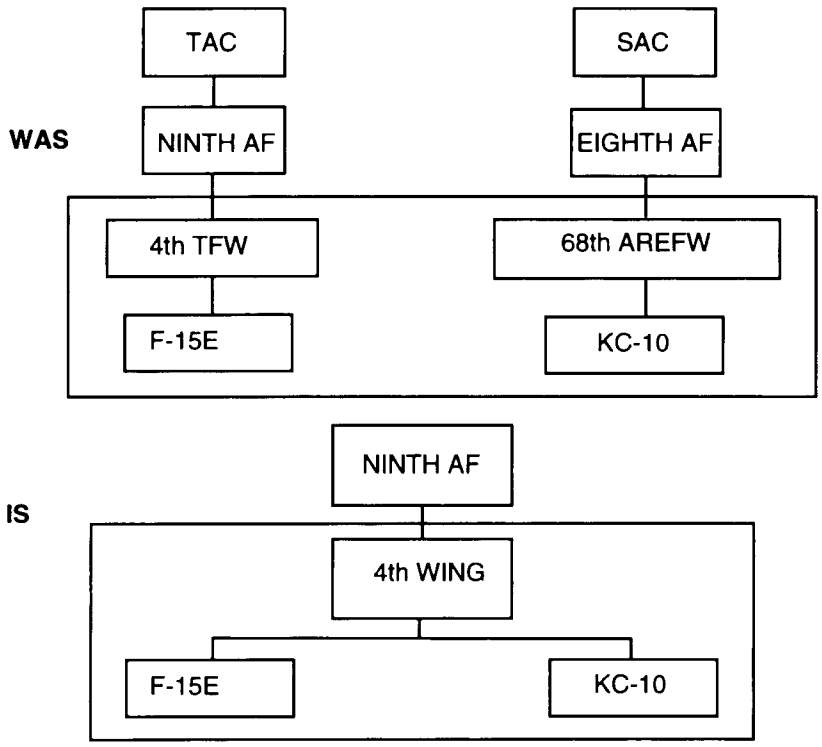


Figure 72. Seymour Johnson AFB

I'll say more about the general-officer business later, but first let's look at what we've already done at Seymour Johnson (fig. 72).

We used to have two wings there—an F-15 wing and a KC-10 wing. Today we've got the 4th Wing. Please note the name change: not the 4th TAC Fighter Wing but the 4th Wing.

There's one person in charge of Seymour Johnson. He's still a colonel, but he'll soon be a brigadier general. We've got a big operation there, with tankers and fighters. One base, one wing, one boss. We're going to do that kind of thing throughout the Air Force.

By contrast, figure 73 shows the way we're organized at wing level today. The wing commander is a colonel. Below him are three deputies and a combat support group commander, often called the base commander. All the deputies and the base commander are also colonels. We have the wing commander and a base commander. Even civilians who've lived in the community for a long time are often confused as to who's

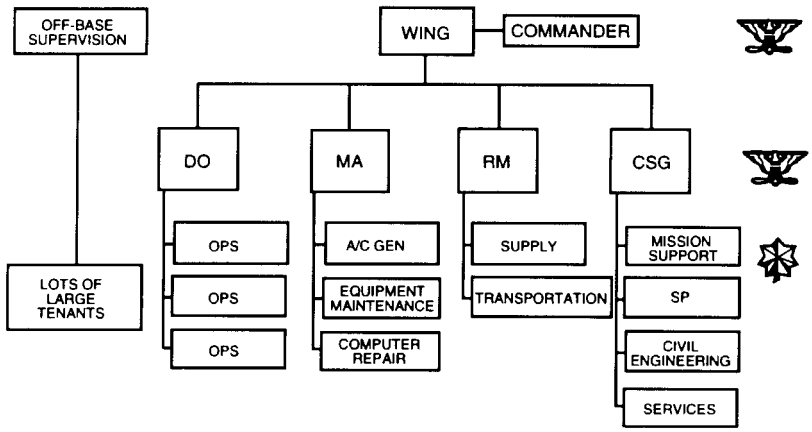
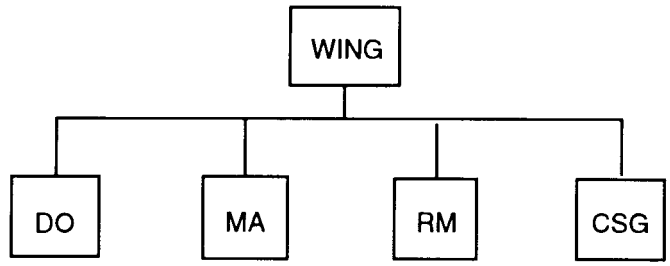


Figure 73. Typical Wing

in charge. Below the deputy level, I show the standard array of squadrons. On the base are lots of big and small tenants, reporting to somebody off base.

Now, what are the problems associated with this style of organization? The first problem is too many colonels. The wing commander is a colonel. So's his vice-commander. There are really four deputies in this setup, and they're all colonels.



	DO	MA	RM	CSG
MAC	134	147	56	124
TAC	77	137	79	90
SAC	157	88	49	96
PACAF	71	75	14	128
USAFE	81	127	15	103
AVERAGE	104	115	43	108

Figure 74. Staff Manning Wing Deputies

Many of these colonels have colonel deputies. Some of the tenants are probably headed by colonels. So, lots of colonels.

There's another way this "deputy" layer carries a high price tag. The average DO staff has 104 people (fig. 74), and it can have many more. The staffing numbers are high across-the-board. That's quite a bit of overhead.

A third problem is balance. You can see that on figure 75. In our average operational wing, the maintenance deputy supervises more than twice as many people as any of the other deputies—almost half the wing. And, he does it with very few officers. Look at the officer-to-enlisted ratio. On the other hand, the DO organization is small and heavily officer oriented. Perhaps not much of a leadership challenge here.

The balance problem will be partially corrected by moving the flight-line maintenance function back into the ops flying squadrons, giving the flying squadron commander much wider scope—a much tougher set of responsibilities.

Figure 76 shows the objective wing—the way we want to organize. The wing commander will be a general officer. In this

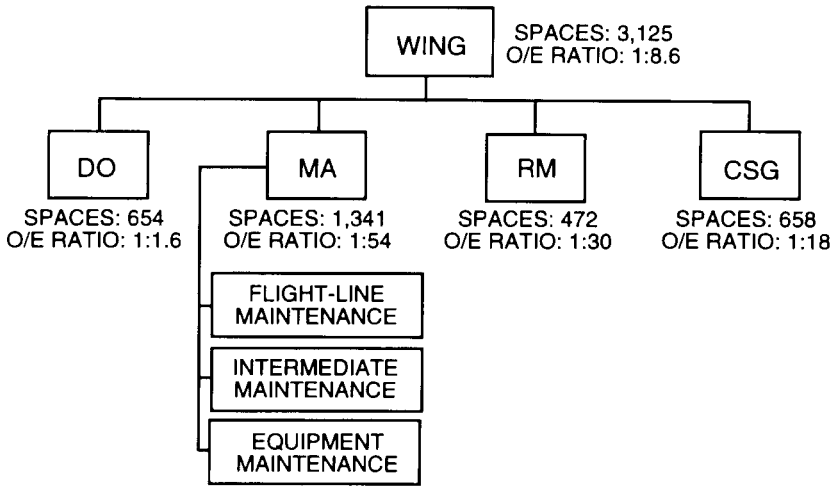


Figure 75. Imbalanced Wing

setup, he is unambiguously also the installation commander—the base commander. Instead of deputies, we will have groups

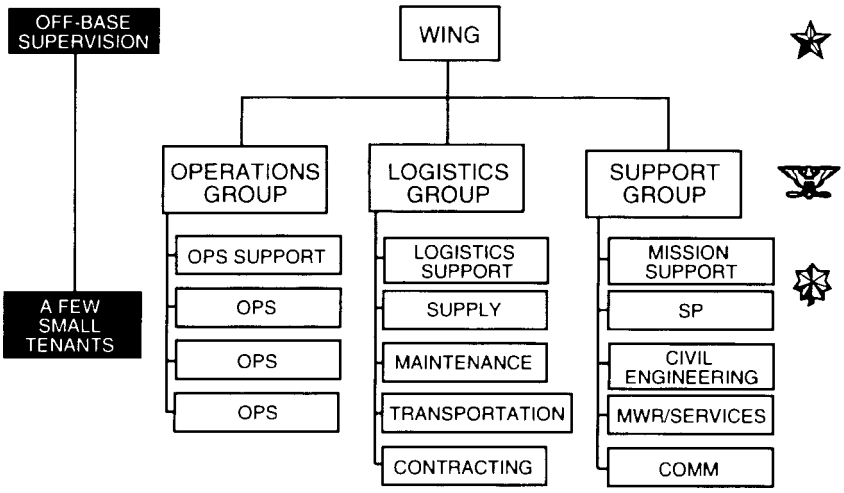
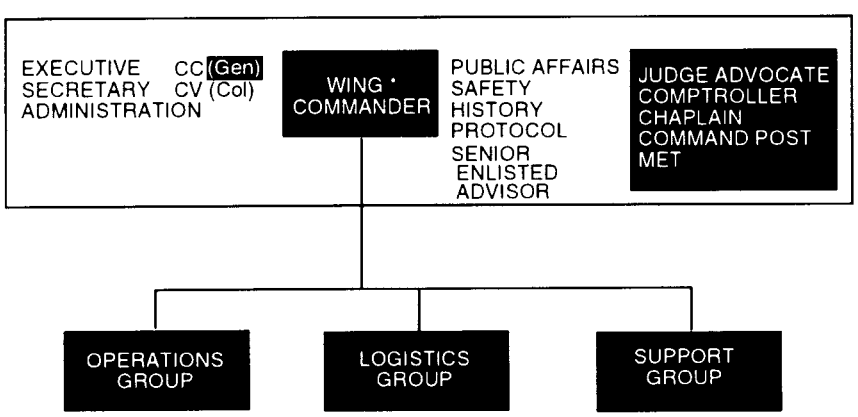


Figure 76. Objective Wing

below the wing, and the standard will call for only three—not four—separate nodes. The groups will be headed by commanders. There's a clear chain of command. The group will be a very skinny formation indeed. Like the numbered air force, we're going to pare away all the functional staffing.

Our general principle is that all base activity comes under the wing commander. There will still be a few small tenants, like the OSI or the Audit Agency, that can't report to the wing commander, but the idea is to reduce the number of tenants—to make the number of people on the base who don't work for the wing commander as small as possible.

The wing commander has the functional staff he needs (fig. 77). He already has protocol, safety, public affairs, historian, and so forth. He needs the judge working for him because he will be the special court-martial authority. Similarly, the comptroller will be part of the wing staff, and we've moved a couple of other functions up under the wing commander, like the chaplain, because he ministers to the whole community—not just the support group—and the command post, which I see as the wing commander's real office. The wing commander is a flyer in a flying wing, but he's a mission-support flyer. He's probably too loaded down to stay



* WING CC IS BASE INSTALLATION CC

Figure 77. Objective Wing: Functional Staff

mission-ready. He's a wingman in peacetime, and—in combat or emergencies—his duty position is in the command post.

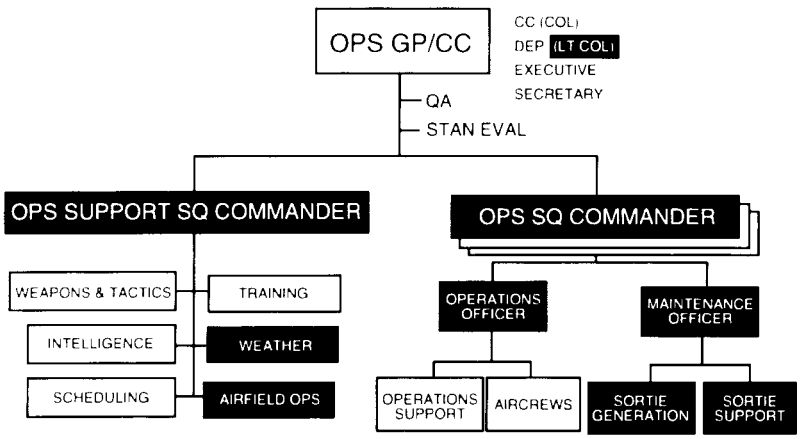


Figure 78. Objective Wing: Operations Group

Below the headquarters wing staff are the groups. Let me start with the operations group (fig. 78).

To begin with, the ops group commander is a colonel, with a lieutenant colonel deputy. He is mission-ready—the guy who takes the package to Baghdad. To allow him to do that, we've taken all the former staff functions, organized them as flights, and put them to work for a support squadron commander. Here's where you will find weapons and tactics, intelligence, scheduling, and so forth. The breakup of Air Weather Service allows us to put a weather flight in here. And this function—airfield operations—combines the old base ops with the tower and RAPCON—again, a move made possible by our restructuring of Communications Command. All the various flight com- manders can aspire to be the support squadron commander.

The stan eval and quality assurance functions must work directly for the ops group commander. Maintenance quality assurance has to be there because, as I said, operations squadron commanders will now have responsibility for flightline maintenance. The operations squadron commander will

have an ops officer and all the aircrews, plus a maintenance officer and flight-line maintenance. Thus, we've re-created the ops/maintenance team right down to the sortie-generation level. Instead of two colonel-level deputies that must cooperate to generate missions, we'll have one squadron team that's responsible for flying and fixing aircraft. They'll have a common boss and a common bond.

By the way, our war plans often call for mobilizing single squadrons. Under the previous setup, the flying squadron commander gets some serious on-the-job training when he first picks up responsibility for flight-line maintenance, under field conditions. This is another case where we should organize in peacetime like we intend to configure for combat.

Our operations squadron commanders will need to be trained to take on their new responsibilities, but I'm quite confident this will work. This is more than an experiment. The air forces of many nations are organized this way. So is the Navy, when embarked. Active interceptor squadrons, when we still had some, worked this way. The Thunderbirds are so organized. We ourselves used to be organized this way. Why did we get away from it? Frankly, because maintaining aircraft is a tough, complicated business. And we organized to solve the logistics problem.

But we've put years into the effort to improve reliability and maintainability, and this is now paying off. We can now put the emphasis where it rightly belongs. The Air Force exists to operate and employ equipment—not to fix it. We must keep our equipment in good shape, but we can now reorganize around the centrality of operations.

By the way, if this is a composite wing, these squadrons can be different kinds of airplanes—for example, at Seymour, fighter squadrons and tanker squadrons; or at Pope, fighter squadrons and C-130 squadrons. In a composite wing, the operations squadron commander will have to be the real authority on how to operate his squadron's equipment. I see all these organization proposals as greatly strengthening the role of the squadron commander.

Let's look at the logistics group (fig. 79), which will incorporate the supply and transportation squadrons of today. Like the ops group, it will have a support squadron, into which all

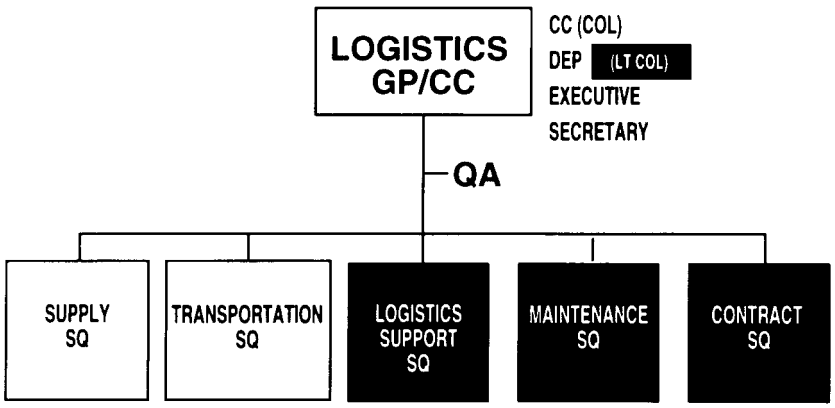


Figure 79. Objective Wing: Logistics Group

the previous staff responsibilities will be downloaded. The group commander will also keep quality assurance, because he still has a maintenance squadron, which includes whatever is left of intermediate-level maintenance. This will vary from wing to wing. For the short term, at least, some wings will have large intermediate-maintenance activities. Even long term, wings are likely to have some intermediate-level maintenance, because you're always going to have some central back shops—like a machine shop, battery shop, wheel and tire, and so forth.

But the secretary and I want to push toward two-level maintenance as rapidly as possible. In other words, we want to get to where we do flight-line, on-aircraft maintenance in the flying squadron, and if it breaks hard, give it back to the depot to fix. We would like to eliminate the very costly intermediate level of maintenance at our operating bases. For aircraft like the F-16C, the F-15E, the B-2, the ATF, with their high reliability and maintainability, we can come pretty close to doing this. For older systems, we recognize the need to keep an intermediate-level maintenance squadron of some size. We'll keep it in the logistics group.

The support group (fig. 80) includes the civil engineers and security police, like it always has. And we've followed the pattern by adding a new mission-support squadron to relieve the group

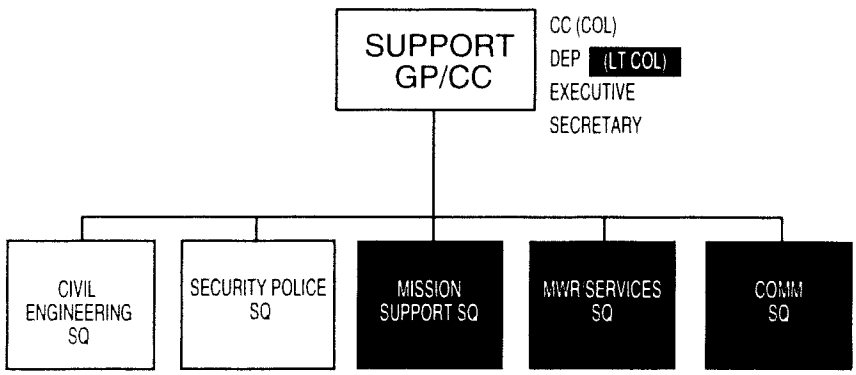


Figure 80. Objective Wing: Support Group

commander of all staff-like responsibilities—personnel, administration, social actions, and so forth. We have established an MWR and services squadron. The intent is to combine these two previously separate functions. The support group commander will also have responsibility for fixed base communications, such as telephone switchboards and the comm center, so we've added a comm squadron to his organization.

As I mentioned, we were going to try to put these new objective wings under general-officer commanders. For years, many of our wing-manning documents called for general-officer commanders, but we've manned them with colonels—promotable colonels. The idea now is to actually put generals at wing level.

Where are these general officers going to come from? It's obvious that it will be difficult, but how we answer this question is the real test of our sincerity on the decentralization issue. We say we want to push power down. But, in our business, power means rank.

We now have 338 general officers in the Air Force, but only 270 of them are line officers. So 270 is really the number from which we might pick our one-star wing commanders. You see in figure 81 how they used to be distributed—58 at Headquarters Air Force, 64 at MAJCOM headquarters, and so forth. Only two generals were wing commanders.

The number of generals we have is getting smaller. Congress requires that we give up almost 60 general officers by 1995.

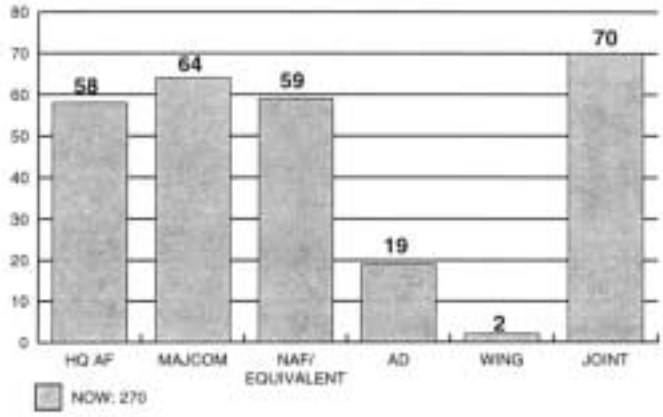


Figure 81. Line General Officers: Level of Assignment (Former Distribution)

That will bring us down to about 229 line officers. And you see in figure 82 a proposed distribution of the reduced numbers. The whole scheme is to move generals out of headquarters and back to base level. As I told you, 15 generals

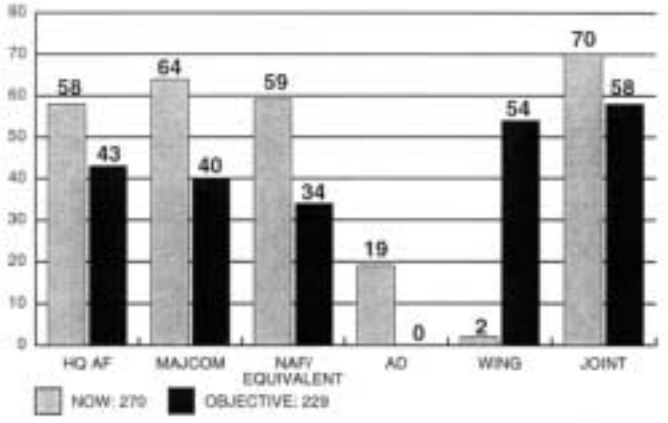


Figure 82. Line General Officers: Level of Assignment (Proposed Distribution)

will come out of Headquarters Air Force. The number of generals assigned to MAJCOM headquarters will drop as we go from 13 to 10 MAJCOMs. More will leave the numbered air force level, as commanders there lose their general-officer deputies. All the air divisions will be shut down, freeing up 19 general officers. So we can essentially find the 59 that we have to turn in, plus go from two general-officer wing commanders to 54. That's not all our wings, but it's most of them—and all the large ones.

So, I think you'll see good progress in this concept of one wing, one base, one boss, and making the boss a general.

Well, that about wraps it up—the top-to-bottom restructure of the Air Force (fig. 83). I've outlined the easy part—the concept. But I need your support to make sure it actually happens. Remember, the virtue of this approach is that it builds on our strengths. We've always been a quality outfit. A whole lot of good people who came before us saw to that. We're

- IMPROVES COMBAT CAPABILITY AND PEACETIME EFFICIENCY
- SETS STAGE FOR THE NEXT PHASE. . .

TOTAL QUALITY AIR FORCE

Figure 83. Air Force Restructure

going to make it better. OK, we'll be smaller—a lot smaller, in every dimension—but we've laid out the changes that will make us stronger anyway.

I'm proud we've found the courage to do this ourselves—not because the system was broken, not because we were ordered to do it, but because people in the Air Force are flexible enough and strong enough to support change, if that's what it takes to give this country the world's best air force now and into the twenty-first century.

See you on the flight line.

Chapter 7

A Backward Step?

Editorial by A. G. B. Metcalf,
Strategic Review, *Fall 1991**

As the Air Force Logistics Command and the Air Force Systems Command combine to become the Air Force Materiel Command, we have come full circle, with the fundamental functions of aircraft logistics support and management of research and development back where they were at Wright Field at the close of World War II. The purpose of separating these two very different functions at that time was because it was correctly reasoned that the responsibility for management of the small but more highly technical research and development activity should not be engulfed by the much larger, but more mundane, volume of logistics support and maintenance of aircraft systems. Following World War II and on the eve of the greatest takeoff in aeronautical engineering technology, the essential *difference* in management of aircraft logistics support versus contracting for research and development was recognized as a distinction of first importance.

Those differences are just as true and far greater today. There is nothing in a projected smaller overall Air Force budget which invalidates the reasoning which correctly separated routine, large-volume functions from management of highly technical research and development programs.

That we may be going in the wrong direction in this particular restructuring suggests that we go slowly in dismantling other operational structures which had sound reasons for their present form. This reorganization, already in progress, brings up the further restructuring plans recently announced by Secretary of the Air Force Donald B. Rice, which contemplate eliminating the Strategic Air Command, the Tactical Air Command, and the Military Airlift Command, combining them into two new commands—"one to provide worldwide airlift and

*Reprinted by permission.

tanker support, to be called the Air Mobility Command, and the other to project aerial firepower where and when needed, the Air Combat Command." This mixes up command of and infrastructure for the support of fighters and bombers, distinctions which reflect different requirements stemming from operational experiences which go back to early US Army Air Corps days. These are distinctions which cannot be blurred, and certainly not on the basis of Desert Storm experience—if such a brief exercise can be called experience.

Here again, it is reasonable to ask, Should we not go slowly to be sure we know what we are doing? Reduced Air Force budgets and decreases in the overall force levels that reflect the winding down of the cold war and the disappearance of the Soviet threat are inevitable. But do they justify the radical dismantlement of the time-proven organizational and operational distinctions and the reshuffling of people and equipment in an organization which has evolved over the last 40-odd years and has served Air Force needs and purposes well? The need for such a radical change in organization is open to question, particularly when it results in a return to a structure resembling that of an earlier day before important operating needs and distinctions evolved to reflect the demands of an Air Force growing up in a technology environment of increasing complexity.

Moreover, the Air Force as an instrument of war incorporates the wartime experience and the lifelong labors of senior leaders—Arnold, Spaatz, Eaker, Doolittle, LeMay, Hansell, and many more. Is it right that current leadership, who see the problems of the Air Force through different filters and under different pressures, undertake to eliminate structures and operational procedures and distinctions which had their genesis in the cauldron of World War II? It was in that conflict that airpower came of age and was used at its highest level of effectiveness over a span of years of all-out warfare in theaters as disparate as the European and the Pacific. Neither before that time nor afterward in subsequent conflicts has airpower been used protractedly in widely differing environments with such effectiveness as to permit the drawing of superior lessons as to its application and use.

Least of all are any lessons to be drawn from what has been called the Gulf War. In reality that competent and professional

use of force was not a war at all, but a brief, if intense, punishment of a third-rate power, using airpower under nothing less than benign conditions. These were unique circumstances peculiar to that conflict characterized by unusually short basing distances, the absence of ground-to-air defenses, and no requirement to deal with an effective repelling air arm. Under these unwarlike circumstances, strategic bombers did attack tactical targets—but this proves nothing beyond the flexibility of airpower. It says nothing which contradicts the fact that it is better to use equipment designed and aircrews trained for specific military purposes.

There was nothing in Operation Desert Storm which required the exercise of airpower in the mode of "global reach—global power," a slogan associated with the proposed reorganization. A tinier theater of operations would be hard to imagine. Large bodies of water on both sides of Iraq providing access for up to six aircraft carrier battle groups further emphasized this fact. That is why fighters, unmolested and using a fraction of their range, could deliver weapons on strategic targets, but this provides no model for the structuring of an all-purpose, airborne strategic delivery system. Nor, under these circumstances was the dispatch of B-52s from the continental US against targets in Iraq really necessary to prosecute the war. Whatever information was gained by that exercise had to be limited to refueling experience or simply the ability of these ancient aircraft to stay the distance.

It requires proof of the most incontrovertible nature to justify jettisoning the separate SAC, TAC, and MAC structures which have served so well. A smaller budget determining an Air Force reduced in *size* does not provide a convincing argument for such a difference in *form* of organization proposed for the Air Force. Nor does reference to the brief operations in Desert Storm contribute in any way to the support of such a proposal. More persuasive is the belief that the only lesson to be learned from the Gulf War is that there are no lessons to be learned from the Gulf War.

The planned restructuring proposes to create more than anything else a hodgepodge of wholly and partially unrelated command responsibilities and operational infrastructure of a highly technical nature but one which still requires specialized

experience and expertise. At the same time we find ourselves dispersing, if not to the four winds, to newly formed organizations of unrelated bedfellows—operational structures which have represented the best judgment of a long line of air leaders as to how to structure the Air Force.

Here, as with the logistics function, in dismantling the separate operational commands in the name of "streamlining," we have come full circle in lumping together equipment, personnel, and command responsibilities which experience has indicated called for separate structures.

The Air Force's announcement of plans to eliminate SAC as a separate command and to combine its air assets with TAC and other forces, may have been premature. It appears to have been overtaken by President Bush's announcement that he has approved plans to place all strategic forces—bombers and land- and sea-based nuclear missiles—into a unified US Strategic Command under a single commander. This recognizes the overriding imperative of strategic forces: that they be under the sole control of the national command authorities—not under theater commanders.

Air Force Reorganization: A Big Step Forward

Response to Metcalf,
Strategic Review, *Winter 1992**

Your fall number included an editorial taking issue with the Air Force reorganization. I ask that you put my opposing view on record because your publication is highly regarded by a segment of the public that understands defense issues.

Reduced to essentials, the editorial argues that (1) we should not merge Air Force Systems Command (AFSC) and Logistics Command (AFLC) because these two commands have very different missions and (2) for roughly the same reason, we should not combine Strategic Air Command (SAC), Tactical Air Command (TAC), and Military Airlift Command (MAC) into two successor commands—Air Combat Command (ACC) and Air Mobility Command (AMC). For the editor, the USAF's current

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command arrangements "had their genesis in the cauldron of World War II" and are based on "time-proven organizational distinctions." Accordingly, we are urged to "go slowly to be sure we know what we are doing."

The restructuring now under way in the Air Force is the most important reorganization in our history. From the long list of significant changes, the editorial selects only two dealing with how we will organize some of our major air commands. Even at this level, other very important moves are ignored (e.g., dissolution of Air Force Communications Command and establishment of Air Force Intelligence Command).

Space limitations prevent a full discussion here of the rationale for restructuring. In brief, we seek to reduce overhead and increase combat effectiveness at every echelon from the Pentagon down to flying squadrons. (Probably the most profound changes are at the local or base level.) Each of the specific reorganization initiatives can be fully understood only as part of the much larger package. (Anyone interested in a comprehensive treatment of the entire restructure should contact my office.)

Let me turn to specifics. It was appropriate, following World War II, to create a separate organization—Air Force Research and Development Command—with responsibility for oversight of research and development activity. In the intervening years, Air Force Systems Command evolved and has racked up an impressive list of accomplishments. However, as a result of a series of defense reforms culminating in the Goldwater-Nichols Act, almost all responsibility for oversight of large research, development, and acquisition programs has shifted from the service acquisition commands to the Office of the Secretary of Defense and the service Secretariats. We no longer need to provide four-star leadership for what has become, in important respects, an administrative support activity.

Moreover, separating responsibility for hardware acquisition from responsibility for continuing systems support has not always been a problem-free approach. Many of your readers will be familiar with Program Management Responsibility Transfer (PMRT) "horror stories." The merger of AFSC and AFLC opens the prospect of seamless, life-cycle weapon system management. If it works like we all hope, there will be a cross flow of expertise: an infusion of technology into the prob-

lem of logistics support and more up-front incorporation of logistics support concerns into hardware development.

And we will have one fewer large headquarters.

Your editorial seems to assume that the idea to merge SAC, TAC, and MAC into two successor commands springs solely from our Desert Storm experience. It also argues that circumstances for Desert Storm were unique; that it would be "hard to imagine" a "tinier theater," where fighter aircraft were "unmolested" and used "a fraction of their range"; and, accordingly, that "the only lesson to be learned from the Gulf War is that there are no lessons to be learned from the Gulf War."

I take a certain perverse pleasure in reading these views, having spent—together with my JCS colleagues—a fair amount of time sifting through Desert Storm lessons learned. I guess my judgment is that every war contains lessons that professionals cannot ignore. Certainly a very important lesson of Desert Storm is this one: The air commander's main operational problem is to effect integrated, harmonious employment of all the various air capabilities. Chuck Horner, the joint force air component commander, was able to achieve this in Desert Storm because he had the full support of General Schwarzkopf and six months to blend forces ordinarily assigned to SAC, TAC, and MAC into a first-class fighting team.

But it would be a mistake to assume that this lesson is associated only with Desert Storm. We have never fought a purely "fighter" or purely "bomber" air war. Every minute of practical experience we have teaches us that these air capabilities must be integrated. Where we have organized effectively in the past—as Generals Eaker and Kenney did in World War II—combat commands have mixed the assets we would today call "strategic" and "tactical." To quote "Tooey" Spaatz—one of the air leaders whose "lifetime labors" are, according to the editorial, being jettisoned by the Air Force's current leadership—"There was no line of cleavage between strategic and tactical air forces. It was an overall effort, uniting all types of aircraft."

Since we always fight integrated air campaigns, why not organize this way in peacetime? A hard question to answer. In retrospect, it appears that we drifted away from integrated structures following World War II because we let the primacy

of the nuclear retaliatory mission dominate decisions about how to organize combat forces (although, even here, strike fighters were included in SAC until 1957). But, today, nuclear deterrence is not a mission unique to the Air Force, requiring an Air Force major command. It is a joint mission, requiring a joint command. As the editorial notes, the president recently underscored this with his decision to establish US Strategic Command. The Air Force's reorganization was planned with the expectation that a joint organization would assume responsibility for the nuclear deterrence mission. Air Combat Command becomes a force provider as the Air Force component of US Strategic Command. Our action was not "premature" or "overtaken" by the new joint structure, as implied by the editorial; instead, it anticipated just such a development.

By merging SAC, TAC, and MAC, the Air Force loses yet another large headquarters.

Gen Russ Dougherty recently made a speech about the Air Force reorganization in which he asked the rhetorical question, What would General LeMay say? According to Dougherty, "He would say, bluntly, 'Train like you are going to fight.' He might say, for he had told us on many occasions, 'Minimize the number of higher headquarters because I hate all higher headquarters'." Right on, Curt.

Finally, there is the question of timing. Although it is clear that the editorial actually opposes the restructure, it advances only the recommendation that we should slow down until it becomes clear that we know what we are doing.

I agree that change takes time and that we ought to allow a reasonable period of adjustment so that we don't yank people around. That is why we've given about a year and a half to the major commands involved to do the necessary transition planning.

But if we are doing the wrong things, we should not do them at any speed—slow or fast. Secretary Rice and I are convinced that these are things we should do. They are right in the abstract, in concept. Accordingly, we would want to pursue these initiatives even if there were no pressure to do so because of declining budgets. Unhappily, there are budget pressures that give us some unneeded incentive to move out. As a consequence, we intend to get on with it.

Chapter 8

Smaller but Tougher: Update on the Air Force Restructure

Speech, Air Force Association Air Warfare Symposium, Orlando, Florida, 30 January 1992

Good afternoon. Thanks very much to the Air Force Association for sponsoring this great annual event and to Mike Loh (commander, Tactical Air Command) for hosting it. It's important that the leadership of the Air Force, our advocates and supporters in the AFA, and industry representatives get together for the express purpose of talking air warfare. That, of course, is the main business of the Air Force. My initial few months as chief were occupied with the most successful application of airpower in history—the Desert Storm air campaign. A year ago today was the 14th day of the air campaign. The Air Force had flown 10,957 bomber and fighter sorties and dropped over 12,000 tons of ordnance. We started our barrier cap that day to beat the last Iraqi air tactic—flight to Iran. The effectiveness of the coalition air effort was becoming apparent. The years of work and preparation were paying off.

When the war ended, we turned to the problem of ensuring that the Air Force remains the best in the world at air warfare, and we began reorganizing with that aim in mind. During the AFA convention last September, Secretary Rice and I announced the details of the restructure—the most significant changes for our service since 1947. When we made those announcements, we knew that a lot of hard work on implementation lay ahead. Much of that work has been done, but much remains. Today, I'd like to update you on the status of the restructure. In short, we are well on our way to a smaller but tougher Air Force.

As we work on the details of putting the new structure in place, we are focusing on the basic goals and themes of the reorganization. We seek to enhance combat capability and increase peacetime efficiency. We are decentralizing the Air

Force by moving power and authority out of headquarters and into the field. Commanders are gaining the authority and resources they need to fulfill their responsibilities for accomplishing the mission, and we are holding them accountable for getting the job done. We are streamlining the structure to unclutter the chain of command. We are consolidating where practical, yet we are avoiding centralization. Finally, we are clarifying functional lines and untangling staff responsibilities. We are making good progress on all fronts.

For my money, the most important changes are taking place at the squadron and wing level. This is the echelon where the real work of the Air Force is done, where the basic combat teams are formed. The old wing structure had a commander, a vice-commander, a base commander, and three deputies. The new structure consolidates leadership into a wing commander, a vice-commander, and three group commanders. In the squadrons, we are returning on-aircraft maintenance to the operations squadrons to restore the teamwork between the crews who fly airplanes and the crew chiefs who maintain them. Of the 99 wings we expect to have in 1995, 76 have transitioned to the new format—we're three-quarters of the way there. And the new wing organization is not just for flying units. Our missile and space wings are also taking on the same fundamental structure.

We are making better progress than anticipated putting brigadier generals in charge of wings. We started out expecting to send generals to command 45 wings.* The total is now up to 56, and it may go a little higher yet. Forty-one of those brigadier generals should be at their posts by the end of this year, compared to the three we had running wings this time last year. So, we are moving quickly to take senior leaders out of headquarters and put them in charge of our field operations.

The "one wing, one base, one boss" principle is becoming the standard throughout the Air Force. Andrews, Kadena, Seymour Johnson, Kirtland, Nellis, Holloman, and Ramstein have already consolidated headquarters. Other bases, such as Yokota, Altus, Peterson, and Vandenberg, will follow suit shortly. Eliminating all the extra headquarters reduces overhead at the

*This number varied from time to time, as plans changed (see chaps. 4 and 10).

base level and saves both dollars and manpower. And we are improving combat capability by giving one commander unambiguous control of the resources on his installation. In most cases, these consolidations create composite wings—wings which operate more than one kind of aircraft.

We also are assembling composite wings from scratch at both Mountain Home AFB, Idaho, and Pope AFB, North Carolina. At Mountain Home, the 366th Wing will have a very potent air intervention capability. This wing will have the assets for rapid air response to any threat, anywhere in the world. Six F-15Es for precision ground attack and 18 multirole F-16s will arrive on base by March, followed by 12 air superiority F-15s, three E-3 AWACS, and six KC-135s by the end of the year. The entire package will include 36 shooters, with command and control and refueling support to get the job done. By training together every day, this wing will form a core to which other specialized assets can be added if necessary.

At Pope, the 23d Wing—the famed Flying Tigers—will raise their flag on the first of June. They will form an air-ground team with the Army's 82d Airborne. Together, this team will comprise the nation's premier forcible-entry capability for the future. The wing will not be chained to the division. The joint commander in a theater can break the wing loose, if absolutely necessary. But, make no mistake, the idea is to form an air-ground team. The day-to-day teamwork between the wing and the division will overcome a problem that has always concerned me. These units will not be strangers meeting each other for the first time on the way to do some incredibly difficult combat task. They will work together, get to know each other, and give new meaning to the idea of joint teamwork. Eighteen A-10s and six OA-10s will be in place at Pope this summer. F-16s will join them next year, and a sizable C-130 force will remain there to support the division's jump and lift requirements.

The 23d will have a great mission. In my view, close air support is the Air Force mission of choice. Ideally, we would devote all of our combat sorties to CAS. That would mean we had the air superiority and interdiction problems under control and we could give everything we had to supporting our guys on the ground. Don't get me wrong. Some contingencies

will allow for—indeed, demand—independent air intervention or for much of the load to be carried by airpower. But where American troops are engaged on the ground, protecting them and making their job easy should be our principal concern. Sometimes I think we speak too glibly of airpower. We forget that, ultimately, the true value of airpower lies in its potential to determine the fate of armies.

Our wings and squadrons have also dropped "strategic" or "tactical" from their names, ending forever—I hope—these artificial distinctions. I noticed Mike Loh and the AFA also changed the name of this conference to drop the "tactical" from air warfare. People all over are starting to understand what the Air Force has argued all along—that airpower is most effective when employed as an integrated whole. The old labels were misleading, and we are succeeding in getting them out of our thinking. The era of disintegrated airpower is over.

So the most important part of the reorganization—the base level—is cruising along at high Mach, with a nice tailwind. Above the wing level, we started with 19 air divisions. Only six remain, and they will be gone by this summer.

Numbered air forces are also trimming down. Over time, their staffs are getting smaller. They are taking on an operational cast and shedding functional responsibilities. The numbered air forces will focus on readiness and planning for deployment and employment. We still have a lot of work to do here. By the way, Military Airlift Command's numbered air forces now have three-star commanders, an indication of the importance we place on putting senior operational leadership in the field.

The major command reorganization also is proceeding apace. Communications Command is now a field operating agency. Electronic Security Command stood down last October, as we joined it up with several other intelligence organizations to become Air Force Intelligence Command. Logistics Command and Systems Command are on track to become Materiel Command next July. We can look forward to seamless life-cycle management for our systems, again improving combat capability and enhancing efficiency.

Strategic Air Command, Tactical Air Command, and Military Airlift Command are preparing to stand down on the first of

June. Air Combat Command and Air Mobility Command have already established provisional headquarters at Langley AFB, Virginia, and Scott AFB, Illinois, respectively. Shortly after our announcements about ACC and AMC in September, the president announced that the mission of nuclear deterrence would come under a new unified Strategic Command. The Air Force restructure fits perfectly with that initiative—Air Combat Command will provide the Air Force component for STRATCOM. Strategic Command is preparing to go into business 1 June at Omaha (Offutt AFB, Nebraska), on the same schedule as ACC and AMC. Transition plans for the three-into-two merger are nearly complete, and we have begun the process of assigning people to the new headquarters. Bottom line: by this summer, we will be down from 13 major commands to 10, and our operational commands will integrate air assets in peacetime the way we fight in war.

Finally, our old separate operating agencies are up and running in their new mode as field operating agencies. They have given over their policy functions to headquarters, which also has completed its reorganization to focus on policy and resource allocation. The operational matters of the Air Force are with the Air Staff, and the business responsibilities are under the Secretariat. As for reducing people in the headquarters, we are making progress. But every time I wander around the Pentagon halls, I find a few more people to push back to the field. I expect I'll be fighting that battle for the rest of my time here.

Naturally, our people have felt some uncertainty as the Air Force changes. But things are settling out. People are finding their places in the new structure. It's important to remember what would have happened to our people had we not reorganized. The real uncertainty for all of us comes from the sharp drawdown we face. Had we not restructured, our people would have lost as many good jobs as not-so-good jobs. With the reorganization, we are trying to keep the good jobs. And everyone in the Air Force wants us to be the best in the world. The restructure provides reassurance that we are taking steps to preserve combat capability as we get smaller.

While reorganizing is very important, we also are reaffirming another fundamental characteristic of many successful organizations. We are working hard to ensure that a "Quality Air

Force" approach becomes part of our culture. We intend to empower our people with the opportunity, authority, and resources to improve the organization through their own creativity and initiative. We have formed a quality council of the senior leadership to oversee the process. I will cochair the council along with Undersecretary Anne Foreman. In other words, the Quality Air Force (QAF) is too important to hand off to somebody else.

Part of the QAF effort was to establish a vision for our institution, to give direction and thrust to our efforts. The senior Air Force leadership thought long and hard about how to establish a clear direction for the future. We came up with a short statement that lays out our vision: *Air Force people building the world's most respected air and space force—global power and reach for America.*

The vision begins by saying who we are: Air Force people. That reminds us that our most important asset is our people—us. We are building—building, not laying—foundations because many talented people who went before us already created the world's best air force. We will build on their achievements. Our product is power and reach. Our customer is America. What we want to be is the "most respected" people in our business. Our friends should like us and want to work with us. We seek no enemies, but if they pop up, they should fear us. Nobody should want to fight us.

So it's a simple vision. But as Air Force people buy into it and take advantage of the new opportunities created by the restructure and Quality Air Force initiative, the vision will become reality. "Air Force people building the world's most respected air and space force . . . global power and reach for America." That's the vision we need to see us through the changes we are facing.

As I said in September, the job of the Air Force is to organize, train, and equip forces. The year 1991 was one in which we came to grips with the first job: organization. I'm confident that the key "organize" questions are answered. In 1992, we are turning to training. I want to examine closely how we prepare our people to do their jobs. Training is the basis of a Quality Air Force, and this will be the year of training. We have

already begun a comprehensive review to baseline our training requirements and programs.

Just as we did in the restructure, we will ask some very simple questions. What are the objectives of our training programs? What training should be done in the training command and what in the using command? How do we distinguish between education and training? Should Air Training Command, Air University, and the Air Force Academy remain separate—as they are now—or would a consolidated command be more effective? Lots of work to do in the "Year of Training" I'm glad it's only January.

When I'm confident that training is figured out, I may be back in '93 to talk about the third job of the services: equipping ourselves. I suspect there are some simple questions that need to be asked about this subject as well.

Thanks very much for having me here today. Just as we are emphasizing teamwork in the Quality Air Force, our leadership, industry, and the AFA have to work together to build the most respected air and space force in the world. Thanks for doing your part so well.

Chapter 9

Air Force of Today and Tomorrow

Statement before the House Armed Services Committee, Washington, D.C., 20 February 1992

Good morning, Mr Chairman and members of the committee. It is a pleasure to be here to discuss the Air Forceof today and tomorrow.

The 17 months I have spent as chief have been exciting and challenging. During that time, the Soviet Union dissolved, and we fought and won the war in the Gulf. Airpower, as part of the combined-arms team, played a decisive role in the coalition victory. Now, our military planning has shifted from focus on the possibility of global war to an emphasis on regional conflict. The new national strategy acknowledges the unique leadership position of the United States. American engagement abroad, including forward military presence, will continue to be a vital part of our strategy. The capabilities of the Air Force, highlighted in Desert Storm, fit perfectly into our planning.

To implement the strategy, Secretary Rice and I have the job of organizing, training, and equipping forces for combat commanders. As you know, the focus of much of our recent activity has been organization.

We have initiated the most important organizational changes since the Air Force became a separate service in 1947. We seek to improve combat capability and enhance peacetime efficiency. We provided each of you with a white paper last September detailing the changes, and we also produced a videotaped briefing, made available to Congress, to explain these initiatives. Today, I would like to offer a short summary of our progress on restructure.

The wing level is where the real business of the Air Force takes place. Of the 99 wings we expect to have in 1995, 75 percent have transitioned to a new structure that will strengthen the chain of command and improve integration of the basic operations-maintenance team. We are also combining units on the same base under one commander, again

strengthening the chain of command and cutting overhead by reducing headquarters on our installations.

In many cases, these money-saving changes produce composite wings—or wings which operate more than one kind of aircraft. In two cases, we are building composite wings from scratch for specific missions. At Mountain Home AFB in Idaho, we are establishing a wing tailored for rapid air response to any threat, anywhere in the world. That "intervention" wing will have air superiority F-15s, precision-attack F-15Es, multirole F-16s, tankers, and AWACS. The assets will be in place by the end of this year.

At Pope AFB in North Carolina, the famed Flying Tigers, reorganized as a composite wing, will form an air-ground team with the Army's 82d Airborne Division. Together, the wing and the division will comprise the nation's premier forcible-entry capability for the future. This wing will have A-10s, OA-10s, F-16s, and C-130s. The wing will stand up this summer, beginning with A-10s. Other assets will arrive in 1993. The Pope wing will give enhanced meaning to the idea of joint teamwork.

Above the wing level, only six of our original 19 air divisions are still in existence. That entire layer in our structure will be gone in the next 45 days. One echelon above the air division, our numbered air forces are being streamlined and focused on deployment and employment of forces. As numbered air forces become operational echelons, their headquarters are shrinking. That saves resources and enhances our operational agility.

At the major-command level, we are moving from 13 commands to 10. Tactical Air Command, Strategic Air Command, and Military Airlift Command will stand down on 1 June and will be replaced by Air Combat Command and Air Mobility Command. These new commands will practice in peacetime to employ airpower as a unified whole, ending the artificial distinction between tactical and strategic applications. For the Air Force, the era of fragmented airpower is over.

On the support side, Logistics Command and Systems Command will merge on 1 July to become Air Force Materiel Command, providing seamless life-cycle system support. Electronic Security Command became Intelligence Command last October, consolidating all Air Force intelligence functions un-

der one commander. Communications Command has become a field operating agency, with most of its personnel transferring to field commanders, who now are responsible for operating their own communications and automated data processing support.

These organizational changes are comprehensive and sweeping. They affect every level of the Air Force and every person who wears the blue uniform. But one particular change highlights what we are really trying to accomplish.

Last year at this time, three wings had general-officer commanders. By the end of the year, 41 wings will have generals in command, and ultimately 60 wings will have generals in charge. We are moving our senior leadership out of headquarters and into the field. Our vision is of an Air Force that is much less bureaucratic, a much more operational, war-fighting service. By putting rank in the field, we empower people at the point of contact. They will have authority commensurate with the responsibility they always had to continuously improve our operations. We will become more responsive and more capable.

The effect of all these organizational changes is to make us a smaller, stronger outfit. Our posture today is that of a *post*-cold-war Air Force, prepared to respond rapidly and effectively to the threat of the unknown and the uncertain.

As you can imagine, the magnitude of this reorganization required much of my attention over the last year. The restructure is on track, it is working beautifully, and our problem now is to follow up and consolidate progress already made. Our basic structural issues are solved.

The year 1992 will be one in which we take on the second service task—training. For the Air Force, 1992 is the "Year of Training." Having ensured that our people are organized properly to accomplish the mission, we will now make sure they are properly trained. Our objectives this year are to build a coherent education and training architecture and to raise our standards for education and training to meet the demands of the next century. I expect we will make some fundamental changes to training in the same way we did for organization.

The final service task—equipping the force—is one that requires continuous attention. Secretary Rice has already covered the range of modernization programs that we consider

essential to maintain our capability. Let me just add that systems like the B-2, the C-17, and the F-22 must be fielded if we are to sustain the capability to provide global reach and global power for the nation.

We are also modernizing our space assets with the Follow-on Early Warning System, MILSTAR, and the Defense Satellite Communications System to give us improved global situational awareness. Getting these systems up will require refurbishment of our space-launch infrastructure. Space operations have become routine for the Air Force, just a normal part of our daily business.

At the other end of the spectrum, we will continue to upgrade special operations forces with the Combat Talon II program, AC-130U aircraft, and the MH-53J helicopter Pave Low upgrade. Special operations represents a major resource commitment of the Air Force.

As an operator, there is one concern that I want to emphasize for the committee. We must properly fund the operations and maintenance budget to sustain combat capability. Without sufficient flying hours and adequate base facilities, all the organization, training, and equipping come to nothing. The Air Force has already felt the full impact of lower budgets. As a service, we stepped up to the need for change early on, and we have already dropped 20 percent in end strength from our recent peak in 1986—more than any other service has dropped over the last six years. But O&M funds have been cut even faster: The FY 93 request is down 23 percent since FY 90. The forces that remain after reductions must have adequate O&M funding to avoid a downward spiral in readiness. Air Force field commanders always raise O&M as a top priority and a major concern. Our request represents the minimum funding necessary for readiness. Please understand that this is not arm waving: Your support to sustain our O&M funding is critical.

As always, Air Force people are the very finest. They give you the most respected and feared air and space force in the world. With your support, they provide global power and reach for America. Thank you.

Chapter 10

National Military Strategy: Base Force Structuring

Speech, National Security Industrial Association, San Diego Chapter, San Diego, California, 21 February 1992

It's always a pleasure for Ellie and me to return to this part of the country. It is my privilege to serve as the nation's first chief of the post-cold-war Air Force. For all of us, the events of the last few years constitute a profound, historic change, but this is especially so for the Air Force, which was created only in 1947, as the World War II Soviet-American alliance was collapsing and the foundations were being laid for our containment strategy. Thus, the cold war was coincident with our entire history, and containment was the only national strategy the Air Force knew. So, for us—the youngest service—the rethinking required by recent events was and is especially significant.

I'd like to spend a few minutes talking about those changes and what they mean for the nation and the Air Force. Things are moving so quickly that I'll steer clear of making predictions. The last few years have defied all attempts at prediction, anyway. And 1992 promises to be especially turbulent, with the uncertain situation in Eastern Europe and the Commonwealth of Independent States. Here at home we face an array of important budget issues, all needing to be resolved during an election year. Next year about this time, it will be safe to make predictions for 1992.

In his State of the Union address, President Bush spoke of the two victories of 1991. One was the victory in Desert Storm, where a coalition of nations unprecedented in recent history fought back a regional tyrant. I'm very proud that airpower—from all the services, by the way—played a decisive role in that victory.

But this was truly a joint victory. The Army and Marines forced their way into Kuwait and did what only ground forces

can do—stand on a piece of real estate and declare it ours. And many may not have even noticed the quiet, absolutely professional blockade of Iraq clamped on by our Navy and maintained to this day. So, the first victory of 1991 was the joint victory in the Gulf.

The second victory President Bush discussed was the end of the cold war. We knew that victory was coming—the trends in Eastern Europe and the Soviet Union were clear enough. But when the Russian flag went up over the Kremlin a couple of months ago, the victory was complete. That was a victory in which all of us can take pride. We invested much blood and treasure in the cold war. Our ideals and our values have triumphed.

This victory in the cold war was not just a matter of military strength until the Soviet Union fell, although the military played a big role. This was a victory of sustained national will using political, economic, military, and moral strength. As Americans, we are often criticized for looking only at the short-term, for being unable to carry through on a long-range program. Well, it was nearly three-quarters of a century from our entry into World War I, which put us on the path to permanent international involvement, to the resignation of the last Soviet president. So, this experience also serves to remind us that we can complete a job and we can sustain an effort, even if the effort takes much of our wealth, the talents of many of our brightest people, and decades to achieve an outcome.

So, we can take pride, find comfort, be satisfied with these two great victories. But there is also good enough reason to take care, to be a little uncomfortable, a little worried.

You all know the record. It's an American tradition to demobilize and draw down our armed forces after a war. At this point, because we have two victories, some people in Washington think that means we should demobilize twice as fast and cut twice as deep.

Don't get me wrong. This speech is not your standard general-officer marketing effort to lobby for more money and more programs. Our country can certainly reduce its armed forces. We face no contender for global leadership. No region critical to our interests is threatened by a dominant hostile power. The allies with whom we won the cold war require less defense and can afford to do more for themselves. So, we can and

should cut back. But I believe it is a law of international politics, as valid as the law of gravity in physics, that the United States must maintain sizable, capable military forces.

Why is this? First of all, America occupies a unique position of world leadership. Today, we are the only remaining superpower. For the moment, our combination of strengths is unparalleled. We are, for the foreseeable future, the most powerful and most trusted nation on the planet. We are trusted because we led our fellow democracies against totalitarianism in World War II. We rebuilt our enemies after that war and helped them become democracies. We are trusted because we led the international response in Korea, and we led the containment of the Soviet Union. We are trusted because of our generosity, our commitment to international law, and our judicious restraint in using our power. Most of all, we are trusted because our political and economic systems—democracy and free enterprise—have proven to be the best yet devised. We are not saints—our record at home and abroad is not spotless—but on balance it's pretty good. We have earned the trust others now place in us.

We should not seek to abandon this position of leadership. I would argue we should do all that we can to preserve it. It pays big dividends in our ability to influence events. Does anyone seriously believe that another nation could put together the coalition against Iraq? Beyond that, we cannot step aside from leadership. Even if we were to make the mistake of returning to isolationism, we would still be leading—leading the rest of the world into isolationism.

So, as a general proposition, the US is in a position of global leadership, and we will retain that position for some time to come. One part of that leadership has to be a strong military.

The dissolution of the Soviet Union has given us and our allies important strategic depth, both in terms of the physical proximity of threats and the likely warning time for major problems. The threat of global war, at least without a long buildup, is near zero. Therefore, the post-cold-war world is safer, but it is still dangerous. Most important, it is an uncertain world.

To respond to these developments, the president announced in August 1990 a new national strategy, shifting away from

the threat of global war toward regional threats. At the same time, he announced that the military would get 25 percent smaller than the 1990 levels.

To implement the president's guidance, the Joints Chiefs of Staff have developed a new national military strategy that also focuses on regional concerns and prepares us to respond to the threat of the unknown and the uncertain. The force-structure component of the strategy is the Base Force, the force we judge necessary to implement the strategy.

For all the services, the Base Force represents a smaller but still-capable force. The Navy will drop from a 1991 level of 530 ships with 15 carrier groups to 450 ships and 12 carriers. The Army will go from 26 divisions, including 16 active, to 18 divisions with 12 active. The Marines—already a small, elite force—will have the chance to become even more elite, although their force-structure changes are less dramatic.

The Air Force will drop from about 38 fighter-wing equivalents at our 1980s peak to 26.5 wing equivalents, a one-third reduction. Those of us in light blue uniforms will get to know each other by name. Our part of the Base Forceis adequate for a Desert Storm–like contingency, with a little something to spare if another problem were to pop up in sequence.

Dealing with this topic raises an issue that I've been working on lately. When we discuss naval force structure, we think in terms of combat ships and carriers. When we talk about the Army, we talk divisions. But with the Air Force, we speak in terms of fighter-wing equivalents. The fighter-wing equivalent, 72 aircraft, is an accounting device we started using in the 1970s to capture force structure and relate it to bases and personnel. There are two problems with this concept.

First, we convey the false impression that the Air Force is only a fighter force. The Iraqi army knows differently. A B-52 visit leaves a lasting impression of what the manned bomber is all about. Using fighter-wing equivalents to describe us also leaves aside ICBM, airlift, tanker, strategic reconnaissance, space, special operations, and other kinds of wings. So the fighter-wing equivalent is a very incomplete measure of the Air Force.

The second problem is really a marketing issue. When the Navy talks about ships and carriers, everyone can visualize a

ship or carrier sailing away from the dock. The Army has divisions, a long-standing measure of ground forces that people can understand. But even well-informed people have a hard time figuring out what a fighter-wing equivalent is. It's an abstraction, hard to get your arms around. So I'm looking for a better way to describe the structure of the Air Force, hopefully a way that people can visualize and understand more clearly.

Now, I discussed the one-third drawdown the Air Force is making. The overseas reductions will be even more substantial. For instance, we expect soon to have about three and one-half fighter-wing equivalents in Europe. That compares to almost nine wings in 1990. These forward-based forces are a high-dividend investment. Together with forward-deployed ground and naval forces, these wings give us a rapid-reaction force closer to potential trouble spots. They provide a logistics infrastructure for relocating US-based forces during a crisis. And because they constitute a serious—not just symbolic—military presence, they demonstrate our commitment to stability in those regions.

Our visible commitment in the form of military forces matters a lot to friends and potential troublemakers. It tells them that the US has a real stake in events overseas and is prepared to take a hand militarily, if necessary. It's true that some in Europe would like to see our forces leave. But the more frequent complaint from European leaders is that our current drawdown is too rapid and may be the first step in a total withdrawal. Our presence in the Pacific is also welcome. No one was sorrier to see us leave the Philippines than the other nations in that region.

So, the Base Force, including the forward presence part of it, provides the nation with the military capability appropriate to our leadership position. It allows us to implement the new national strategy. And anybody who thinks the Base Force is just a continuation of cold-war business as usual is flat wrong. The reductions to the Base Force are prudent. They give us the force we need in today's environment. President Bush was right on the mark when he canceled systems such as the small ICBM that were left over from the days of global confrontation. He was also right when, discussing the size of the Base Force, he said, "This deep and no deeper."

The Air Force is also restructuring internally to enhance our combat capability and increase peacetime efficiency. Many of you are already familiar with the organizational changes we are implementing. These are the most significant structural changes since we became a separate service. They affect every level of the Air Force, from the Pentagon to the squadron.

One change in particular gives you a feel for what we are trying to accomplish. Last year at this time, we had three general-officer wing commanders. By the end of this year, 41 wings will have generals in command. Ultimately, as many as 60 wings will have generals in charge. We are moving our senior leadership out of headquarters and into the field. Our vision is that the Air Force will become a much less bureaucratic, much more operational, war-fighting service. By putting rank in the field, we empower people at the point of contact. They will have authority commensurate with the responsibility they always had. So, we will get smaller. But we will also get tougher, more responsive, more capable. You can count on it.

Chapter 11

Why the F-22?

Testimony before a Joint Session of the House Committee on Armed Services; Procurement and Military Nuclear Systems Subcommittee; and the Research and Development Subcommittee, Washington, D.C., 29 April 1992

Chairman Aspin: General McPeak, I have heard people in this town talk—we are going to have peace for the next millennium and all of that. But if that is happening, why the F-22? I would like to give you an opportunity to give that explanation. Why the F-22?

General McPeak: I get the same question, Mr Chairman, from time to time. What strikes me about that question is that I feel there is a fundamental misunderstanding of the air superiority mission, quite frankly. There is widespread belief that we must have air superiority. I mean, it has kind of entered the folk wisdom that we must have that. But most people do not really understand what air superiority is all about. Their picture of air superiority, when they try to call something to mind, is like two cowboys standing in a saloon who have a fight, and the question is who draws faster and shoots straighter.

But air superiority is—to a very limited degree—a question about winning that bar fight. In World War II, the RAF won the Battle of Britain, but the fight was fought over Britain, and England got beat up pretty good in the process.

Our idea of air superiority is not that we win the fight like the RAF won the Battle of Britain, but that we win the fight in the other guy's airspace. In Korea, we fought the air superiority battle over the Yalu River. In Vietnam, we fought it over Hanoi. In Desert Storm, we fought it over Baghdad. So no American soldier presently serving in the Army has ever been attacked by an enemy airplane. It has been 40 years since we have had anybody come under enemy air attack. If you want to know what it is like to be attacked by an airplane, you have

got to go talk to an Iraqi or a North Vietnamese or somebody else.

So the issue is *where* are you going to do the fighting. It is about riding in from out of town and going up that street with all those hotel windows on each side and not knowing what is behind them. Then when you get to the saloon, you have got to win the fight.

Now, the F-15 will be able to win any fight that I can think of out to the turn of the century. I do not see a better fighterout there. It will be a pretty even fight with some of these guys, but we can win that fight. The F-15 cannot get to the fight after the turn of the century—15–20 years from now. The F-22 gets to the fight. It is low observable. That means ground defenses cannot see it coming. Even if they do, its supersonic speed means it is through those SAM engagement envelopes very quickly. It cannot be shot. So it gets downtown, and when it gets there, it wins the fight.

When we think about air superiority, we have to decide where it is we want to have this fight. If we want to defend United States airspace, the F-15 will work fine. But I do not know where we are going to have to go in the year 2010 and have this fight. What I do know is I want to fight over *his* guys—not over *my* guys—and that is what air superiority means to us, and that is really why we need the F-22.

Chapter 12

A Vision for the Future

Air Force Magazine, *May 1992**

The US Air Force is a quality outfit—a class act—and it has been for a long time. Amid all the changes we are making today, that's one thing we won't change. Our organization will continue to define what excellence means in an air force.

Because we have stepped up to the need for change, we must ensure that the adjustments we make are carefully crafted to move us toward our most desired goals. A vision can be helpful here. By "vision," I mean a statement about our most hoped-for future state. A vision declares what we want the organization to become. It provides energy and direction for change.

Air Force senior leadership has thought long and hard about the problem of providing clear direction in a time of rapid change. Last fall, Secretary Rice and the four-star generals developed a vision statement: *Air Force people building the world's most respected air and space force—global power and reach for America*.

Our vision begins by saying who we are: Air Force people. This reminds us that people come first—that our vision cannot be realized unless good people share it, identify with it, and commit to it.

These people are building, not starting from scratch, because the many talented people who went before us already created the world's best air force. The notion of "building" connects us to the early airmen whose vision of airpower revolutionized warfare. It ties us to those who worked to make us a separate service. It joins us with all the airmen who, since 1947, have made deterrence and air superiority givens for the nation.

What we want to be—our most desired future state—is the world's most respected air and space force. Friends should

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admire us and want to cooperate with us. We seek no enemies, but any country contemplating a test of arms with America should fear us. Nobody should want to fight us.

Our product is global power and reach. The raw materials are the inherent qualities of airpower and space power: responsiveness, speed, range, and flexibility.

Our customer is America. We exist for a single purpose: to protect the people and values of our nation. Our conviction is that a strong Air Force is fundamental to America's well-being.

This is a simple but compelling vision. It can guide us regardless of budget dynamics or the international situation. It is a vision for the whole Air Force, one that all our constituent commands can use as a framework to construct their own objectives and goals. When shared by all of us, our best possible future—our vision—will become a fact for us and for those who come after us.

Chapter 13

Air Combat Command Stand-Up

Speech, Official Activation,
Langley AFB, Virginia, 1 June 1992

Good morning. It's wonderful to be back here at Langley, at this beautiful spot. This is a great day for the Air Force We are making history today. We are present at the creation of a new and better Air Force.

Going on 50 years ago, at the outset of the cold war, we organized and equipped an air force to fight the Soviets. We called this a "strategic" air force. It was and is a fine air force, and because we were so well prepared to use it, we never had to. Looking back, we can measure its success in terms of awful things that could have happened, but didn't.

Meanwhile, we were involved in some actual fighting, and our experience—particularly in Korea and Vietnam—made it obvious that we also needed an air force to fight limited wars So, over the years, we built up a separate, very good air force, specifically to fight limited wars. We called this a "tactical" air force.

But, our intuition tells us—and our experience confirms this—that most of the capabilities needed to fight either general or limited war are complementary. In fact, we have often found that the principal problem for the air commander is to blend these capabilities, to integrate them at the point of contact. We have never fought a pure bomber war or a pure fighter war. Every minute of actual combat experience teaches us that we have to meld the complementary capabilities of our air systems into a cohesive fighting force. We have worked hard on doing this and can rightly point to Desert Storm as showing that, given time and the freedom to organize properly, we can integrate air capabilities to good effect. Yet, until today, we have kept these two air forces apart, have kept separate "strategic" and "tactical" organizations.

Make no mistake, we must have as a first priority an air force capable of defending against a modern, industrialized, major power in a general war. But, our division of air capabilities into strategic and tactical categories has served, in recent years, only

to confuse a fundamental truth: much the same kind of air force is needed for both jobs. And, when put to the test of combat, such an air force is likely to be needed at once. In brief, we should organize our air combat forces in peacetime in the configuration we know will be needed for immediate use.

The idea of a single command to handle air combat forces goes all the way back to General Headquarters Air Force, which became operational in 1935. In fact, we had an Air Force Combat Command from 1941 to '43, controlling our stateside training and operational units. So, in some ways, the idea of an Air Combat Command is visionary, but in other ways, you could call it reactionary—back to the future—a return to a better way of organizing ourselves. It's taken a while, but today we are reintegrating airpower into a cohesive whole.

I want to thank Secretary Rice for his leadership in the reorganization. History will say that his turn at bat was a high point for our service. I also want to thank all the people who have worked hard in the last year to make the TAGACC transition work. I especially want to congratulate Gen Mike Loh, TAC's final flight lead and ACC's first commander. As he knows as well as anyone, there is work still to be done. But we are instituting basic change here, not just tinkering at the margins.

We do not lightly retire the colors of Tactical Air Command. TAC was one of the original Air Force major commands. It has a rich, wonderful heritage, and just to say the names of its former commanders—Quesada, Lee, Barcus, Cannon, Weyland, Everest, Sweeney, Disosway, Momyer, Dixon, Creech, O'Malley, Russ—is to read a roll call of the great. But Air Combat Command will add new luster to this heritage, and it will grow even richer.

What's more important, Air Combat Command gives us the right structure in peacetime for integrated employment in combat. Air Combat Command prepares us better to protect American lives and values in an uncertain world. It makes us a more operational, more capable Air Force. The idea has been with us since we first began to realize airpower's potential. Today, it is an idea whose time has come.

Chapter 14

Air Mobility Command Stand-Up

Speech, Official Activation,
Scott AFB, Illinois, 1 June 1992

Good afternoon. It's a great pleasure to be here at Scott to stand up the Air Force's newest organization—Air Mobility Command. It's only slightly newer than Air Combat Command, which we just activated this morning at Langley AFB, Virginia. Together, AMC and ACC move this nation into a new era—that of airpower integration.

We all understand that airlift has had a revolutionary impact on us and our world. Within less than a century of man's first powered flight, we now look to the skies for rapid, economical movement of people and goods. This is an almost incredible development, when you think about it. But, we have become an air-faring nation to such a degree that most of us don't think much about it.

From time to time, the importance of airlift has been illustrated in a way that catches the eye. Flying supplies over the Hump from India to China in World War II was an example; the Berlin airlift another. But, over the years, Military Airlift Command has performed so well, so often, has hit so many home runs, that the remarkable has come to seem quite commonplace.

Make no mistake, military professionals everywhere understand how important airlift has been—how central it is in providing the American capacity to influence events around the globe.

By activating this new command today, we show that our thinking about airlift has moved to a higher level. We now understand that the real requirement is for mobility—that is, deployability and sustainability in combination—and that such mobility will often require a contribution from both the airlift and the air refueling communities.

The importance of this kind of mobility was highlighted by Desert Storm. MAC moved the ton-mile equivalent of the Berlin airlift every six weeks, eventually transporting something

like the population of Oklahoma City halfway around the world—moved it, and then helped sustain it. Meanwhile, we had at times nearly 100 SAC tankers forming an air bridge across the North Atlantic, providing deployability for both airlifters and shooters. Let me put it this way: no tankers, no airlift, no Desert Storm.

This kind of mobility is sure to be even more important to the nation in the future. For most of the Air Force's existence as a separate service, our strategic position in the world was fairly static, with forces stationed forward at places where our interests were most clearly engaged. Now, many of these overseas forces are coming home. While I hope we will maintain a serious forward presence, it is obvious that to a much greater degree, our security will rely on US-based forces configured for expeditionary use. Deploying and sustaining these forces will increase the demand for mobility. AMC, the combination of airlift and tankers, is the Air Force's answer to this requirement for enhanced mobility.

Today, we close a glorious chapter in Air Force history. The MAC shield is covered with honors. To get some feeling for this, go back to the early days of the Military Air Transport Service, and read the names of the airlift commanders: Kuter, Smith, Tunner, Kelly, Estes, Catton, Carlton, Moore, Huyser, Allen, Ryan, Cassidy. Like this wonderful command, these are men who carried the nation's precious cargo.

I would like to thank Gen H. T. Johnson, MAC's final crew chief and AMC's first commander. He and MAC have turned in a magnificent performance, and his staff has done fine work in setting up the new command. I also want to thank Secretary Rice for his leadership in the reorganization of the Air Force. I believe his tenure as secretary will be remembered as one of the most constructive in Air Force history.

In the end, this is a great day because Air Mobility Command will make us more responsive to our security needs in an uncertain world. It will make us a more agile, more cohesive Air Force. It provides the newest, best instrument giving global reach for America.

Chapter 15

US Strategic Command Stand-Up

Speech, Official Activation,
Offutt AFB, Nebraska, 1 June 1992

Good afternoon. General Powell, we're honored to have you officiate today. This is a big day for the Air Force—a day we retire the colors of our most famous command and take a big step toward integrated airpower. I know that for those who have served Strategic Air Command so well for so long, this is a difficult moment. But SAC's warriors did not sign on for the purpose of being in SAC—they signed up to serve the nation. For the nation, deterrence is not an Air Force mission, requiring an Air Force command. For the nation, deterrence is a joint mission, requiring a joint command. So for all of us, this is a day of progress and promise.

SAC's role in keeping the peace over the last half century was central to the nation's security. After World War II, for the first time in history, nations could utterly devastate each other on short notice. We depended on SAC to protect our freedom and our very lives. And, because global nuclear war would be a catastrophe for the whole world, it wasn't just Americans, but all the planet's inhabitants who relied on SAC to do its job with care and competence.

Those were the hallmarks of SAC. Alert duty was—and is—lonely, unglamorous work, but no task was more fundamental to our security. Since 1946, SAC has had to get it right every hour of every day.

SAC was in many ways the creation of Gen Curtis LeMay, and it came to embody his spirit. Some may wonder what LeMay would say if he were here today. But we don't need to speculate. LeMay's own words tell the story.

In 1957 General LeMay proposed combining SAC and TAC into a single Air Offensive Command. He put it like this: "Whether we choose to recognize it or not, SAC and TAC are bedfellows. . . . They must deter together through their ability to defeat [enemy] air power together." Having a single com-

mand would allow the Air Force, in LeMay's words, to achieve "unified control of all air offensive forces . . . under a single air commander." Today, 35 years later, we have at last realized LeMay's vision with the activation of Air Combat Command. The list of SAC's commanders over the years reads like a who's who of great airmen: Kenney, LeMay, Power, Ryan, Nazzaro, Holloway, Meyer, Dougherty, Ellis, Davis, Welch, Chain. Like SAC, these were—and are—men to rely on.

I want especially to thank the present SAC commander, Gen Lee Butler, for his leadership in preparing for this day. His support of needed change has been uncompromising and courageous. He was the obvious selection to be Strategic Command's first commander. General Powell was a driving force behind STRATCOM. His intelligence and his willingness to look at tough issues with a fresh eye gave us a command structure better suited to the nation's security needs. Secretary Cheney and Adm Frank Kelso also deserve great credit for recognizing the value of the STRATCOM idea and making it a reality. The SAC staff and the Joint STRATCOM Transitional Planning Staff worked wonders in getting the new command organized.

Most of all, I want to thank the men and women of SAC for their professionalism and their performance over the long years of the cold war. The heritage you built goes with you into Air Combat Command and Air Mobility Command and will be with the Air Force forever. Thank you.

Chapter 16

Does the Air Force Have a Mission?

Speech, Airpower Dining-In,
Maxwell AFB, Alabama, 19 June 1992

Good evening. It's great to be here tonight to talk with you about our Air Force. Events—big events—have occurred over the last several years—momentous events that have made it difficult for us to focus on basic, fundamental concerns about our institution, the United States Air Force. We have been preoccupied with the collapse of the Soviet Union, *the disintegration of the Warsaw Pact,* and the associated aftershocks, including the rapid reorganization and drawdown of our own forces. This is all eye-watering, major-league stuff, but it ought not prevent us from taking careful stock, from time to time, of what we are and what we do. So, let me try some of that tonight: to step away from the press of the daily flying schedule, to ask—and try and answer—some deeper, more fundamental questions about our service.

It seems to me our first problem ought to be to figure out what the Air Force is supposed to be doing—what our mission is. We all have a good understanding of what we do individually and at least some feeling for what the Air Force does as an institution. And, for 45 years our performance has been remarkably good, showing that our leadership understood both the times they lived in and the role the contemporary Air Force needed to play. Nevertheless, in my view, our *mission* is not now—nor has it ever been—set down authoritatively anywhere.

I've spent some time thinking about this problem in the context of the reorganization of the Air Force and, more generally, of our overall Quality Air Force effort. After all, how can you reorganize, restructure, how can you build a Quality Air Force if you cannot say, in clear, simple language, what the purposes of our organization are—in brief, what our mission *is?*

If asked, many knowledgeable people would say that our mission is to organize, train, and equip forces for prompt and sustained air combat. As we all know, this is a summary of

functions assigned to the Department of the Air Force by the National Security Act of 1947 and subsequent Department of Defense instructions.

Over the years since our emergence as a separate service, we have paid a lot of attention to these "functions." We are a young service whose first priority had to be the urgent task of building combat capability. Generations of Air Force leaders at all levels—military and civilian—took care that we did this. Desert Storm was a midterm examination passed with flying colors.

But, we ought to ask whether these "functions"—organize, train, equip—are a proper mission. "Well," you might say, "Stop quibbling. Whatever works, works. Function, mission, who cares? One is close enough to the other." But I reckon there is an important distinction between the one and the other. The "function" of suspenders is to hold up trousers. The "mission" of suspenders is to prevent embarrassment. (At least, that's the mission in my case!) Clearly, suspenders must perform their "function" in order to accomplish their "mission." In the same sense, organizing, training, and equipping aerial combat forces are functions we must do, and that we understand and do well. But, we do not exist as an institution for the purpose of organizing, training, and equipping ourselves. We have a much broader, more compelling, even inspiring purpose.

I use the word *inspiring* deliberately. Think about the fact that one permutation of *mission* is *missionary*. Missionaries go forth to accomplish the church's institutional mission: to spread the faith. Missionaries may well be trained to perform a number of occupational functions: administration, education, medicine. No doubt, being able to perform these functions is very useful in converting the target population, but it is the mission itself that provides the inspiration—the "calling" of the missionary. We all grasp the notion that this inspiration, this calling, is such a central feature of a missionary's life that if we were to ask what he was doing, the missionary would be unlikely to describe his functions—teacher, doctor, whatever. He would much more likely describe the mission of the church or his own determination to bring unbelievers into the faith.

Let me wonder aloud what kind of answer we would get if we asked a typical airman what he does. Odds are we'd get an

answer related to career field—crew chief, admin specialist, bomber pilot. We might get lucky and get an answer about today's activity—deliver the cargo, launch the satellite, attack the target. But we'd not likely get an answer that goes back to a fundamental Air Force mission, to an underlying institutional purpose.

This observation is not intended as a criticism. After all, as I say, strictly speaking, we have never been given a clear statement of the mission. So it is entirely understandable that at Air Force level, we talk about organizing, training, and equipping—critical functions but not a mission. At wing level, we talk about air superiority, close air support, interdiction, long-range attack, airlift—critical roles or tasks but none of them so broad, so all-encompassing as to constitute a mission for the institution and all its people.

This is a very important *omission*—no pun intended. Air Force people are intensely loyal. They want to believe in and identify with something as powerful and enduring as man's age-old quest for flight. They might not admit it, but I suspect that almost everyone who puts on a blue uniform enjoys making public, making official, his or her intimate connection with the sky. And, I believe we all want to be loyal to the Air Force as an institution. But, absent a clear understanding of overarching purpose, some people give their loyalty to the next best thing—their particular jobs or their equipment. We have all known officers whose primary loyalty was to flying or even to a particular airframe. But it goes well beyond the aircrew force. Many of us seem to think of ourselves first as maintainers or communicators or sky cops or what have you. We all recognize this problem as occupationalism. It's what can happen when an institution does not convey a sense of mission to its people.

By the way, this problem spills over into our external relations as well. If we are in important respects unsure of our purposes, then it ought not surprise us that we have difficulty articulating a case to the public or to Congress. So, without a clear purpose, without a mission, we suffer inside the Air Force and outside.

One other observation. It can be argued with much justification that the team of Rice and McPeak has further confused the matter. Our tenure has been characterized by change—I hope

constructive change. (Others might call it turmoil, even confusion!) Two years ago, Secretary Rice produced an excellent document called *Global Reach—Global Power. At one level, Global Reach—Global Power is a statement of first principles. It asserts that we are an air- and space-faring nation and describes how this fact is central to achieving our national objectives.*

But it is also more than this. *Global Reach—Global Power* describes how airpower contributes to national security, highlighting the attributes—speed, range, flexibility, precision, lethality—that, in combination, set us apart from other purveyors of military force. It is also the framework for corporate strategic planning. It guides us in resource allocation, providing the conceptual foundation on which we build programs that produce the Air Force of tomorrow.

Then, a few months ago, the senior leadership of the Air Force collectively laid out a "vision" for the Air Force. I'm certain you have come across it by now: *Air Force people building the world's most respected air and space force—global power and reach for America.* This vision statement does a lot of things. It says who we are—Air Force people. It says we are "building," not starting from scratch. We stand on the shoulders of great airmen who turned over to us a marvelous organization. It identifies our customer—America. It says what our product is—power and reach. Most important, it tells everybody what we see as the best possible outcome for us as an organization—to be the "world's most respected" air and space force. Our friends should admire us, seek to cooperate with us. Our enemies should fear us. Nobody should be eager to fight us. Like a mission statement, this "vision" was—and is—meant to unify and inspire.

So, *Global Reach—Global Power* and the Air Force "vision": these are two quite remarkable documents—one only 15 pages long, the other a mere sentence (a sentence fragment, actually). Both are worth rereading from time to time. As I say, they may have caused confusion because some will have concluded that one or the other of them is a mission statement for the Air Force. But that is not the case. They were not meant to be mission statements, and they do not, in fact, describe in a clear, simple, straightforward way, what it is that we are sup-

posed to be doing. Good as they are, they cannot stand up to that test.

So, tonight I offer a mission statement for the Air Force. I don't mind telling you I'm a little nervous about doing so. After all, something as important as the mission statement for the United States Air Force should be handed down on stone tablets, accompanied by a flourish of trumpets. But it wasn't, so it remains for us to hammer it out for ourselves. And, as chief, I reckon this is my job—whether I like it or not. If I get it wrong, a roomful of ghosts from Mitchell to LeMay will make the rest of my days miserable, so no wonder I'm nervous! Anyway, here goes.

Our mission—the job of the forces we bring to the fight—is to defend the United States through control and exploitation of air and space. There, it's said: To defend the United States through control and exploitation of air and space. Thirteen words. Not very startling. Maybe not very original.

The central idea is to define our mission in terms of the medium in which we operate. We are airmen. We are concerned with operations in air and space. What we do may have a crucial—even decisive—impact on events at the earth's surface. But the mission is defined primarily by the fact that we operate in the air and in space, just as the missions of the Army and Navy are defined by the media in which they operate. Air and space control and exploitation is what we hope to achieve, to be able to do.

Control is easy enough to understand. If we control air and space ourselves, we can move through it at will, and we can decide who else shall move through it. Whoever does this, whoever controls air and space, accrues enormous military advantages that I need not enumerate to this audience. It's worth noting here only because it has come to be taken for granted that we will do this, as though air superiority were an American birthright. It's been nearly 40 years, now, since a US soldier was killed by enemy aircraft. That's almost half the entire history of military aviation. No one now serving in our ground forces has ever come under attack by enemy aircraft—a remarkable fact.

We should also note that our ability to prevent hostile use of space is virtually nonexistent. At least partly as a consequence, American lives were lost recently to a missile attack.

I'm thinking here of the Scud that hit the enlisted quarters at Dhahran. This incident offers conclusive evidence, if any were needed, that we must be able to deter hostile use of space, to extend our control beyond the atmosphere. We now exploit space but do not possess the means to establish space superiority in war. This is a critical mission deficiency.

To "exploit" air and space means to understand this arena and to possess efficient and effective means to operate there: to have the capability to do whatever it is we need to do there and to make air and space work for us—to manage them in such a way as to reap the military advantages manifest therein. Liberated from physical barriers at the planet's surface, we enjoy the freedom of movement that airmen feel in their bones and that makes us *the* maneuver force par excellence.

We have often translated our ability to exploit air and space into a direct payoff in combat—fighting air battles, conducting air campaigns, providing essential support to ground or naval forces. But often, "exploitation" has meant performing noncombat tasks to achieve national objectives—delivering food and relief supplies, establishing contact with and training other air forces. Other "uses" of air and space are more subtle, as, for instance, when we protect our nation through deterrence, by holding the potential to act through the medium. For this kind of "exploitation," we can measure success only in terms of awful things that could have happened but didn't.

One is tempted to think about our operations in air and space as aimed at controlling and exploiting "the third dimension." I avoid this formulation because the speed at which we react very nearly makes the case that we are also liberated from the constraints of the fourth dimension—that of time.

Time is a dreadfully scarce resource. This fact enormously increases the value of air and space forces. We will often, for awhile, be the relevant military option because only we can get to the critical point quickly. We saw an embryonic example of this in the opening days of the Korean War. As you will recall, North Korea invaded the South on the 25th of June, 1950. Fifth Air Force was in action almost immediately, and we scored our first aerial kills two days into the conflict. By the third of July, naval carrier air had been reinforced and began to operate over the peninsula. Finally, the 24th Infantry Divi-

sion was airlifted in, beginning 1 July and was in contact by the fifth. The point is, we were there alone for eight days. In other words, at the outset of the Korean War, our forces operated for a while in an exclusive domain in time.

We can expect this to be the case for a wide range of situations the nation is likely to face henceforth. We cannot know where the next trouble spot will be, but we do know that every interesting location on earth is visited several times a day by our large constellation of satellites. Imagine flying over every part of the planet several times a day! And, we know that no place on earth is more than 23 flying hours from Whiteman AFB, Missouri. Worst case, B-2s from Whiteman can be overhead, anywhere on the globe, in less than one day. This seems to me to be of particular importance as we move away from the system of forward bases and toward more emphasis on US-based forces configured for expeditionary action. In such circumstances, only we can guarantee that we will be at any scene quickly. In that sense, we operate in both the third and the fourth dimensions. This is a priceless capability. "Go, sir," says Bonaparte, "Gallop. Ask me for anything you like, except time."

So, control and exploitation cover the whole range of things we want to do in air and space. It will have occurred to you that we are not the only people in this business. We are not a monopoly supplier of services that control and exploit air and space. To varying degrees, the air forces of other nations are potential or actual competitors. Another example: civilian institutions. There is a sense in which the FAA controls and airlines exploit air. NASA exploits space. And, of course, the other services have come to value control and use of air and space and are understandably reluctant to surrender the positions each has established in this regard.

Should the fact that we don't have a monopoly on the mission bother us? I don't think so. Many of the fielded capabilities are, or should be, complementary, and—in the employment phase—each should assist the others with little duplication of effort. We may need to work a little harder to enhance complementarity, to ensure we do avoid duplication of effort. Anyway, as a practical matter, we cannot expect to achieve a total monopoly. Moreover, as with industry, competition is a good thing. We should welcome it. Over time, monopolies get fat.

Competition keeps us lean and fit. Thus, much of the so-called mission overlap is healthy and ought not to bother us.

Before I say more about the competition, I wish to make clear my conviction that a dominant concern for us ought to be our wholehearted participation as part of the combined-arms team. For example, elsewhere I have said that close air support is the work nearest my heart, the job I most want to do when American lives are at stake. There are good days and great days in battle. For me, a great day is one that features a 100 percent allocation to close air support. A commitment of this kind can be contemplated only in two situations: (1) it's an emergency, and we're losing badly on the ground, in which case we want no alternative but to jump in the fight; or (2) our other air tasks are so well in hand that we can afford to join the fun. I realize, as you all do, that our theater combat doctrine must be built around flexible application of airpower to prosecute the CINC's priority objectives. That will often take us far away from our own troops. But, for me, it is a central truth that the Air Force will often make its most valued contribution by helping our brothers on the ground or at sea achieve their operational objectives. This is a commitment we can be proud to share with Army helicopter or Navy P-3 or Marine Harrier aircrews. In this sense, we share both an aspect of the mission and an attitude.

On the other hand, to quote *Global Reach—Global Power*, "Air, naval and land forces are fundamentally and necessarily different." Make no mistake. Our approach to the mission genuinely separates us from our colleagues in the other services. For them, air operations are seen as an extension of surface activity, needed to make possible safer, more effective maneuvers on land or at sea. We, on the other hand, seek to control and exploit air and space—not to facilitate operations somewhere else but to achieve national objectives in and through this dimension. Thus, the way we perceive the mission is different from that of the other services. In this sense, we are—in fact—unique.

This uniqueness—our appreciation for the importance in its own right of the air and space dimension—is what impels us to be a comprehensive air force. We are the only service—not just in the United States but in the world—that even attempts to provide a full range of air and space capabilities, from heli-

copters to satellites and across the entire spectrum of equipment, roles, and tasks in between. Accordingly, we are the air force of last resort for the other services and for our allies, as well. When somebody needs real airlift, our mobility forces do the job. When the other services need big-time air refueling they call us. When allied air forces get in trouble, it's often we who are asked to fill some critical shortfall.

So, in this sense, we do have a monopoly. Our attitude about the mission—seen in the round—our approach to control and exploitation of air and space as a primary responsibility, and, springing from this, the requirement for comprehensive air and space capabilities—these things set us apart, make us unique, provide the essential rationale for a separate Air Force.

Our mission is to defend the United States through control and exploitation of air and space. This statement describes our purposes today and what our purposes will be, someday. Every day our mission requires a comprehensive approach, by turns offensive or defensive, manned or unmanned, global or regional, peaceful or warlike. If it is about the control or use of air and space, then we will be there, today and tomorrow.

This is an important time to be in the Air Force. It is a time of change and challenge. The old order has disintegrated. We have entered a whole new world of uncertainty and instability.

The secretary and I are working hard to build a more combat-oriented Air Force to face this challenge. The Air Force is undergoing an almost physical transformation—a metamorphosis, a shedding of skin—as we go to the next stage of development. Changes of this kind are always painful, but we all can see that it's necessary, and the objective Air Force will be a better one.

Then there are all the unpleasant things that are happening to us. Budget cuts, end-strength reductions, force-structure losses, base closures, program cancellations, and on and on. I didn't say it was a fun time to be in the Air Force, only an important time. Taken together, these two sets of changes—those we are stepping up to voluntarily and those being handed to us—can have corrosive impact, can drain, disorient, and weaken our wonderful Air Force. We must not allow this to happen. Understanding our mission will help by giving us a steady compass bearing to get through this heavy weather and

into the clear. That's why the mission statement is so important. However, by itself, it is not enough.

The time, the place, and the audience for this address were chosen with care. Some 60 years ago, the Air Corps Tactical School moved to Maxwell from Langley. Here, men like Hal George, Ken Walker, and Muir Fairchild laid the theoretical and doctrinal foundations for an independent Air Force. They were missionaries. Their gospel was strategic bombing. Strategic bombing was seen by them—still is by some—as the only convincing justification for a separate Air Force.

In our infancy, we hurried to drive home the point, establishing the Strategic Air Command as the centerpiece of our new organization. Today, this most honored and most famous command is gone—proof that in young adulthood, we have moved beyond the phase when strategic bombing, standing alone, is in any way adequate to describe our purposes. In the aftermath of Desert Storm, we take it for granted that we will be asked to act autonomously, independently of the actions of surface forces. At the same time, we take pride in knowing we will also be asked to act in concert with them. The establishment of Air Combat Command is both a sign of our maturity and a signal that the new gospel is airpower integration.

So now, it seems to me we need first a new focus—a focus on enduring values that can guide us in a changing, more complex, often confusing world. Now, more than ever, we need to understand our mission. But second, we also need a new generation of missionaries. Now, more than ever, we need a rebirth of the traditions associated with the Air Corps Tactical School. Today, we have a mission—to protect the nation through control and exploitation of air and space. You are today's missionaries. Spread the word. Articulate the mission. Discuss it. Argue about it. Use it to help bind us together and guide us during this turbulent time.

When he was chief, John McConnell had a plaque put up on the office door opening into the E-ring. The plaque contained a familiar dictum: "The mission of the Air Force is to fly and fight." That's not bad. Pretty close. Meets my standards for brevity. In the end, I think it falls short. We need a mission that transcends the functions or skills or equipment of any one person or any single career field or any one moment in

time. We need a mission that unifies all our people, that defines what makes us special, that can inspire, that can make sacrifice seem worthwhile. Our mission must be to reach into the air and into space, to control this dimension, to exploit it, to use it to keep Americans alive and free. That is a mission that calls for, that requires, that demands the world's most respected air force.

Chapter 17

Air Force Materiel Command Stand-Up

Speech, Official Activation,
Wright-Patterson AFB, Ohio, 1 July 1992

Good morning. This is a banner day for the Air Force. The decision to bring Logistics Command and Systems Command back together into Materiel Command was an important part of the most significant reorganization of the Air Force *since 1947*.

In nine months, we have gone from 13 major commands to 10. We have removed three large headquarters from our books. We have given ourselves a more streamlined, agile organization. Most important, we have created a more operational, more combat-oriented Air Force.

By restructuring, we seek to better integrate Air Force functions. Air Combat Command integrates combat squadrons, ending the artificial strategic-tactical division of our forces. Air Mobility Command integrates the airlift and tanker units that deploy and sustain our forces, enhancing the mobility we need to defend America's interests around the globe. Intelligence Command integrates the Air Force collection and analysis functions to provide consolidated intelligence support for the combatant commands.

Today, we activate the organization that will integrate system development, acquisition, and support. By law, the Department of the Air Force organizes, trains, and equips forces. We will now have a single organization to handle the vital departmental function of equipping our squadrons and wings. Materiel Command will provide seamless life-cycle management for our equipment.

This reorganization is not born of failure. I think we can fairly claim to have the best systems and the best logistics in the world. We are more capable and readier today than we have ever been in peacetime. Both commands have performed superbly over the years. Systems Command produced the aircraft, missiles, and other systems that made us the most

technologically advanced air force in the world. Think of the longevity of the B-52, the margin of air superiority provided by the F-15, the deterrence provided by our ICBMs, and the deployability afforded by the C-5 and C-141. Systems Command took those ideas from the drawing board and put them on the ramp, giving us the best systems available to anybody.

Logistics Command took the ball when Systems Command handed it off. AFLC sustained the operations of a diverse, global Air Force. In Vietnam, in Desert Storm, or in the daily routine of ensuring peacetime readiness, Logistics Command met the challenges of supporting and maintaining the world's best, most comprehensive air force.

So, Systems Command and Logistics Command served us well. They were darn good. But, we move today to do better.

Frankly, when we began the process of combining the commands, we were not sure we could do it. There were a lot of pitfalls, even some potential showstoppers. We decided to go ahead because we knew there would never be a better time. We would never have better leadership with which to pull off such a major change. Our most recently retired four-star general, Charlie McDonald, kept logistics working beautifully while the transition took place and prepared well for the join-up with Systems Command. Ron Yates did the same at the other end. No obstacle was too large, no problem insurmountable for the two command staffs. I want to thank these superb commanders and their people for doing the job and making it look easy. Ron, Materiel Command is ready for you.

I also want to thank Secretary Rice. He and I share the excitement of helping a new and better Air Force come into being.

To the men and women—civilian and military—of Air Force Materiel Command, congratulations. You are very important people. Help us take advantage of this new opportunity. Keep us the best equipped and supported air force in the world. Thank you.

Chapter 18

Two Kinds of Change

Video Briefing, July 1992

Narrator: The United States Air Force is preparing for the challenges of the twenty-first century with changes unprecedented in the history of military aviation. New roles and missions, massive restructure, and shrinking budgets reflect the rapidly changing defense environment. Here to discuss two kinds of change is the chief of staff of the Air Force, Gen Merrill A. McPeak.

General McPeak: Hi. It's no secret that today's Air Force is changing fast. This is bound to mean a lot of turbulence, a lot of anxiety for all of us.

I see us undergoing two kinds of change (fig. 84). The first kind relates to cuts in the defense budget. This change is affecting the size of the Air Force. Frankly, we don't exercise a lot of control over this category of change. It's really driven by world events and the public perception of the threat. In the aftermath of Desert Storm and the breakup of the Soviet Union, Americans feel less threatened. That's good news. But it's bound to mean lower defense budgets and reduced size for the Air Force, and we have to accept that.

The second category of change is that associated with our effort to restructure and reorganize the Air Force—in other words, change we initiate ourselves, change we want. This is change that affects the *shape and style* of our organization, and that's something we do control.

It's important to understand and keep separate these two kinds of change. However, both have significant impact on Air Force people.

For instance, let's talk first about the size issue (fig. 85).

The drawdown we're experiencing is nothing new, although we sometimes think it is. We hit our peak in purchasing power—total budget dollars—seven years ago, in 1985. The number of people wearing a blue uniform topped out a year later. And our force structure, as measured in fighter-wing

- CHANGE DUE TO BUDGET REDUCTION
  - AFFECTS THE SIZE OF OUR ORGANIZATION
  - RESULT OF OUTSIDE INFLUENCES
  - WE EXERCISE LITTLE CONTROL
- CHANGE DUE TO RESTRUCTURE INITIATIVES
  - AFFECTS THE SHAPE OF OUR ORGANIZATION
  - RESULT OF OUR OWN ACTION
  - WE EXERCISE SUBSTANTIAL CONTROL

Figure 84. Two Kinds of Change

equivalents, hit its recent high point in 1988, at 27.2 active wings. Since that time, we've been on a glide slope that will drop our end strength nearly 200,000 people—or 32 percent—by 1995. Purchasing power will be down 43 percent from its 1985 high, and active fighter force structure will have decreased 44 percent.

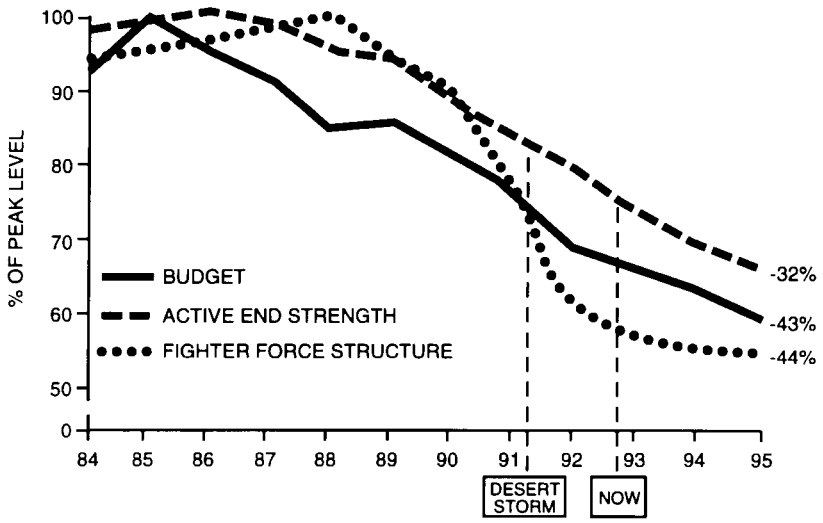

Figure 85. Size Issue: Resources

As you know, we are also closing many of our main operating bases and have canceled several large modernization programs. As I said, these are not new trends. We were well down this slope when we fought Desert Storm. But we are feeling the resource pinch more and more.

All these things have been hard to do. The drawdown so far has left us with the smallest Air Force we have had since 1950—before the Korean War—and the deepest cuts we have ever seen in the era of the all-volunteer force. Naturally, we have tried to minimize personal hardship, but the men and women of the Air Force have had to face some tough times.

In the past year, we have denied reenlistment to over 1,000 trained, qualified airmen who wanted to stay in the Air Force, whom we wanted to keep, whom we would have kept in previous times. We have reduced high year of tenure possible for senior NCOs. Master sergeants must now retire at 24 years—techs at 20.

We have told nearly 1,000 senior officers—600-plus colonels and 370 lieutenant colonels—to retire earlier than they planned to and before they finished a full career. These were experienced, highly qualified officers. The list includes former wing commanders, Silver Star winners, an ex-POW.

The Air Force will miss these officers. Voluntary incentives like the VSI and SSB are helping. Nearly 25,000 NCOs and 5,000 officers have agreed to leave, but many who are taking VSI or SSB really want to stay in the Air Force. They're going only because they understand that if they stay, they may have to leave later under less favorable circumstances.

So, we're forcing a lot of good people out of the service. Unfortunately, I can't assure you that we have seen the end of this process. In fiscal '92–'93, we must separate nine wing equivalents of enlisted personnel and 16 wing equivalents of officers. To meet this goal, we will require another Selective Early Retirement Board (SERB), this one expanded to include retirement-eligible officers with previous enlisted service and, for the first time, senior NCOs. In addition, we will require an officer reduction in force (RIF)—our first in nearly 20 years.

Air Force civilians have also been hit hard by the drawdowns. We've had hiring freezes, early retirements, and some RIFs. These kinds of actions are likely to be more frequent and will cut deeper in the future.

This drawdown hurts and hurts bad. The Air Force has always been a family, and now we are hurting the family. I don't like it. I want you to know that the secretary and I are doing everything we can to find some smooth air to fly in. But, let's face it, there's not a whole lot we can do about it. And, quite frankly, I don't know where the bottom is. There's likely to be some more pain in store for us.

But, let's put it in perspective. We are not getting smaller because we failed—quite the contrary. We won the cold war. We can all take pride in that.

And, I *can* say that when we finally do get to the bottom, we are going to be a great outfit. That's because we do control the shape and the style of tomorrow's Air Force.

A year and a half ago, the secretary and I kicked off a sweeping set of restructure initiatives—a top-to-bottom reorganization of the Air Force. It's easy to sort of lose track and lump these initiatives together with everything that is happening *to* us as a result of budget reductions. But, make no mistake, the restructure is something we would have done even if we were getting richer rather than poorer, because it just makes good sense.

Many of you understand the concepts around which we built the restructure effort, but a quick review might be worthwhile (fig. 86).

- STREAMLINE, DE-LAYER, FLATTEN
- STRENGTHEN CHAIN OF COMMAND, INCREASE ACCOUNTABILITY
- DECENTRALIZE, POWER DOWN
- CONSOLIDATE WHERE PRACTICAL

Figure 86. Shape Issue: Restructure Themes

We are streamlining the Air Force, eliminating unnecessary layers while strengthening the chain of command. When we started the restructure, we had three general officers in wing commander positions. By the end of this year, 44 wings will have generals in charge, and ultimately I hope to get to 60.

We're not doing this by gaining generals—quite the contrary. We're moving rank out of headquarters, and we're pushing

power down in the organization. People at base level will have the authority to improve how they do business. We are also consolidating operations where this makes sense so that we save the good jobs and get rid of the not-so-good ones.

All these initiatives were geared to enhance our combat capability with concurrent increases in peacetime efficiency.

As a consequence of our restructure initiatives, we will be reducing the total number of active wings from the 205 we had in 1989 to 100 by 1995 (fig. 87). Here, I'm not talking about force structure in fighter-wing equivalents. I'm talking about actual things called wings. Just three years ago, we had 205 of them, all complete with wing commander, vice-commander, staff cars, secretaries—in other words, lots of overhead. Of course, we are losing some actual force structure—about 36 wings of aircraft, equipment, flight-line activity—but most of the wing reductions (almost two-thirds of the total) are a result of restructure actions: things like merging two wings located on the same base into one or redesignating some small wings as groups. These actions do not cost us force structure. They simply reduce overhead and organize us more efficiently. In

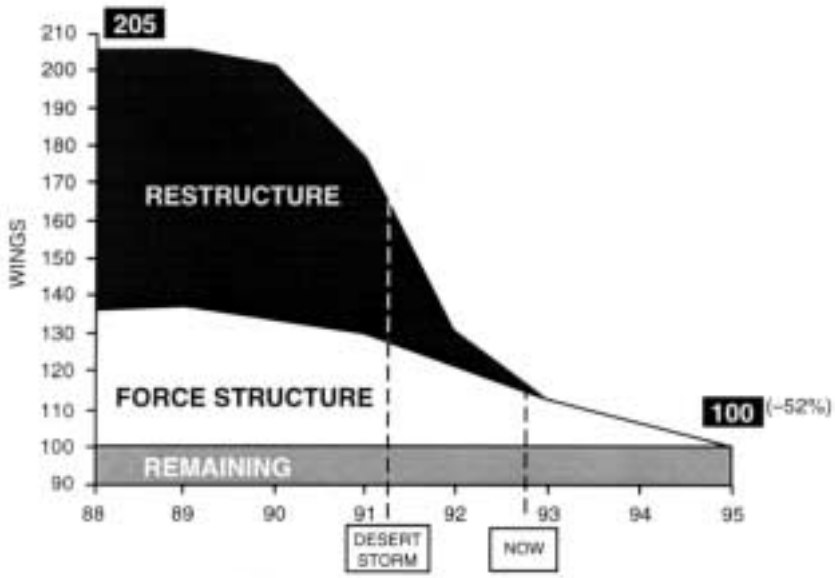

Figure 87. Air Force Active Wings

other words, we may not be able to control the size of the Air Force, but we are getting into great shape. However big we are, we will be a rock-solid, trim, fighting-fit organization in the years ahead.

So much for size and shape. Well, what about our style? Our style is Quality Air Force. This is not just another catchy title or management fad but a deep commitment to improving quality at all levels. It is also not an exercise in random motion.

There are some fundamental organizing concepts for the Quality Air Force (fig. 88). For us, these organizing concepts are our mission, credo, vision, and strategic plan.

ORGANIZING CONCEPTS

MISSION	CREDO	VISION	STRATEGIC PLAN
WHAT BUSINESS ARE WE IN?	WHAT'S IMPORTANT AROUND HERE?	WHAT DO WE REALLY WANT TO BE?	WHAT IS THE FRAME OF REFERENCE FOR DECISION MAKING?
BUILD A HOUSE	"HOUSE SHOULD LAST A LIFETIME"	ARCHITECT'S RENDERING	BLUEPRINTS

Figure 88. Style Issue: Quality Air Force

The first concept is our mission. The mission is what we are trying to get done, the business we are in. For instance, if we were building contractors, our mission might be to build a house.

Our mission—the job we try to do—is to defend the United States through control and exploitation of air and space. These few words define our role in terms of the medium in which we operate (air and space), in terms of what we must do (control and exploit that medium), and in terms of our ultimate purpose (defense of the people and values of the United States). This is a clear, concise statement of the business we are in—our mission.

A credo is a statement of core values—of broad, sweeping principles. It identifies what's important to the organization.

To continue our analogy with constructing a house, we might say that it should "last a lifetime."

For the Air Force, I believe our credo is reflected in the definition we have given to Quality Air Force. Our credo is, A commitment and operating style that inspires trust, teamwork, and continuous improvement, everywhere in the Air Force. Trust, teamwork, improvement—that's what's important to us—our credo.

A vision is about the way things could be—what we see as our best possible future state as an institution. It could be an architect's rendering—a drawing—of what our house might someday look like.

A few months ago, the senior leadership of the Air Force collectively laid out a vision for the Air Force. I'm certain you have come across it by now: *Air Force people building the world's most respected air and space force—global power and reach for America.* This vision statement does a lot of things. It says who we are—Air Force people. It says we are "building"—not starting from scratch. The foundations were poured by many great airmen who turned over to us this marvelous organization. It identifies our customer—America. It says what our product is—power and reach. Most important, it tells everybody what we see as the best possible outcome for us as an organization—to be the "world's most respected air and space force." Our best possible future state—our vision.

The last Quality Air Force organizing concept is a strategic plan. For our house, this would be the blueprints. With such a plan, we have a frame of reference for decision making. A blueprint for the Air Force was produced by the secretary some two years ago and is titled *Global Reach—Global Power.*

At one level, Global Reach—Global Power is a statement of first principles. It asserts that we are an air- and space-faring nation and describes how this fact is central to achieving our national objectives. But it is also more than this. It describes how airpower contributes to our national security, highlighting the attributes—speed, range, flexibility, precision, lethality—that, in combination, set us apart from other purveyors of military force.

It is also a framework for corporate strategic planning. It guides us in resource allocation, providing the conceptual foundation on which we build programs that produce the Air Force of tomorrow.

Global Reach—Global Power, our strategic plan. So, these four organizing concepts—our mission, credo, vision, and strategic plan—will establish our style: a Quality Air Force.

As part of our overall Quality Air Force effort, we are completing an examination of how we train and educate our people to do their jobs. We have always been a well-trained force, but over the years we have sort of drifted into a complex training system that often seems to work in spite of itself. In 1991 we worked on how we are organized; 1992 is the year of training. We intend to restructure our training organization and raise our training and education standards. Here again, this should generate a more combat-oriented, more efficient Air Force.

So, tomorrow's Air Force will be smaller. I don't know how much smaller—maybe quite a lot. Look around you in five years. There will be fewer aircraft and missiles, fewer large installations, less money to spend. Many of your fellow airmen will be gone. We shouldn't grumble about this, fight the problem, get mad about it; none of this is likely to help. The size of the outfit is not our call. But when you look around, in five or 10 years, you'll see good squadrons and wings, good bases, first-class equipment. And the people who are still with us will be the very best. Because the shape that we're in and the kind of outfit it is—our style—that's our call. We're good now, and we're going to be even better.

We cannot avoid change. The choice is not between change and no change. Air forces that don't change die. That's our challenge: not to struggle against change we can't control but to turn change into advantage—to mold, to form, to shape our Air Force for the future.

So, there's pain coming our way, but there will be gain too. The secretary and I will do all we can to minimize the pain and maximize the gain. Anyway, while we go through this rough patch, remember, we still have a job to do. Stay focused. Keep your Mach up. When we get out the other side, you'll be in a great Air Force.

See you on the flight line.

Chapter 19

Sexual Harassment

Statement before the House Armed Services Committee, Washington, D.C., 30 July 1992

The Air Force simply will not tolerate sexual harassment. Period.

Let me begin by stating that the United States Air Force is committed to zero tolerance of sexual harassment in any form, and we mean it. We are serious about this for the simple reason that our ability to perform the mission depends on contributions from both men and women. Men and women will work together well only if they believe they are accepted as equal members of the team. So, the Air Force means it when it says "zero tolerance"—because we cannot abide any activity that gets between us and the mission.

The Air Force has had a policy on sexual harassment since 1981. It is reviewed and updated regularly—most recently in March, when Secretary Rice and I reaffirmed our commitment in a new policy letter on equal opportunity that included a discussion of sexual harassment for all military members and civilian employees. Every commander is held responsible for articulating and enforcing this policy in word and deed.

Training and education reinforce proper attitudes and behavior.

The secretary and I believe that training is the primary tool for reinforcing proper attitudes and behavior. Every new Air Force recruit receives sexual harassment orientation training as part of basic military training. Our commissioning programs for officer candidates (Officers Training Group, Reserve Officer Training Corps, and the Air Force Academy) also include training on sexual harassment prevention programs and policies.

The Air Force reinforces this initial training at various points throughout a member's career. This includes coverage as part of our comprehensive human relations training programs at all levels of professional military education. Air Force civilians

also are educated as part of our civilian orientation and training programs.

In 1991 the Air Force began a top-to-bottom review of our human-relations education programs, and that process is continuing. We have revamped the equal opportunity training for the Airman Leadership School and the NCO Academy. We expect to complete an upgrade of the curricula at the Senior NCO Academy, Air War College, Air Command and Staff College, and Squadron Officer School later this month.

So, the Air Force has a policy of zero tolerance of sexual harassment and a training program to pursue the policy, and both the policy and the training program continue to be updated and strengthened.

But those measures are, of course, not enough. We are a big organization, drawn from our population at large. That is a source of our strength, but it also means that we are likely to share at least some manifestations of problems found generally in our society. Therefore, we may never achieve our goal of zero cases of sexual harassment. Accordingly, we need to take steps to ensure that we redress failures of our training program and violations of our policy. That means we must provide unrestricted access to relief from any sexual harassment incidents that do occur.

We do this first of all through a complaint system the Air Force established some years ago, staffed by full-time, trained, equal opportunity specialists, at every Air Force installation. These specialists work with complainants and commanders to clarify and resolve grievances. This process has worked well for us over the years. In addition, Air Force personnel also have the option to use alternative complaint channels such as the inspector general system, security police, the chaplaincy, and access to first sergeants and commanders. We emphasize the use of these appeal avenues through our education and training programs.

A monitoring system says the complaint channels are open, working.

We keep track of how we're doing by watching data on the caseload in these various complaint channels. By the way, some of the statistical indicators show a rising trend in sexual harassment complaints. I don't like that much, but it does tell

me that the system is working and that Air Force members may be more comfortable reporting these offenses today than they have been in the past.

Finally, the Air Force takes appropriate action in cases where sexual harassment is proven. You may have read in the press recently about a wing commander in Korea who was relieved of command for sexual harassment. In that case, Air Force investigators found that the commander had made a formal apology, which had been accepted. Still, even one mistake of this kind will not be tolerated.

You may have also heard of the Air Force officer in Utah who has been court-martialed and sentenced to six months in prison for violating strict Air Force standards.

These examples make clear our propensity for stern action against those who violate our sexual harassment policy or allow violations of it to occur.

To sum up, the Air Force has a zero-tolerance policy, training and education programs to reinforce it, and a system for dealing with—and redressing—complaints when failures occur.

On balance, I believe the Air Force has a good program and an excellent track record. But, that does not mean we can be complacent. We will continue to build an Air Force where every airman can serve our nation in an environment free of discrimination, prejudice, and harassment.

Chapter 20

1992: The Year of Training

Speech, Air Force Association National Convention, Washington, D.C., 16 September 1992

Good afternoon. It's great to be back here at the AFA convention. This event is always a highlight for me, for the Air Force, and for friends and supporters of air and space power.

As Secretary Rice pointed out so well yesterday, the last two years have brought significant changes to our world. Many of those changes have had a major impact on the Air Force—smaller budgets, reduced force structure, manpower cuts, to name a few. But, within reasonable limits, smaller doesn't have to mean less capable, as the Air Force is proving.

Those of you who attended last year may recall that I gave a kind of annual report on the state of the Air Force. And quite a year it had been. At that time, we were only a few months out of a great victory in the Gulf in which airpower had played a decisive role; an attempted coup had taken place in Russia a matter of days before; and the Air Force was in the midst of our most significant restructuring efforts since becoming a separate service.

In fact, the restructure was the main topic of discussion that day. In the 12 months since then, we have implemented many of the initiatives that Secretary Rice and the senior uniformed leadership scoped out last year. Today, all of our wings are in the objective configuration, except one, and that last wing will convert to the new structure next month. All air divisions have been eliminated. Our numbered air forces are in the process of being slimmed down. And the 13 major commands that served us so well, for so long, have been reforged into 10.

As part of that effort, the flags of Military Airlift Command, Strategic Air Command, and Tactical Air Command have been lowered, and today in their place fly the colors of Air Combat Command and Air Mobility Command—organizations designed to provide the power and reach needed in the post-cold-war period. Likewise, we have merged Systems and Logistics Com-

mands into a single entity—Air Force Materiel Command—giving us cradle-to-grave management of all our weapon systems. And we have realigned our communications and intelligence communities to help make these critical functions more responsive to the needs of mission commanders. All that in one short year.

We need to remember that we did not reorganize because of poor performance. Over the years we have produced excellent results. But the real test of an institution is how it handles success. Everyone recognizes the need for change after failure. What should make us proud is that we were an outstanding outfit, and we had whatever it takes—good sense, dumb luck, whatever—to insist on improvement. So, as a consequence, we are way ahead in crafting an Air Force that fits the needs of the next century.

Now, as you know, the functions of the department under the law are to "organize, train, and equip" forces for prompt and sustained aerial combat. Organize, train, and equip—that seems like a logical progression to me.

We started with the organize part. Then, last fall, we had pretty much laid out what we wanted to do about reorganization. I asked myself, "If 1991 was the Year of Organization, what do I do to keep busy in 1992?" So, we turned back to those same old functions—organize, train, and equip. If 1991 was the year that we looked at organization, then 1992 should be the "Year of Training." And that's what I want to talk about a little bit today.

When you think about it, training is the essence of what we do every day in the Air Force. Happily, for more than two-thirds of our history as an independent service, we have been at peace. So what were we doing during those 30-plus years? We were training. And even when we were involved somewhere in combat operations, our people were still training. How important is it that we do our training well? I use adverbs with care, and I believe it is "vitally" important. Here, *vital* is meant in its sense of relating to life, like "vital signs." You want to know how good a military outfit is, check its vital signs, its training. In this regard, I particularly like the postgame remark attributed to a Desert Storm aircrew: "Red Flag was harder."

Accordingly, Secretary Rice and I started by setting two main objectives for the Year of Training. The first was to build a coherent education training architecture. Right back to that old question of organization, of structure. In fact, our organization for training and education was sort of left out in 1991, when we restructured the war-fighting and other support commands. What better time to look at how we organize to train than during the Year of Training.

Our second objective was to improve the quality of education and training programs. And that means all programs—officer and enlisted occupational training, flying training, professional military education, technical training for our civilian work force, and so forth. Our focus was on the question, How do we set the world's standard for enlisted, officer, and civilian training?

So, those were the areas where we concentrated—improving training structure and raising training standards. And the more we looked at these areas, the more opportunity we saw. During the next few minutes, I will cite a few examples from our enlisted training programs, but please understand that there are similar opportunities in officer and civilian training, as well.

Most of you know that the personnel system classifies our enlisted force according to job skill level. One-levels are trainees. Three-levels are apprentices, able to do Air Force work under close supervision. Five-levels are journeymen, fully qualified to perform tasks without hands-on supervision. Seven-levels are craftsmen, who, in fact, provide much of the supervision. This is a rather traditional classification system, but it has worked well for us, and we see no reason to change.

Now, the impression most of us have is that our enlisted men and women start their Air Force careers by going to basic military training at Lackland AFB, Texas, where they are introduced to Air Force life. After that, they move on to technical training school, where they learn the fundamentals of an Air Force occupation. While in these initial schools, they are classified as one-levels—trainees. The commonly held view is that those who complete technical training successfully are awarded a three-level or "apprentice" skill rating and go off to an Air Force base where they begin an apprenticeship. That's

the general picture, and it's true for many people, but there are lots of exceptions.

For instance, some of our people don't have a tech school to attend—there simply isn't one—so they go directly from basic training to their first duty assignment. There, they learn the primary job skills that form the foundation of an Air Force career, either through on-the-job training (OJT) or by correspondence course or by a combination of OJT and correspondence. This is true for some rather sizable career fields, like supply warehouseman or vehicle operator.

Other career fields have a tech school, but—because of funding limitations—not everyone gets to go. This is the case, for instance, for the carpenters who work in our base civil engineering units. Some get to attend tech school at Sheppard AFB, Texas, but some do not.

Still others, such as many of our aircraft maintainers, go to tech school but are not awarded the apprentice skill level upon graduation. Instead, they go to their first operational base, where they attend a course given by a field training detachment of the Training Command before being awarded the three-level. And finally, for various reasons, some—like security police—are awarded the three-level before they complete technical training. Overall, while there is the outline of a system for doing initial technical training, there are way too many exceptions to the system.

The inconsistencies don't stop with initial skill training. When it comes time to advance to the journeyman or five-level and later to the craftsman or seven-level classification, some—weather forecaster, for instance—go back to tech school for advanced formal training. Most do not, relying instead on another correspondence course and still more OJT. In fact, we lean very heavily on OJT. The initial trip through technical school is the last skill training many NCOs will get that has the advantages associated with formality—that is, an indoor, classroom setting; professional, full-time instructors; well-designed training aids; and so forth. Almost none of these advantages apply to OJT. This is not to say we can or should do away with OJT. We just need to make sure it is done in proper balance with more formal training. I'll return to the subject of OJT in a moment.

So, our enlisted occupational training system is not systematic enough. It is also not tough enough. The Air Force average time to upgrade from apprentice (three-level) to journeyman (five-level) is 13 months. Remember, five-levels are fully qualified and work without close supervision. When you think about it, 13 months is not a very long apprenticeship to qualify someone to troubleshoot the F-15 flight-control system or handle air traffic at a large aerodrome or repair hospital X-ray equipment without assistance. Moreover, the rules allow these very same brand-new five-levels to conduct and certify completion of training done under the OJT system—the system we rely on so heavily. This means that, in many cases, newly assigned airmen are being trained by journeymen who have only a year or so more experience than the apprentices.

Likewise, the day a senior airman (E-4) is notified of promotion to staff sergeant, he or she can immediately enroll in upgrade training to the craftsman or seven-level. If the training, usually a correspondence course, is completed before the promotion line number comes up, they can become seven-levels the same day they sew on their staff sergeant stripes. This is commonly referred to as the "one-day seven-level."

What we meant to do is kind of traditional. The craftsman or seven-level should be reserved for midcareer NCOs, techs, and masters—usually with 10 or more years in the service. But we have a training system that allows an enlisted member to become a seven-level the day he or she first becomes an NCO, typically at the five- to seven-year point, and typically without any return to school for formal training.

Let me talk a minute about nontechnical training—what we call professional military education or PME. For NCOs, PME starts with the Airman Leadership School, includes at midcareer the NCO Academy, and culminates with the Senior NCO Academy.

The purpose of PME is to prepare people for increased responsibility. For instance, the NCO Academy is the place where midcareer NCOs—tech sergeants—refine the leadership and management skills they will need to join the "top three" ranks. In other words, the NCO Academy should be a school for making master sergeants. But, attendance ranges anywhere from staff sergeants with eight years total service to

master sergeants with over 16. Some NCOs attend in-residence, some by correspondence, and some not at all. Without going into great detail, let me summarize by saying that the inconsistencies that characterize job skill training extend to professional military education as well.

Now I am not contending that our training system is worthless. By and large, Air Force people are very well trained. Our performance over the years tells us that. But, it is clear that we can do better, and—as in the case with organization—we shouldn't allow our success to blind us to the need for improvement.

In particular, I'm delighted that so much of the Year of Training has focused attention on our enlisted force. Remember that more than 80 percent of the blue-suit Air Force is enlisted. Enlisted people are the bone and muscle of our service. It's good that some senior attention has been given to their training programs. Let me acknowledge the presence here today of some of the "seniors" who are helping with this problem. Lieutenant Generals Ashy of Air Training Command, Hosmer of the Air Force Academy, and Boyd of the Air University, are collectively responsible for training and education and have been working on how the process should be structured. Lieutenant General Boles, deputy for personnel, has been working on consistency and standards in training programs. Lieutenant General Glosson, deputy for operations, has been working on flying training. These are all good men—the kind you want with you when the wagons are circled.

As can be seen, we are working on the whole training spectrum, and there will be major changes in all aspects of training. But in keeping with my focus today, I will offer specific proposals only with respect to enlisted training and education. The secretary and I will have other important announcements to make later this year.

Our first initiative is that everyone will go to tech school after completing basic military training. We have no jobs that are so straightforward that no formal skill training is required, and we ought not to give the impression that we do to anyone at the beginning of an Air Force career.

Second, we will send everyone back to ATC later in their careers for advanced formal training, before they can become

craftsmen or seven-levels. Obviously, this will reduce our dependence on correspondence courses and OJT. And, we will send NCOs back to school at some point after they have sewn on staff sergeant stripes, thereby eliminating the one-day seven-level. In fact, we are going to slow the skill-level upgrade process across the board. We intend to have journeymen and craftsmen who are more mature, more experienced, and better qualified.

Taken together, these changes mean that we will need to dedicate more resources to our technical training schools. The secretary and I will stand up to these costs, because we feel so strongly about the importance of education and training. However, we both feel we can hold down the expense of raising training standards if we are smart about how we do it. For instance, we are already reducing the number of tech training centers from six to four with the planned closure of Chanute in 1993 and Lowry in 1994. These closures mean we are already expanding capacity at the remaining four centers. At the same time, we have a big, ongoing effort to reduce the number of enlisted specialties Air Force–wide. We reckon that by merging similar career fields, we can reduce the number of enlisted Air Force specialties by about 20 percent. Naturally, this will consolidate and reduce technical training costs.

Our third initiative will be to regularize rank requirements for attendance at NCO PME schools. Since the NCO Academy is designed to produce master sergeants, we will send only tech sergeants and tech sergeant selectees from now on. Likewise, attendance at the Senior NCO Academy will be limited to senior master sergeants and selectees.

And fourth, we will put greater emphasis on resident PME. Essentially, resident PME will be mandatory. All tech sergeants will attend the NCO Academy in-residence and must do so before promotion to master sergeant. All senior master sergeants will get the same opportunity with respect to the Senior NCO Academy. Correspondence courses will still be made available, but their role will be de-emphasized.

These actions can be linked together to form a well-defined career path for our enlisted members. I think this will be one of the most positive results of the Year of Training. Our officers have long had a kind of blueprint to follow as they progress

through a career. We refer to this as the career path, and—while it isn't infallible—it does provide well-understood guide- lines. In general, our officers know fairly well what they should be doing at each phase of their careers.

For our enlisted force, a good career path has been tough to define, due in large part to the variations in the training system I have described. But, as we design a cleaner, more consistent training program for all NCOs, we will automatically be able to build a cohesive, understandable enlisted career path—one that times skill training and PME in a logical, building- block approach. This is a very important outcome of the Year of Training.

Well, this business of training is a fascinating one. And I'd like to talk about other aspects of it, but our time is about gone.

Let me conclude by observing that our training programs fit into a larger context. I know that's obvious, but we sometimes lose sight of the fact that Air Force–trained people are a gold mine, a great source of national strength. Remember, we take in many thousands of unskilled high school graduates every year. And each year we return many thousands to the nation as trained, experienced, disciplined, professional workers and leaders. Every day, day after day, scores of skilled technicians, communicators, teachers, policemen, civil engineers, firemen, computer experts, and the like, return to American communities and American industry. Just one example: forget the pilots; it is our ex-crew chiefs who make the airline business work. So, Air Force training doesn't just begin and end with the Air Force mission. We need to view our training system for what it is—a priceless national asset.

We owe it to ourselves and to the nation to strengthen and increase the effectiveness of that system. The initiatives I have announced today—and those that we will later announce—will help. But, in addition, the secretary and I will recommend that the next commander of Air Training Command be a four-star general.

The world is changing fast. The situation today is different from anything we've faced throughout Air Force history. The immediate threat has receded, for the time being. We are getting smaller, more professional, day by day. In such circum-

stances, you might say, "Sure; now's the time to tighten up, to raise standards," as—in fact—we are doing.

But make no mistake. Just as with the restructuring effort that began last year, raising training standards is something we would do anyway. It makes good sense. And if and when the time comes to reconstitute at higher force levels, we should remind ourselves to raise standards again.

Tougher, more rigorous training and education is good for us as an institution; it's good for our prospects of victory in any contest of arms; it's good for the nation.

Once again, I would like to thank you for the tremendous support the association provides. As always, it is an honor to address this convention and to offer thoughts on a topic of importance to our service. I hope you'll ask me to come back again next year, maybe to talk about how we equip the world's most respected air and space force.

Chapter 21

Toward More Flexibility in Training

Message to HQ ACC/CC,
Langley AFB, Virginia, 23 November 1992

Personal for Loh from McPeak.

1. We spoke recently of trying to find a way to put more freedom and flexibility into Red Flag and our other unit-training programs. This will be hard to do—and clearly there are safety-related limits—but it will be worth it, if we can pull it off.

2. There continues to be a need to think clearly about Desert Storm. We've been too willing to pat ourselves on the back but have not been interested in focusing on deficiencies, especially in command and control—for instance, (a) failure in the great Scud hunt and (b) apparent failure to disrupt the retreat of the Republican Guard.

3. Both of the above may be symptomatic of our inability to react quickly enough to fleeting opportunities or unexpected events. But this is exactly what we mean by "flexibility"—that is, the capacity of an organization to react to changing external circumstances. We say, "Flexibility is the key to air operations," and this is a fundamental truth. But we also enshrine in doctrine the notion of "centralized control and decentralized execution." What I'm suggesting is that centralized "control," as now practiced, may be robbing us of one of our most important operational virtues—flexibility. There is much more to maneuver warfare than the ability to undertake centrally planned, centrally directed, methodical operations.

4. In summary, we need to think creatively about free play in place of scripted, scenario-driven exercises. The place to start is at Red Flag, but there may be other opportunities. Maybe this is too hard. But, just maybe we can make it part of a cultural shift from a system featuring centralized, inward-focused, imposed discipline to a decentralized, outward-focused (on the enemy and situation), innovative, self-disciplined approach. Warm regards.

Chapter 22

Transition Challenges

Memorandum for the President-Elect,
*21 December 1992**

This memo mostly discusses problems, so it may seem negative. That is the wrong impression to give because lots of good things are happening in the Air Force. With that disclaimer registered, here are some thoughts on issues you may wish to consider:

1. *Gays*. This ought *not* to be—but is—the number one topic of conversation whenever I meet with officers and airmen. Accordingly, I put it first. It's not a showstopper, but the services need wiggle room. I suggest a phased approach. In the first phase:

(a) *Rescind the ban.* Start by removing the DOD policy that prohibits uniformed service by homosexuals. This policy is a little silly anyway since we have always had gays in the military. It is *declared* or *announced* homosexuality that gives us the problem, and the services could simply stop asking the question. Gays would no longer be forced either to lie or be barred from service. In brief, near-term, we don't ask—and they don't announce. This would be characterized by many as asking gays to stay in the closet for a while longer. Nevertheless, taking this step allows for at least a technical claim that the ban on gay service has been rescinded. We could start "not asking the question" immediately.

(b) *Deal with conduct.* The Air Force does this already. About half of our involuntary discharges for homosexuality involve conduct rather than "declaration." But, the total number of homosexual discharges is very small: only 115 in fiscal year '92—about 15 times fewer than we separated for being overweight. The number is small because we don't peek

*Following the 1992 election, each of the service chiefs was invited by the Clinton Defense Transition Team to submit a memorandum to the president-elect outlining his views on important issues.

through bedroom windows. Rather, homosexual misconduct (like egregious heterosexual behavior) is dealt with when it is brought forcefully to our attention. So, all services can stop any aspect of a "witch hunt." This step, too, could be taken immediately.

In the next phase:

(c) *Study the impact of allowing service by declared homosexuals.* Open—as opposed to closeted—homosexuality involves some rather difficult administrative problems for the services. Thoughtful examination of these problems, either through the normal staffing process or by an outside group of graybeards, would shed needed light and provide more time for the services to adjust.

This phased approach is one I could support publicly—and perhaps the other service chiefs could, as well—as one helping to defuse the issue while at the same time making good on your pledge to promote change.

I regret giving so much space to this issue. You will soon be our commander in chief, and it will be our job to help you find solutions. Whatever you decide, I'll work it as hard as I can.

2. *Uses of Military Power.* I think we all agree that a decision to use American military power should be made carefully, prudently. Restraint is the best rule. On the other hand, I believe the Pentagon, in recent years, has been too ready to lay down *prior conditions* on the use of force. The supposed lesson of Vietnam, the failure of Desert One, and the experience of having 241 marines blown up in Beirut seem now to play a decisive role in determining military advice.

A prominent prior condition has been that we must be able to see how our use of force will be "decisive." This works pretty well for traditional cross-border aggressions, like the Gulf War. But in the post-cold-war period, we are likely to encounter many security problems—Bosnia comes to mind—that are much more ambiguous and, accordingly, where it is very unlikely that any low-risk military action of ours will be decisive. A prior condition of decisiveness sets us up to do nothing—at least, nothing genuinely coercive—in such cases.

After a decision to intervene, the "Decisiveness Syndrome" dictates that American force must be overwhelming in application. The services have welcomed this approach, since it is

virtually risk free (though high cost in terms of time and resources burned up) and gives everybody a piece of the action.

Each security problem is unique. Often the intervention rules put forward by the Pentagon will fit like a glove. But, while there are limits to the finesse you should expect from us, the slam dunk is not our only play. Sometimes—Bosnia may be such a case—we need to consider whether we should try to use force with greater sophistication.

I would be more comfortable if the Pentagon simply put to you a menu of military options ("Here's what we can do") and let you set the conditions and objectives.

3. *Acquisition Process*. The process by which the services acquire new hardware is broken. We are in the midst of a military-technological revolution that we cannot properly exploit because our acquisition process is so sluggish. Major systems take 15 years or more to acquire. Information processing is the key capability built into many of these new systems, and this technology is turning over every two to three years. As a consequence, *the process is disconnected from the product*.

DOD, acting alone, cannot fix this problem because a solution requires that the executive and legislative branches, working together, start at the beginning and design a brand-new acquisition system. "Reform" or "streamlining" the present system has been tried (the Packard Commission, Goldwater-Nichols, etc.) and hasn't worked. Dynamiting and starting over will involve some risk, but now is the time to do this because (1) the armed forces are in great shape and (2) we are as safe as we are going to get for a while.

The current system has fielded some good equipment but only at high cost and only after great difficulty because of more-or-less continuous political guerrilla warfare. Worst of all, this system actively threatens our security because of lost opportunities.

4. *Investment Programs*. I am very skeptical that the services can afford the investment (research, development, and acquisition) programs they now contemplate. In this regard, the Air Force is in somewhat better shape than the rest, not because of any particular virtue on our part, but because the end of the cold war dried up support for a variety of strategic

programs—Small ICBM, Peacekeeper Rail Garrison, SRAM II, advanced cruise missile, the B-2, and so forth—all of which were either canceled or sharply downsized. As a result, the Air Force's annual investment expenditure is down nearly 50 percent in real terms since fiscal year '85 and continues to shrink as we rework programs.

We need a wall-to-wall review of DOD investment programs, especially maritime and space-investment programs. As I see it, the Navy alone can swallow DOD's investment account. I doubt we can afford to equip 12 large aircraft carriers, 18 Trident submarines, fix our sea-lift shortfall, and do all the rest of the buying needed to support programmed naval force structure. There is money to do some of this, but there are very large, known—but unacknowledged—costs. Similarly, our most expensive space programs—MILSTAR, elements of SDI, some "black" programs (that could usefully be declassified)—are still oriented on the cold war. Billions can be saved by descoping these programs. The proposed DOD review would take an across-the-board look at all service investment programs and make affordability-based force structure recommendations.

5. *Roles and Missions*. This is a tough issue because we got where we are over time, and it probably is a bad idea to start over with a clean sheet of paper. The Army, Navy, and Marines all need—and have—specialized ("niche") aviation capabilities. They should own and operate these themselves. The focus should be on eliminating overlapping—as opposed to complementary—capabilities. For instance, each of the services has a space command and operates in space. This is a costly duplication of effort, with no value added. All military operations in space should be consolidated in the Air Force. Similarly, both the Army and the Air Force operate systems for theater air defense. We are the only reasonably professional armed forces in the world who *dis*integrate command of air defenses in this way. We can make very substantial savings and—more important—improve war-fighting effectiveness if the Air Force is given total responsibility for theater air defense.

6. *Organizing for Jointness*. We have far too many unified and specified commands (currently 10), and many are thinly disguised service headquarters. We should set a goal to reduce

them to about half their present number (big manpower—especially senior officer—savings) and make them all truly joint by rotating command among the services and requiring service balance in the staffs.

7. *National Service*. If I understand it correctly, I like your idea to create a program that allows most or all young people to spend a year or so in public service of some sort. Such service might be military but could take many other forms—an "ecology corps," urban or rural volunteers, service in hospitals or the Peace Corps, and so forth. In any case, the military could take an active role, and the entire program might be administered by DOD. This is precisely the kind of thing the services ought to be thinking about in the post-cold-war period.

8. *Your Air Force*. It's in great shape. We're smaller than we've been since before the Korean War, but we're tough and agile; our people know what they're doing; we have good active, reserve, and civilian balance; we operate the world's most capable aircraft and satellites; and we're very well organized. Within reason, we can do just about anything you ask.

Very respectfully

MERRILL A. MCPEAK, General, USAF
Chief of Staff

Chapter 23

Our Air Force in Transition: Organizing, Training, and Equipping

Speech, Air Force Association Air Warfare Symposium, Orlando, Florida, 5 February 1993

Much has changed since last year's Air Warfare Symposium. Last June, we set out an Air Force mission statement—to defend the United States through control and exploitation of air and space. We're getting lots of opportunities to execute the mission. The US military is engaged in three regional contingencies right now: Iraq, the former Yugoslavia, and Somalia. The Air Force has a large role in these contingencies. In Iraq, we shot down two MiGs last month—the first combat kills for the AMRAAM. We also provided most of the forces for the strikes on air defense sites in the northern and southern no-fly zones. In northern Iraq—in Operation Provide Comfort to protect the Kurds—we flew 37 operational sorties yesterday, bringing our total in the north to about 47,000, including support sorties. In the south—in Operation Southern Watch—we flew 120 operational sorties yesterday. Our total for Southern Watch is just over 13,000, with about 7,600 fighter sorties—two-thirds of the Navy-Air Force joint total. We've also put 130 U-2 flights across Iraq to monitor the military situation. All told, we've flown nearly 140,000 sorties since Desert Storm to support operations in Iraq—no misprint, 140,000. That compares to the 80,000 we flew in the war.

In the former Yugoslavia, we flew eight relief flights yesterday, bringing our total to about 700. In Somalia, where the airfields we are using are now guarded by US marines, we flew four relief sorties yesterday. We've flown a total of 1,800 relief flights there, plus another 2,000 air-bridge sorties to support the overall operation and to bring in folks unlucky enough to miss the prime-time amphibious assault. Incidentally, several of the other countries involved in the relief effort—Canada, France, Belgium, Pakistan, Nigeria, Botswana—called on us to

provide the airlift for them, showing once again that we are the air force of first and last resort.

Elsewhere in the world, your Air Force continues to be quite busy. Over 400 Air Force personnel are deployed to support the counterdrug effort. We're flying just over one AWACS sortie a day in the drug war. We've launched two satellites in the last month; we have over 40 in orbit. The last shuttle mission carried the first military woman to fly in space—Maj Sue Helms, an Air Force Academy graduate. We have a Red Flag exercise under way at Nellis AFB and a joint Air Warrior exercise with the Army in progress in California. Squadrons are deployed to Egypt and Thailand to train for regional missions.

So, we're busy. Our national leadership finds plenty of opportunities to use air and space power. One group in particular deserves special recognition. The success of almost every contingency hinges on effective theater airlift. In particular, active- and reserve-component C-130 crews have played a pivotal role in the Persian Gulf, Somalia, and in the former Yugoslavia. They have done so at no small risk to themselves and their aircraft. Their families pay the price of long separations. We are looking for a way to give these crews the recognition they deserve—more on that at a later date. In the meantime, my hat is off to the C-130 force.

All of this activity underscores our mission of control and exploitation of air and space. I wish I could be out there on the working end of it. But, unhappily, my job now is to sit in a "one-G" office, trying to make sure we're organized, trained, and equipped to execute the mission.

In 1991 we focused on organization. As a result, Air Combat Command, Air Mobility Command, and Air Force Materiel Command are now up and flying—people are getting used to saying AMC and ACC instead of MAC and TAC. Our numbered air forces are reconfigured as operational echelons. The air divisions are gone. Our wings are renamed and are into the objective structure. We continue to fine-tune. For example, Twentieth Air Force—the ICBM force—will transfer from ACC to Air Force Space Command this summer. This adjustment puts the missiles under the commander whose core responsibilities include launch expertise. And it relieves the ACC

commander of a mission that takes a lot of time but doesn't fit well with the rest of his work.

Space Command may also pick up broader responsibilities if the Air Force consolidates space functions under the current roles and missions review. In any case, we will continue to tweak the reorganization. This, like any other Air Force activity, is a process of continuous incremental improvement. We are always looking for ways to get better, to move closer to our target of building the world's most respected air and space force—a Quality Air Force.

Last year at this symposium, I announced that 1992 was the Year of Training. Its basic objectives were to define an overarching concept for training, including an appropriate organizational structure, and to raise standards. Like the Year of Organization before it, the Year of Training has produced changes that will take years to implement and refine. Let me mention some of the more significant outcomes.

First, training structure. When we reorganized the Air Force in 1991, we left out the training piece. We did so because we knew we would circle back during the Year of Training and examine our training structure. By last September, we knew we would be growing the responsibilities of Air Training Command. Therefore, we announced that ATC would become a four-star billet. Gen Butch Viccellio is now in place there. This summer, ATC will become the Air Education and Training Command. Air University will be part of this new command. Also by this summer, combat crew training for major weapon systems will transfer to AETC. Let me discuss each of these changes in turn.

Putting Air University under AETC will improve our organization in two ways. First, it will continue the move toward fewer major commands. We started with 13; last year we cut to 10. Merging ATC and AU into AETC will put us at nine. The people and dollars formerly eaten up in MAJCOM overhead are now being put against training and operating our Air Force.

The second advantage to AETC is that it gives us one commander responsible for the entire education and training effort. Education and training are not identical functions. In a sense, education teaches people how to *think*, while training teaches people how to *do*. Air Force people must be well

educated *and* well trained. The Quality Air Force pushes power down in the organization, and our people must be able to think and do in order to improve our operations.

But education and training are close enough that one individual should be in charge of both—to make resource trade-offs when necessary and to make sure training and education complement each other. And all of our education and training institutions will benefit by having a four-star advocate for their resource needs.

By the way, we gave careful consideration to the name of the new organization. In calling it Air Education and Training Command, education comes first—not because it is more important but because we wanted it understood that we were *not* subordinating education to training. So, the first major change in the training organization is that Air University will report to the new AETC, a four-star command.

The second big change is the transfer of major weapon system crew training to AETC. Those who studied the restructure know that many of the changes were, in fact, a return to old ways of doing business—a "back to the future" approach. Such is the case with combat-crew training. ATC conducted crew training until the early 1960s. Why is this old idea a good one for the future?

AETC's basic business will be individual education and skills training. The operative word there is *individual.* Combat-crew training, now handled by ACC and AMC, is also a process of training individuals in particular weapon systems. But the basic business of the combat commands is combat. We don't fight as individuals; we fight as units. The peacetime focus of our combat commands should be on unit training or exercising. So here I draw a distinction between individual training—activities like checking out in an airplane, transition, formation, instruments, basic fighter manuevers, weapons qualification, and so forth—and unit preparation for combat or exercising—activities like mobility exercises, flag exercises, operational readiness inspections, and so forth. Of course, individual training is also done in units—we call it continuation training, sharpening the skills first learned in combat-crew training. But, the core business of our combat commands is deployment and employment, and they must be very good at it.

Shedding their schoolhouses will permit the combat commands to concentrate on these tasks.

To implement this change, on 1 July of this year, crew training for F-15s, F-16s, C-5s, C-141s, KC-135s, ICBMs, and rescue and special operations systems will move to AETC. Luke, Tyndall, and Altus will become AETC bases. A-10, OA-10, C-12, C-21, and C-130 training will also transfer to AETC at some point in the not-too-distant future. These systems account for 78 percent of the student load and 84 percent of the cost of aircrew training, so the bulk of the crew-training task will belong to AETC. Training for some small systems, such as the F-117 and F-111, will remain with the combat commands. The scale of these training operations makes it impractical to move them to AETC.

To make sure AETC crew training provides a quality product, the combat commands will retain a controlling interest in syllabus development. We will make sure the training program is responsive to the needs of the gaining commands. Further, the change will yield other benefits. We'll see a productive cross-flow of personnel and ideas between the combat commands and AETC.

To perform its functions, AETC will have four subcomponents. Two components will be numbered air forces, so AETC will have a structure comparable to that of the combat commands. A numbered air force headquarters at Keesler will oversee technical training—we'll determine the designation at a later date.* Nineteenth Air Force, headquartered at Randolph AFB, Texas, will oversee flying training, from undergraduate pilot and navigator training through crew training. The other two AETC components will be Air University and the Wilford Hall complex. Air University will run professional military education, professional continuing education, the Community College of the Air Force, and graduate education—as it does now. It will also take responsibility for two precommissioning programs—the Officer Training Squadron and ROTC. We are still examining how the Air Force Academy best fits into our overall education and training architecture.

*Second Air Force subsequently stood up at Keesler AFB, Mississippi.

Not all the Year of Training initiatives are organizational. We are also raising standards. Last September at the AFA convention in Washington, I described the improvements we are making in enlisted training. All career fields will begin with a technical training school. Upgrading from three-level apprentice to five-level journeyman will require more experience, and upgrading to seven-level craftsman will require a second trip back to formal tech-school training. Requirements will be standardized across all career fields. These changes will give us a more seasoned, better trained enlisted force.

Parallel with skill-training improvements, enlisted professional education will also become more rigorous and will be conducted entirely at residence schools, rather than some by correspondence. Quality PME is essential because it teaches the managerial and leadership skills needed to progress in rank and responsibility. In combination, the new skill-training requirements and PME improvements will provide a rigorous, structured career progression, standardized across all fields, for the 80-plus percent of the active Air Force who wear enlisted stripes.

Taken together, all these changes will produce the well-educated and trained personnel who will be needed in the twenty-first-century Air Force. In short, we intend to set the world standard for training. When someone hears that Captain Smith or Sergeant Jones is Air Force–trained, they'll pay attention.

If we've already looked hard at Air Force organization and training, you know what's coming next. We are calling 1993 the Year of Equipping the Air Force. It's still early in 1993, so we are just starting to define what it all means. Let me share what I know so far.

First, any changes that come out of the Year of Equipping are likely to be less sweeping than the changes we've made in organization and training. This is not an attempt to downplay expectations. It's simply a fact that we have less flexibility in the acquisition field than we do in the other two functions. As you know, acquisition gets a great deal of attention from senior Department of Defense leadership and from the Congress. That attention produces detailed guidance. So any changes we

suggest must fit within the many laws and regulations governing the equipping of our forces.

Moreover, recall that we stood up AFMC last June, combining the field-command responsibilities for equipment acquisition and logistics. In addition, as part of the headquarters restructure, the requirements function was moved into the Air Staff, under the director of operations and plans, and a test and evaluation directorate was established, reporting to me. In combination, these were the principal organizational changes needed, in my view.

However, I believe there are many actions we can take to further improve our equipping activity. I see two major areas of concern: time and cost. It takes 15 to 20 years to field new major weapon systems. The most important technology in many of these weapons is information processing, and this technology is turning over maybe every two years. We need both to shorten our acquisition cycle and do a better job of making provisions to accommodate the inevitable technological improvements that appear during system development.

The second area of concern is cost. It's no secret that shrinking budgets will not permit the scale of modernization we enjoyed in the eighties. That's O.K.—we don't need the same level of modernization. My concern is that current cost trends may prevent any serious modernization whatsoever. If you think I'm overstating the case, try figuring out how many F-22s and C-17s will fit into a $200 billion defense budget. We don't know where the resource floor will be—maybe lower, maybe higher than that—but we do know that cost is bound to be an increasingly important parameter.

To help us get started dealing with these issues, I will shortly task the operating commands to prepare modernization plans for the next 20 years. These plans will define equipment requirements and lay out projected funding and time lines. Obviously, no 20-year plan in Washington is carved in granite. But we need to take a longer view in our planning so that equipping the force for the next century will be affordable.

During the Year of Equipping the Air Force, we will also seek to align requirements, technology, and the threat. This is something we do every year as we develop the budgets. We

canceled or sharply downsized lots of strategic programs—Peacekeeper Rail Garrison, SRAM II, the advanced cruise missile, the B-2—but we have not so far done a zero-based review of conventional systems to make sure we will field the relevant capabilities in the new operating environment. We need to make sure we have a process in place to adjust the threat-technology-requirements profile effectively over time.

Finally, we need to make sure our acquisition and support infrastructure is right for the times. Is our acquisition training in good shape? Do our labs and depots meet our needs? What investments need to be made and when, to give us the proper test-and-evaluation capability? Tough questions—we need to get started now.

That's a comprehensive look at the Years of Organization, Training, and Equipping, as they stand today. I guess my message is simple. If you thought this was a slack time for the Air Force, look again around the world, at the regions where we're working today. If you thought we'd made all the changes we're going to make, think again. We've come a long way, I'm proud to say, but we've still got a ways to go. But if you think we're going to be the best Air Force in the world—one that is always ready to defend this country—then you're right on the money.

Chapter 24

Integrity in the Chain of Command

Message to All CCs Down to SQ,
24 March 1993

Personal for commanders from McPeak. Pass to commanders down to squadron level.

1. Our commander in chief recently visited an East Coast military installation.* The visit was successful in providing him a firsthand look at the disciplined and ready fighting forces of the United States, but the media coverage struck a somewhat negative tone that should cause concern to all of us in the chain of command. *Perhaps* it is time to remind ourselves about core values, including the principle of a chain of command that runs from the president right down to our newest airman. We simply must not permit today's debates about a new national military strategy or the resource commitment the nation will allocate to defense or social issues to divide us from the society we serve or to undercut the strength and integrity of the chain of command.

2. We will have many opportunities in the future to host the president and others in our chain of command. Concerning such visits, I'm confident that commanders at every level will ensure our people show the professionalism that has become an Air Force hallmark. By the way, when you do get the opportunity to meet personally with the nation's civilian leadership, as I have, you will see immediately that they are interested in your welfare and they respect your judgment. The president has made this quite clear himself, saying, "As long as I am your president, our men and women in uniform will continue to be the best trained, the best prepared, the best equipped fighting force in the world."

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*According to a front-page article in the 13 March 1993 issue of *The Washington Post*, President Clinton was greeted with "an undercurrent of mockery" which "pervaded the ship" when he visited the USS *Theodore Roosevelt* on 12 March 1993.

3. Being the world's most respected air and space force is more than a vision. It's a way of life—a commitment to our profession's core values.

Chapter 25

Organization
(By Order of the Secretary of the Air Force)

Air Force Policy Directive 38-1,
Manpower and Organization, 30 March 1993

1.1. The Air Force must be organized to best use available resources. This requires simple, streamlined structures designed for seamless transition from peace to war.

1.2. The principal characteristics desired in Air Force organizations are:

1.2.1. *Mission Orientation*. Organizations should have a reason to exist and should be designed to achieve the outcome defined in the applicable mission directive.

1.2.2. *Unambiguous Command*. Organizational structure should provide a clear chain of command running from the president to the most junior airman.

1.2.3. *Decentralization*. Organizations should be designed so lower echelons can achieve objectives without needing continuous control from above.

1.2.4. *Agility*. Organizations should be structured so personnel can recognize problems, find solutions, make decisions, and implement them quickly.

1.2.5. *Flexibility*. Organizations should be capable of adapting rapidly to changing external circumstances.

1.2.6. *Simplicity*. Organizational structure should be as plain and straightforward as possible because complexity often inhibits rather than facilitates organizational effectiveness.

1.2.7. *Standardization*. Organizations with like responsibilities should have similar organizational structures.

1.3. The following responsibilities and authorities are established:

1.3.1. The secretary of the Air Force is responsible for organizing the Air Force. The Air Staff, under the direction of the chief of staff, discharges this responsibility.

1.3.2. The director of manpower and organization, HQ USAF/MO, exercises control over the configuration of all organizational structures from major command (MAJCOM) headquarters down to flights at base level.

1.3.3. The chief, manpower and organization for MAJCOMs and other field commands will implement HQ USAF policies.

1.4. AFI 38-101, *Instruction for Air Force Organization* (formerly AFR 26-2) contains procedural guidance for organizational action.

1.5. This directive implements statutory requirements in Title 10, United States Code, Section 8013.

1.6. See attachment 1 for measures of effectiveness.

Chapter 26

The Air Force's Role in Space

Speech, Ninth Space Symposium,
Colorado Springs, Colorado, 15 April 1993

It is an honor to be at the Ninth Space Symposium Your previous eight gatherings have established this event as the largest and most influential meeting of its kind. So, when invited to speak here, I jumped at the chance. For some time, I've been wanting to talk about the Air Force's role in space. I can't think of a better place to do that than in front of this audience and here in Colorado Springs, the military space capital of the Western world.

I think I've come some distance in the last few years, as the entire nation has, in understanding and appreciating what space can do for us. Desert Storm really opened our eyes. It is well understood, I think, that our fabulous combination of spaceborne sensors and command and control capabilities produced a lopsided win in the contest for what some are now calling information dominance. Information dominance is a relatively new concept, one that is moving to center stage in our thinking about modern war. It means the ability to observe the whole theater, to rapidly assess threats and opportunities, to identify targets, and to navigate precisely to those targets.

The battle for information dominance involves very high stakes. Full exploitation of space and its related capabilities allows one side to think and react faster than the other, to dictate the timing and tempo of operations. The effect on an adversary is numbing, like taking a general anesthetic inducing operational paralysis. We all saw this happen. I said at the time that Desert Storm was "the first space war."

Even so, space is not yet fully appreciated even in the Air Force. Today, we have many airmen who understand air operations, some people who understand space, but only a very few who comprehend the full sweep of military operations through the entire vertical dimension. Luckily for the nation, one such person—Chuck Horner (commander in chief, US Space Command and commander, Air Force Space Command)—is serving

with some of you here in Colorado. But, we need a much larger body of people, like Chuck, who understand air and space capabilities in a comprehensive way.

The introduction of new military capabilities often involves a rethinking, a mental jump to entirely new concepts. It is not a question of doing something better, but of doing something different. Not everyone can make this mental jump. One of our most insightful sayings goes, "You can't teach an old dog new tricks." As the physicist Max Planck sadly remarked of his own career, "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."

However, I'm optimistic that we will not all have to die to be replaced by a next generation finally capable of understanding and appreciating space. One reason for optimism is that Air Force Space Command has just stood up the Space Applications and Warfare Center here in Colorado Springs. Part of the job of this center will be to teach new tricks to old dogs. It will also carry out important responsibilities for integrating space into all facets of air operations. Just as our most knowledgeable aviators are assigned to Red Flag cadres, our best space warriors will serve at the Space Applications and Warfare Center, developing new techniques and procedures and infusing space into all the exercises, training, and operational plans supporting regional combatant commanders.

Now, I've made no secret of my belief that all our military space business—acquisition and operations—should be consolidated in the Air Force. The basis for this view is the simple fact that budgets are going down fast, and I don't think we can afford to fund overlapping activity in any defense sector. It can be argued that to put all the space business in the Air Force would mean that other services and the combatant CINCs would lose touch with space and would subsequently be poorly positioned to work their own space requirements, training, and applications. This is a very good argument. It is important for senior officers of all services to understand military requirements for space support and, especially, to be prepared to exploit fielded space capabilities.

But, if we set our mind to it, there is no reason to think we can't achieve both the economies that would spring from consolidation and even stronger service and CINC participation in the process. One way to do this, for example, would be to grow the Space Applications and Warfare Center into a joint agency. That would mean each service and CINC would have people here, where the action is, working full-time on their space applications and requirements.

Incidentally, these CINCs and service representatives would then be available to go forward in crises or war to joint and component headquarters, bringing space-related expertise directly into the planning and execution process. This would be a very important step toward producing a truly integrated combat force.

Inside the Air Force, there are many other indications that we are working the problem of increased understanding and appreciation of space. Nearly two years ago, we produced a "vision" for the organization. This vision describes our notion of the best possible future outcome for us as an institution. I'll remind you that we said we wanted to be "the world's most respected air and space force." Then, about a year ago, at Maxwell AFB, Alabama, I proposed a mission statement for the Air Force. I said our mission is "to defend the United States through control and exploitation of air and space."

Now, a lot of time was spent working on these two documents—the vision and the mission statement. Air and space are carefully identified in both statements, emphasizing the role each plays in our nation's defense. For the first time since a former Air Force chief, Gen Tommy White, began using the term *aerospace,* we underscored our commitment to both air and space as an uninterrupted dimension of military operations.

These statements were intended to challenge all of us in the Air Force to think in the broadest terms about how to best employ air and space forces in the next century. In many respects, space, as a combat environment, is at about the same infant stage airpower was following the First World War. We understand some of the basics. We need much more practical experience. We need leadership, we need advocacy, we need doctrine. Perhaps most of all, we need clear thinking about what the future holds for us in space. So, that's what I'd like to do for the remainder of my short time

with you today—to think aloud for a few minutes about the increasingly important part space will play in military affairs.

As I speak, the nation has more than 50 military satellites on orbit, each one a marvelous technical achievement. We have rather gotten used to this situation—the permanent presence of a large and highly capable satellite constellation— without really considering all the consequences.

Let me just mention two such consequences in passing. First, any nation contemplating action against us must worry about our space capabilities. They give us unprecedented situation awareness—a global ability to identify and characterize security threats. We may be withdrawing terrestrial forces from overseas bases as we reduce our forward presence, but our space forces stay on the scene. They're always there, providing the early cues that permit our national leadership to react and fashion appropriate responses. A constant sentinel, they increase the risk of discovery, and—in the calculations of anyone with hostile intent—they must introduce an element of doubt, of uncertainty. Thus, our space force will increasingly act as a kind of deterrent. That is, our presence in space will work on the mind, will alter the risk calculation rational actors make as they consider the pros and cons of aggressive behavior.

A second aspect of our presence in space has to do with how nations will be judged, how they will be graded regarding their power status. The military greatness of Rome was in its legions. The glory of the British Empire was carried on the decks and in the holds of the Royal Navy. If American military history ended today, airpower would be seen as our distinctive contribution. But, I'm convinced that tomorrow we will judge a nation's power status by its relative position in space. We will measure space capabilities in the same way battleships were once counted. We have to pay attention to this. It is important. Nations have always considered it an advantage to be reckoned powerful. And now competence in space is coming to be the most important determinant of great power status.

What I've said so far must convince you that I believe that space is on the way to being the new centerpiece of our strategic leverage. But, in order to capitalize on this leverage, we must have some way of controlling the space environment.

All airmen understand what controlling the air environment means. We want to deny any opponent the ability to use aircraft to observe us, to attack us, or to defend against our attacks. In my view, space control follows the same logic.

But here we enter a conceptual minefield. During the cold war, many of us developed views about the "militarization" of space that were based on a hope that we could blunt the grimmer aspects of our space competition with the former Soviet Union. These views now must be reconsidered in terms of the handicap they represent during the coming, much less structured, multilateral space competition that I see as a prominent feature of the early twenty-first century.

As many as 30 countries may have some sort of spaceborne remote sensing capability by the end of this decade. Make no mistake about it, the possession of such capabilities in unfriendly hands will have substantial impact on our ability and willingness to act decisively in a crisis.

To put this in context, imagine the consequences of Iraqi possession in 1990 of a space reconnaissance capability. Saddam Hussein would have tracked the movement and disposition of our forces as we prepared to attack. Any element of surprise would have been lost. Certainly, many more American casualties would have resulted.

We can make any claim we wish about the "nonmilitarization" of space. The ultimate purpose of Air Force space systems is to increase the combat effectiveness of our armed forces. My working assumption is that space systems of a potential adversary serve their purposes in exactly the same way. To ensure that our soldiers, sailors, marines, and airmen can operate successfully in modern combat, we must ensure that we can limit an adversary's ability to use space against us.

Historically, many have equated space control with an antisatellite (ASAT) weapon. In the cold war era, that may have been true. But again, our Desert Storm experience—and, in particular, the Scud problem—showed how times have changed.

Certainly, we needed a point defense interceptor like the Patriot. However, it was also clear that we needed to engage the entire Scud system: to find and destroy munitions storage and assembly facilities, to delay transport to launch sites, to attack the launch sites themselves, to limit our vulnerability in

time by denying daylight launch opportunities, and so forth. Given the means, we would have targeted the Scud in flight—early, during the boost phase. Finally, of course, we needed the endgame provided by Patriot. But, we make the endgame manageable by being effective in the other parts of the problem.

The same systems approach is what is really needed for defense against ballistic missile attack of the continental United States. We will certainly need a ground-based endgame interceptor. But to be really effective, we will need to go after the entire ICBM problem as a whole. In my judgment, that means we must put much of our follow-on technology emphasis on space-based systems.

And so, finally, defense against hostile satellites also requires a system-like approach. We probably know as much about this problem as anybody. We've spent a lot of time and money figuring out how to protect our satellites from all of the various kinds of ways they can be attacked. Suffice it to say that ASAT, the endgame interceptor, is only one of a much larger set of tools we need to develop to help control the space environment.

We simply must find a way to get on with construction of capabilities aimed at ensuring that no nation can deny us our hard-won space superiority. It would be tragic if we allowed self-inflicted inhibitors, which are themselves true manifestations of "cold war thinking," to negate our otherwise unparalleled capacity to deal with the ugly and ever more dangerous realities of the post-cold-war era. As space technology proliferates, the resolution of international security problems in space will certainly rely on an American enforcement capability, just as so many earthbound security problems rely on American leadership.

Anyway, these thoughts help define for me a more complete understanding of our mission to "control and exploit air and space." As I said, Air Force senior leadership is working to increase everybody's understanding, and we will continue this effort.

Today, it is increasingly clear that our space capabilities are crucial to our success in combat. That's why we are paying attention. The Air Force welcomes the opportunity to work as a *partner* with others interested in space, as a *steward* to ensure that defense space dollars are well spent, and as the *leader* in military space operations.

Thanks again for giving me the opportunity to share these ideas with you today. I look forward to seeing you again—maybe on the launchpad.

Chapter 27

Strengthening America's Space Force

Speech, 30th Space Congress,
Cocoa Beach, Florida, 27 April 1993

It is a pleasure to be here at the 30th Space Congress and meet so many of the people who have changed our lives through space-based systems. Just two weeks ago, I spoke at the Ninth Space Symposium in Colorado Springs on the Air Force policy on space. I'm told that it was the first time an Air Force chief had devoted an entire speech to space since Gen Tommy White coined the term aerospace in the 1950s. I'm not sure how true that is, but I can tell you that for many years the Air Force has—by and large—allowed the space professionals to advocate the space mission. I'm trying to change that pattern by taking opportunities like this one to tell the Air Force space story.

Much has changed since the fifties. We have launched who knows how many rockets and missiles. We have orbited hundreds of satellites. Man has visited the moon and returned.

Through this period of rapid change, Air Force policy on space has been remarkably consistent. Simply stated, we've worked to make the United States the leading space power in the world. This commitment is now captured in the Air Force vision statement, drafted about a year ago by our senior leadership. It says that the Air Force wants to be "the world's most respected air and space force." Then, a few months ago, at Maxwell AFB, I echoed this theme in the new Air Force mission statement. I said our mission is "to defend the United States through control and exploitation of air and space."

Air and space. They are two features of a continuous vertical dimension. We know that control and exploitation of the entire vertical dimension is a prerequisite for successful military operations at the surface of the earth. The outstanding example is Desert Storm. Our satellites provided 90 percent of all inter-theater communications and almost half of within-theater communications; they detected every theater ballistic missile launch; they enabled our troops to navigate in the desert,

round-the-clock; they allowed us to monitor enemy positions and movements. Space systems had such an impact that, at the time, I called Desert Storm "the first space war."

But, we don't intend to rest on our Desert Storm laurels. Saying that we will build the world's most respected space force does not establish a fixed goal line. Excellence in space is a kind of horizon—an objective that will always recede from us, challenge us, be just beyond reach.

So, I'd like to spend a few minutes with you today discussing how we intend to strengthen our space force through changes in organization and through sound investment in space programs. We are committed to action now in both those arenas to help ensure America remains preeminent in space.

First, let's discuss organization—for, in my view, how to organize is the most fundamental management decision in any enterprise. Over the past two years, we have restructured the entire Air Force to improve mission effectiveness. We have eliminated layers, cut staffs, pushed general officers out of headquarters and into the field, and redistributed command responsibilities.

This overall reorganization applied to the space business, as well. Where we had east and west coast launch centers and test ranges before, we now have space wings. We consolidated the existing space wings—the 1st, 2d, and 3d—into the 21st and 50th Space Wings. This streamlined our organization, while preserving the heritage of old, famous units that are returning from overseas. For instance, our space warriors at Falcon AFB, Colorado, point with great pride to their trophy cases filled with memorabilia from their wing's service in Europe, Korea, and Vietnam.

In other words, organizationally, we made Space Command like any other Air Force combatant command. This may have seemed like just cosmetics to some. But it isn't. There is a sense in which it finishes the process of "normalization"—of bringing space out of the R&D world and into the regular, operational Air Force.

We're also making changes above the wing level. In July of this year, our ICBM force—currently consisting of six wings—transfers from Air Combat Command to Air Force Space Command. We believe both space and missile operations will benefit from the merger—a "win-win" situation. The missile

force brings years of experience with it, helping further to mature and broaden Space Command. And, the technical expertise in Space Command will keep the ICBM force up to speed into the next century.

The transfer of our ICBMs brings Twentieth Air Force onto the scene. This fine, old numbered air force has a distinguished history and will add to the luster of Space Command. The numbered air force provides the tactical or operational level of command between the major command and the base or wing level. There will now need to be another numbered air force to supervise the four space wings. We intend to stand this unit up at Vandenberg soon.*

We are also increasing the number of general officers in Space Command to provide stronger leadership and institutional advocacy. As recently as 1990, we had only four general officers in the command. We will soon have 11. We advocated dual-hatting the commander in chief of United States Space Command as the commander of Air Force Space Command. We elevated the vice-commander of Air Force Space Command to a three-star position. All four space wings are now commanded by general officers.

So, today, Air Force Space Command is a growth business. The number of people assigned to the command and its budget continue to increase. When we stood up the command in 1982, it had 6,000 people and a $164 million budget. By this summer, the command will have over 25,000 people with an annual budget of $2.63 billion. That's a fourfold increase in people and a 1,600 percent increase in budget. Remember, this growth is occurring at the same time nearly every other part of the Air Force is shrinking quite rapidly.

In short, we are serious about strengthening the role and voice of our space professionals and integrating space *throughout the Air Force.*

But our space program will need more than organizational changes to stay competitive in the world. We also need sustained investment in space infrastructure, space lift, and space systems to keep our edge.

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*The stand-up of Fourteenth Air Force at Vandenberg AFB, California, was on 1 July 1993.

Our launch support and range infrastructure dates back to the 1950s and 1960s. Since that time, we have modernized through a series of upgrades to the existing facilities, rather than through replacement. As a result, current systems are inefficient and—in some cases—about worn out.

The Air Force Civil Engineer studied the launch system in 1989 and again in 1991. He identified a requirement for significant modernization. These aren't high-tech problems—just ordinary, routine housekeeping. We need to fix water distribution systems, air conditioning, roads, and electric power grids.

Then—downrange—measuring, evaluation, and control components are obsolete, and spares are hard to find. Given the unique nature of these systems, many require tailored support not available in our standard logistics system. In short, we have an inefficient support infrastructure, which—if we don't take action—will produce increasing problems and rising costs.

We have already made a start on improving this situation. In fiscal year '93 we will spend over $200 million on launch, launch support, and range-system upgrades. Over the next few years, we hope to spend more than a billion dollars to continue this work. That's good news for the nation. These investments will improve support to existing launchers, and—more important—they position us for more cost savings with the next generation of launch vehicles.

As a nation, we are no longer competitive in the international space-launch arena. Fifteen years ago, America launched 85 percent of the world's satellites. Today, we launch 27 percent. The average cost of an American launch is in the range of $12,000 to $16,000 per pound to low earth orbit. Admittedly, foreign launch systems are highly subsidized. But clearly, our price is too high. Why is this the case?

Our boosters are all ICBM derivatives. The technology is obsolete and inefficient by today's standards. The lack of common interfaces makes every launcher a unique vehicle—each launch a different engineering challenge. Launch preparation takes weeks and months instead of days.

The problem is, to some extent, self-inflicted. The decision to go with the shuttle as the sole launch vehicle caused us to stand down planned improvements to unmanned launch systems in the seventies. After the *Challenger* disaster, we began

to look at alternatives. The National Launch System (NLS) was one proposal. But, we didn't have a compelling, coherent story to tell about what we wanted from NLS. Consequently, we did not get public support, and Congress canceled the program.

The demise of NLS means we must start over, with consensus building a very important part of the process. Initially, I believe we need a capability to lift a 20,000-pound payload to low earth orbit, with growth potential to 50,000 pounds. Standard payload interfaces and a modular approach should reduce costs, speed launches, and cut overhead. We ought to be able to reduce pad preparation time from weeks to a few days. Most important, we need to understand and aggregate space-launch requirements from all sectors and address these requirements in new space-launch system concepts.

We want the Air Force to build the nation's next launch vehicle. The Air Force is willing to budget for and lead development of such a vehicle. All users—military, civilian, or commercial—could share costs. We are open to revolutionary, as well as evolutionary, technologies. We are looking for the best long-term solution—not just the best at first flight, but a system that will be competitive in the international space launch arena a generation from now. That means flexibility, innovation, growth, and evolution in thinking about this problem. Whatever the final design, it must satisfy launch requirements for the community of space users—civil and commercial, as well as military. The Air Force is willing to work very hard in the requirements iteration process to achieve this objective.

While the United States may not today be competitive in space lift, one area where we have an unquestioned edge is in the design and construction of satellites. As I said earlier, these satellites played a crucial part in our overwhelming success in Desert Storm. But, we also learned that we have some limitations—the most important of which was in our ability to detect and track ballistic missiles.

There is no question the Space Command crews did a marvelous job using Defense Support Program (DSP) satellites to warn our troops of Scud attacks. But DSP was designed to detect ICBMs—not Scud-type threats, missiles that have short flight times and burn cooler than ICBMs.

With perhaps as many as 30 countries acquiring theater ballistic missile capabilities by the turn of the century, there is no doubt our soldiers, sailors, and airmen will see this threat again. Gen Chuck Horner (commander in chief, US Space Command and commander, Air Force Space Command) can testify from personal experience: we need a better system to detect and warn of missile attack.

The Follow-on Early Warning System (FEWS) will improve the fidelity of our missile warning system and increase our ability to provide both strategic and theater coverage to terrestrial forces. This new warning system will be able to discriminate missiles from background heat sources. And it will likely be able to process threat information on board the satellite and link it directly to the theater. It is an important part of any theater, national, or global missile-defense architecture.

In addition, FEWS will be designed for better operability. It will feature much simpler, standardized satellite control and rapid integration with its launch vehicle. As we've learned the hard way, you can't fix control and launch operability problems unless you build these features in during the design phase. In this respect, FEWS will set the standard for future systems.

The future—that's what we are addressing today. But it is a future built on the strong foundations of the past. By building on America's competence in space, we will ensure that our nation remains the preeminent power in space. The Air Force intends to play a leading role. Our vision and mission statements chart the course and identify the goal. Revitalization of our launch infrastructure is already under way. A new space-launch vehicle and FEWS are the next steps. With a sound launch structure, we can assure access to space, cut costs, and improve responsiveness. We can restore competitiveness and guarantee American leadership in space.

The Air Force will lead this effort as we move into the twenty-first century. We will strive for a partnership between the military, civilian, and commercial sectors. We will also strive to be first-class stewards of the space resources entrusted to us by the nation.

Thanks for having me here, and I hope to see you again soon—on the launchpad.

Chapter 28

Airpower: Lessons Learned from Desert Storm

Air War College Graduation Address, Maxwell AFB, Alabama, 7 June 1993

It's a pleasure to be here to help wrap up your year of studies. Our survival and success depend on having senior military leaders who understand how air and space power can help accomplish the increasingly wide variety of jobs we are asked to do. So I salute you for completing this college and reentering the fight.

A special word of congratulations to the record number of international students in this year's class. Several nations are represented here for the first time—a development I strongly support. Good luck as you return to your countries.

And best wishes also to those who made the transition from one service culture to another. The perspectives you shared with your Air Force classmates make this a more valuable learning experience for all. As you go back home to your services, I know you will carry away a good understanding of what the Air Force has done and can do as we point to future jointoperations.

I'll start by stating my hope that each of you received a great education here at Maxwell Field. This place occupies a special niche in military history, reaching back to the days of the Air Corps Tactical School. Not that I am an uncritical fan of every idea produced here in the thirties. I'm putting quite a lot of effort into modifying some of those ideas in application. But I think that we would all admit that when it comes to the study of airpower, all roads lead to Maxwell.

With media accounts on military options in Bosnia and the recent release of the Gulf War Air Power Survey, the spotlight has once again been turned on airpower. So, I thought it might be appropriate, especially in this historic setting, to share some thoughts on air and space power—where we've been, where we may be going.

Let me emphasize at the outset that I mean airpower in the general sense—I'm not just talking about the blue-suit, Air Force brand of airpower. All four services contribute to the airpower of the nation. So, when I use the term, I mean it in this broader context.

We might start by asking what the early airpower theorists envisioned. Their basic tenet was that air forces could be *the* decisive factor in war by attacking directly a nation's will to fight and its ability to maintain forces in the field. Once a nation's war-making ability collapsed—so this logic went—its military would soon follow. All that would be left for friendly ground forces to do was march in and occupy the territory.

This vision has never quite been realized. The early theorists spoke of characteristics most of us would agree are core strengths of airpower—speed, range, flexibility. But these qualities alone turn out to be not quite enough. Moreover, the enthusiasts entirely ignored what were—until recently, at least—what we might call core weaknesses: lack of persistence; reliance on fixed, vulnerable bases; ineffectiveness at night or in bad weather.

So, too much was claimed by the early airpower advocates. Our actual experience up to the end of World War II showed that—for what we expected airpower to do—we would need at a minimum to work on the precision and lethality with which airpower was applied. But, at the very end of World War II, the atom bomb appeared. Here we had a weapon so lethal that we didn't need much precision, and many airpower advocates declared final victory.

"The bomb" may have been perfect from the standpoint of lethality, but—for good reason—we chose not to use it in Korea, Vietnam, and many other lesser engagements. Therefore, airpower confronted again those problems of precision and lethality that some thought the atom bomb had solved for us. So, even though airpower played an important role in Korea and Vietnam, it still was not decisive.

It is in this sense that Desert Storm constituted a watershed event for air and space power. Execution began to catch up with theory—almost in front of our eyes. Precision and lethality were finally seen to be joining up with speed, range, and flexibility.

I believe it is fair to say, as many have, that for the first time, airpower was in fact decisive in the Gulf. Mistakes were made, much improvement was needed, many lessons were learned. Nevertheless, air and space power was the key to our Desert Storm victory.

By the way, this did not mean we could avoid the four-day ground war. It did not and does not mean that ground troops or naval vessels are obsolete.

But it means that airpower has come of age. The five characteristics of speed, range, flexibility, precision, and lethality are finally united into a decisive whole.

As a consequence, airpower's importance is now widely recognized. The principal resource issue in the Pentagon today does not center on the value of airpower but on its structure and ownership—what Sen Sam Nunn (chairman of the Senate Armed Services Committee) has called the "Four Air Force" problem.

As we work through this issue in Washington, many will cite the "lessons learned" from Desert Storm as the rationale for one proposition or another. I'd like to add my two cents worth in just a second, but—first—we should recall that defeat is a much better teacher than victory. Others will surely learn the lessons of the Gulf War better than we do. Change that does not suit narrow, institutional interests will always be resisted, especially when a wonderful victory provides insulation for "business as usual." Anyway, here's my short list of lessons learned, together with resulting policy implications.

The number one hardware lesson of the Gulf War is the revolutionary impact of stealth. Stealth restores surprise to the tactical engagement. And surprise, if you can achieve it, conveys almost overwhelming operational advantage. We all know this. The ambush is nearly always effective, even on TV. Stealth means that, once again, aircraft can ambush targets.

I put precision as a second hardware lesson because we knew about it already. In World War II, the average miss distance for a 2,000-pound bomb dropped in so-called precision daylight bombing campaigns over Germany was one kilometer. By contrast, during Desert Storm, precision had a simple meaning: hitting the aim point. We didn't always achieve it. But we saw this was possible.

As we field combat air forces for the future, stealth and precision must be first-order requirements. Virtually everyone in the Pentagon has signed up to this fundamental notion. The next generation of fighter aircraft will certainly feature stealth characteristics. In addition, all the services are working together on even more capable precision guided munitions.

A third hardware lesson from Desert Storm was the power and potential for what some are calling "information dominance." Information supplied by space systems, AWACS, and Joint Stars began to give commanders a current, comprehensive view of the battlefield and the capability to redirect forces against time-urgent targets.

As I say, the potential is there, but we also saw the painful limitations. For all our advances in C^3I, it still takes hours—even days—for target data to reach the crews that fight the air-to-mud battle. During Desert Storm, we developed some work-arounds; we need to find permanent solutions.

It seems to me the best approach is to devise the tightest possible loop between intelligence and operations. Best of all would be to pump intelligence directly into the cockpit. We could then launch armed aircraft on a vector toward anticipated activity. While en route or in orbit, the crews get data in real time from a variety of collection platforms. In this way, we can respond very rapidly to mobile targets or emerging threats or follow up on ineffective attacks.

As everybody knows, there is nothing new in this approach. In the air-to-air business, the aircraft fire-control radar provides exactly the kind of tight loop between intelligence and operations that I have in mind.

There often seems to be no sharp dividing line between hardware and doctrinal lessons learned. Some could argue that the mission-type tasking I just described is really a doctrinal issue. That's fair. Anyway, let me now focus on lessons that fall more clearly into the realm of doctrine.

The first doctrinal lesson of Desert Storm is well known to us all. At the high end of modern conventional conflict, no form of military power—land, sea, or air—has been employed effectively without first controlling the skies. Because the coalition established air supremacy early, we were able to roam at will over Iraq, while at the same time our own ground forces

operated underneath an air sanctuary. Obviously, this was a priceless advantage.

Another doctrinal lesson from the Gulf concerns management of the air campaign. Even though airmen have long held that control of available air forces should be centralized, the theory has by and large been ignored in practice. For example, in Vietnam, the Air Force and Navy had responsibility for operations in separate geographic areas in the north, and the Strategic Air Command retained control of B-52 strikes. In the mid-1980s, we came up with a fix that would vest all responsibility for the theater air campaign in a single joint force air component commander (JFACC), working for the unified CINC. The JFACC concept was used in the Gulf War. There were a few glitches, but I believe the results speak for themselves.

In Desert Storm, the JFACC was an Air Force officer. In a recent exercise, a naval officer served as the JFACC. The color of the JFACC's uniform is not the issue. The overriding concern is centralized planning and direction, so that air operations make sense as a comprehensive, systematic whole.

The third doctrinal lesson concerns the changing nature of aerial warfare. By and large, air combat has historically unfolded sequentially. Because of limits on accuracy and the need to overcome stiff defenses, there was a sense in which we took on targets one at a time. The final Schweinfurt raid, for example, involved over 1,000 aircraft, essentially all directed against a single aim point. At this rate, shutting down opposing capacity to wage war is a long and costly prospect. Moreover, the enemy often had time to repair the damage or develop work-arounds.

Desert Storm was different. Stealth meant we didn't need to start by rolling back defenses. Any target could be attacked—we decided when. Precision meant that far fewer sorties were needed to destroy key targets. Centralized planning and direction meant that we could mount near-simultaneous attacks on every vulnerable aspect of the opposing target set.

This simultaneous or "parallel" approach to warfare helps explain the decisive effect of the air campaign against Iraq. We didn't obliterate the entire country or its leadership, but we paralyzed it and took away the ability to coordinate a response. In the end, our ground forces did not have to roll back

an army in linear fashion. They ran through, over, and around a broken force.

Of course, the final lesson from Desert Storm is that there are no final lessons. Military planners are often accused of preparing to fight the last war—often rightly so. Just as Desert Storm was not at all like the great war in the center of Europe that we had prepared to fight since the 1950s, the next war will not likely resemble Desert Storm. Thus, what succeeded in the Gulf shouldn't be etched in stone. We must remain flexible in our organization, our equipment, our doctrine.

Well, that's my short tour of airpower. It may seem a long journey to fulfill the promise of airpower's decisive potential. But remember, the entire history of manned flight is only 90 years. People still alive today were born before the Wright brothers flew at Kitty Hawk. What's amazing is that we've come so far, so fast.

What you must do is go out and build on this foundation. So even though your books are closed, let me leave you with one more homework assignment. I challenge you to continue your study, to be advocates at your units and within your communities. Only through the continued efforts of men and women like you will we realize our potential as full—and possibly decisive—partners in the joint war-fighting team.

Congratulations and good luck.

Chapter 29

Flexibility and Airpower

Speech, Air Mobility Command Dining-In,
Scott AFB, Illinois, 12 June 1993

The Bible speaks of three virtues: faith, hope, and charity. They are not accorded equal rank; it says, "And the greatest of these is charity." We know that airpower also has virtues—certain valuable (and—in combination, we believe—unique) characteristics: speed, range, precision, lethality, flexibility. These are all marvelous features for combat forces to possess, but I'm convinced that—like the saving graces of the Scriptures—they should not be regarded as equals; for the greatest of airpower's virtues is *flexibility*.

We've all known this for a long time. When I was in a squadron, we shrugged off the inexplicable changes masterminded by teenage staff officers up in wing. Our ability to comply was easy to explain: "Flexibility is the key to airpower." We said it then, and I'm sure it is still said today. But when we think hard about flexibility, try to define it, measure it, figure out how to improve it, we come to realize how slippery a concept it is.

Exactly what is flexibility? The quality itself is not defined in the Joint Chiefs of Staff dictionary of military terms. Our own doctrine manual, Air Force Manual 1-1, includes a few words about flexibility/versatility, for some reason linking these two characteristics and asserting that—together—they constitute one of seven "tenets of aerospace power." The doctrine author describes this tenet briefly: "The ability to concentrate force anywhere and attack any facet of the enemy's power." Somehow this doesn't add much to our understanding—in part, I suppose—because we all can imagine forces being concentrated and attacking at a point of our own choosing in a very inflexible way, as with the charge of the Light Brigade or the murderous, brute-force assaults persisted in by the Allies during the First World War.

My conclusion is that, unless we've thought long and hard about it, most of us probably could not give flexibility a good,

crisp definition, any more than we could quickly produce a clear meaning for the set of concepts wrapped up in the motto Centralized Command, Decentralized Execution—another icon in our small pantheon of household gods. No criticism is meant here. At our best, we are not a doctrinaire outfit. Odds are, most of us would say of flexibility, "I know it when I see it," and go back to trying to get on the flying schedule.

Well, I checked, and there's no tail number with my name beside it tonight, so I might as well take a crack at defining the term. For openers, flexibility is the capacity to adjust to changing circumstances. But that's not all it is. To help get a grip on the entire concept, let us turn to John Boyd, who—as you probably know—has proposed the concept of the OODA loop as a way to think about problem solving in a dynamic environment. OODA is an acronym for observation, orientation, decision, action—the four problem-solving steps we go through.

Now, three of these OODA-loop elements are quite unremarkable. We can easily grasp the idea of observation, of decision, of action. We sense a problem, make a choice, act on it. Very simple. In fact, these concepts correspond one-to-one, can be mapped directly onto attributes or qualities we seek in our people. Observation to intelligence, decision to leadership, action to courage.

But, what about this other "O," orientation? What does it mean? What does it map to? Boyd uses the example of the F-86 in Korea. This aircraft was in some important respects inferior to the MiG-15, but its powered controls gave it a much faster roll rate. Accordingly, it had the crucial advantage of being able to realign its guns much more quickly in any dogfight. Of course, a dogfight involves a series of OODA loops on both sides, with lots of fast transients in the loops. The F-86's roll-rate advantage meant it could operate consistently inside the bandit's OODA-loop time cycle. This fact had both offensive and defensive consequences. In the defense, it meant we could quickly counter enemy moves. In the offense, it meant we could ourselves generate rapidly changing combat conditions. And here we come to a very important point. Flexibility has both of these two aspects: It is first the capacity to respond well to changing circumstances—an important but somewhat passive virtue. For me, it is the active aspect—the

ability to shape change, to make it work for you—that separates flexibility from mere adaptability.

I believe that we can regard this composite quality—the ability both to create change and to reorient on the new set of conditions constantly presented in any dynamic environment—as a technically better description of what we mean when we say "flexibility." In the OODA-loop formulation, then, orientation corresponds with—or can be mapped directly onto—the quality of flexibility.

Moreover, I put it to you that, over the long run, the other qualities—intelligence, leadership, and courage—are about evenly distributed in the world's population. Don't get me wrong. America will always produce smart, brave airmen. But we should never stake our country's fate on the notion that we are inherently smarter or braver or more gifted leaders than will be put forward by potential adversaries. On the other hand, the way our society works, my guess is we may be able to sustain a long-term competitive edge in flexibility. In my view, therefore, our best bet is to leverage this cultural strength, to aim at building an Air Force that orients better, to build the most flexible Air Force possible.

So, you see why I wanted to talk about flexibility tonight. I spend adverbs like they were my own money, and I say flexibility is *critically* important. The first reason is that, like it or not, things *do* change. The environment is dynamic. Plans change. The "good guy-bad guy" lineup card changes. Technical capabilities change. Although we sometimes act as though they were immutable, even doctrine and employment concepts change. At the beginning of the 1967 war, Israel attacked Egyptian aircraft parked in the open. The world observed and reoriented. The Warsaw Pact decided to build aircraft shelters; NATO reacted with a shelter program of its own. Israel had used up a concept. In exactly this way, events consume alliances, plans, technology, doctrine.

So things change, and today the rate of change is accelerating. Technology provides perhaps the most convincing evidence of this fact. It is possible to argue, for instance, that by about 600 B.C., at the latest, humankind had already invented and was using the military hardware—the sword, lance, and shield—that was to dominate warfare for about the

next 2,000 years. To illustrate the point, when Alexander the Great first crossed into Asia Minor, he is said to have been given as a gift some body armor of Trojan War vintage. This would have made it about 900 years old. We are told that he subsequently wore this armor into battle. Apparently, no one considered this remarkable at the time. Today, we cannot imagine that weaponry would evolve at such a slow place. (I admit that I recently piloted a C-141 that had 32,000 flying hours, but even it was well short of 900 years old!)

So, our technical environment is dynamic to a degree different from anything in human experience. But that's not the only variable in the equation.

The political context for using force is also changing quite rapidly. The Russians call Desert Storm "the first modern war." That's a very nice usage, but I wonder whether instead it may not be "the last ancient war"—ancient in the sense that it involved a rather traditional cross-border aggression, clearly defined objectives on each side, straightforward employment of conventional forces, and so forth. All this is very different from the variety of jobs your Air Force is finding for itself today. The drug war, operations in Somalia and Bosnia, the two nasty little Desert Storm cleanup details—nothing here that bears much resemblance to the cold war circumstances that shaped our Air Force over its first 40 years. But it is from these new, nontraditional challenges that our future tasking will spring.

Finally, as an added complication, we are getting smaller quite quickly. The budget is heading south, taking Air Force formations with it. Some have therefore suggested a "divestiture" strategy—that we figure out which functions are "core" to the Air Force and give up everything else. For my money, that just won't work. We are the air force of first and last resort for the United States—and, for that matter, others as well. The air forces of other countries or other services can specialize—become "niche" air forces. We cannot. We're never sure what the president will ask us to do. In the end, our residual force must be able to respond to a very wide range of demands across the entire spectrum of tasking in air and space, from global situation awareness to theater conventional operations to humanitarian airlift to whatever.

So, flexibility is important—increasingly important as the pace of change quickens, as the variety of tasks we undertake widens, and as resources available to us are reduced. But we have not been standing still. We've been working to increase our flexibility in several ways.

The first effort has been to improve organizational flexibility. That I put organization first will surprise no one. The question of how to organize human activity to achieve particular results has always fascinated me. Immediately after becoming chief, I kicked off the Year of Organization, and we are still adjusting to the rather substantial changes called for as we restructure to the objective Air Force.

As you may know, the Air Staff has under way a total reform of Air Force regulations. I won't go into all that, except to point out that we recently produced in the new format a policy directive on organization, AFPD 38-1. Let me cite just a few lines from it. Under the heading of desired characteristics in Air Force organizations, we find the following:

"*Mission orientation*. Organizations should have a reason to exist and should be designed to achieve the [desired] outcome." Organizations should have a reason to exist! Some pretty advanced stuff here.

"*Decentralization*. Organizations should be designed so lower echelons can achieve objectives without needing continuous control from above." Is this great policy or what?

And, finally, "*Flexibility*. Organizations should be capable of adapting rapidly to changing external circumstances."

Okay! That's what we've been talking about. The point of all this is we have a philosophy—an attitude—from which we are confident will spring organizational designs that make flexibility possible. We therefore require as a matter of policy that our organization be streamlined, de-layered, decentralized—that we do not build inflexibility into our structure.

But we've gone beyond this to try to shape organizational change. There are many examples of this, but perhaps the best has been the creation of composite wings at bases where there had not before been a mix of equipment types. We've taken some criticism for this, which I have discounted because it comes from people who have no real appreciation of the greatly increased flexibility that is built into the wing by putting

air capabilities together in this way. The theme here is that we are not merely adapting to change. Our reorganization effort shows the active face of flexibility. We are setting the agenda, shaping change, causing change.

In my second year, the Year of Training, we took up the task of trying to enhance the flexibility of a wonderful resource—our people. Most of the effort involved improvements in training, but a very important initiative reworked the job classification system. In the process, we made a sizable reduction in the number of enlisted occupational specialties. Henceforward, our people will be more broadly used and, accordingly, must be more comprehensively trained, less specialized.

There will be a whole series of changes to skill training and professional military education, including—for instance—the requirement for everybody to cycle back through technical training at midcareer. These changes mean our people will be better trained—no doubt about it. We can expect them to have a deeper understanding of their jobs. But they can also be expected to possess a broader range of skills. In other words, they will be more flexible.

So, we have not been on autopilot lately. An interlocking set of reforms is under way that will give us a better organizational structure and people better prepared both to respond to and to create change.

Of course, 1993 is the Year of Equipping the Air Force. Here, it will be a little harder, I think, to score quickly. Quite frankly, we are saddled with an equipment-acquisition process that is so bad it tends to throw even the occasional bright spots into shadow. The C-17 is a good example. This aircraft will carry twice the cargo of the C-l4l into three times as many airfields as are available to the C-141. That, of course, would increase tremendously the flexibility of our mobility forces. The issue now is whether we will field the C-l7 or whether it will evaporate in the friction generated by our way of buying military hardware.

But the fact is that our acquisition system, bad as it is, has often produced equipment of great inherent flexibility, which we subsequently were unwilling or unable to exploit. Why did it take us 30 years to install cargo rollers in the KC-135?

What's the rationale for fielding the B-1 and B-2 without the capability to deliver precision-guided conventional munitions? Why are we only now thinking about putting high-speed anti-radiation missiles on the F-15C? These are human failures—failures of the imagination.

And so I turn, finally, to this most important point: All our efforts relating to the organization, training, and future equipage of the Air Force may be accepted and instituted and will make no difference whatever if—when the time comes—we do not think about and use our forces in a flexible way.

For about the last 500 years—that is, over the period during which the principal implements of war have relied on chemical, rather than animal, energy sources—war at the top end has involved a contest between systems. To beat a system, it is necessary to direct against it another system either more powerful or more flexible. Often, our first impulse is to try to overpower. The appearance of the U-boat in the North Atlantic at the beginning of World War II meant the Allies had to form up shipping in convoys. For a while, at least, the convoy system beat the U-boat system. But note what was given up in this approach. Individual ships could not leave port when they were ready; they waited for the convoy. They could not sail at their best speed, plot the course they thought right, zig and zag as they wished. They did what the convoy did. They traded flexibility for power—the strength of numbers.

We took much the same approach in bomber employment. Early on, we found that bombers had to be grouped in large formations to survive German defenses. Thus, we integrated—days in advance—the planning and operations of many bomber bases—and eventually fighter bases too—as we were forced to adopt fighter escort. As you might expect, this sort of integration is the enemy of flexibility. We were not able to take full advantage of the high cruising speed of our bombers. The sedate pace imposed by formation maneuvering constraints actually helped solve the problem for German fighters and antiaircraft artillery. We settled into a sort of attrition war as prolonged and deadly and indecisive as anything on land.

It is interesting to read an account of these operations in our doctrine manual. Volume 2 has an essay titled "Aerospace Power Capabilities." This essay cites our World War II experience,

"when more than 1,000 bombers launched from dispersed airfields in England, concentrated their striking power over targets on the continent, and then returned to their separate bases." Unhappily, a great many of them did not return. Perhaps by mistake, this awful experience appears in our doctrine manual under the heading of flexibility.

By the way, fighter operations in the Second World War did retain much of their flexibility because they did not have to be so highly integrated into more powerful systems. Aircrews sent in pairs or in easily maneuvered small formations were able—with comparatively little outside assistance—to search for, find, and destroy targets wholesale. We all know the devastating impact this had on German ground forces, isolating and breaking up some of the best units ever seen in battle.

However, in the decades since World War II, even our fighter force has become increasingly dependent on a variety of supporting systems—electronic warfare, the airborne warning and control system, reconnaissance, and so forth. We ought to be concerned about this. The initial "alpha" packages of Desert Storm—those we flew before we could be fully confident of air superiority—were choreographed down to the last detail. The clockwork precision of these first few days was really remarkable, considering the weather, the number and variety of sorties flown, and the fact that the air forces of eight other coalition nations—plus our own Navy and Marines—all had to be orchestrated. It puts to shame von Moltke's mobilization and deployment of Prussian troops against the French in 1870, when a million reservists and horses and thousands of tons of supplies had to be delivered to predetermined jump-off points in a short period of time. Careful planning meant that contest, too, was decided almost before the first shot was fired. But it is said that the Franco-Prussian War—like the world war a generation or so later—was inevitable, the momentum irreversible, once mobilization had been ordered. It wasn't simply that no adjustment, no fine-tuning was possible; it was an all-or-nothing proposition. The Prussians lost even the flexibility to stop the conflict short of actual hostilities. We should remind ourselves from time to time that our alpha packages—these great "gorillas"—also involve a trade-off of flexibility.

Don't get me wrong; there is a time and place for careful scripting, and the first days of Desert Storm were a good time and place. We were marvelously successful. Moreover—and most important—we did move quickly to flexible concepts, as units were fragged to kill boxes or Scud-hunt holding points with mission-type tasking. That is a memory we must keep alive. My worry is that the "gorilla" will become the model for the air campaign—the school solution, the stereotype of the air operation. That kind of mind-set will make hash of all our other efforts to build flexibility into our organization, our people, and our equipment. For me, this is the key point: The effective employment of air and space power has to do not so much with airplanes and missiles and engineering as with thinking and attitude and imagination.

Ladies and gentlemen, we have every reason to be proud. We won the cold war. We won Desert Storm. We've been on a roll lately. We all pray for our nation's continued success—hopefully in peace, but in war if war there must be. And, if there must be war, we hope to bring to the battlefield a lopsided superiority in every martial aspect—as, indeed, we did in Desert Storm.

But if this nation lasts another thousand years, as we pray it will, we can be sure of contests that will be much closer calls. When this happens to us, what will be important is our ability to combine organization, training, hardware, and doctrine into a single, decisive whole that is flexible enough to respond in relation to the specific enemy and circumstances and purposes at hand—to *adapt to change,* to *shape change,* to *compel change.*

Ladies and gentlemen, I give you flexibility—the key to air and space power.

Chapter 30

Lifting the Ban on Homosexuals in the Military

*Hearing before the House Military Forces and Personnel Subcommittee of the Committee on Armed Services, Washington, D.C., 21 July 1993**

Mr Skelton (subcommittee chairman): Let me ask each of you gentlemen these questions—hypothetical questions. Assume you are now a first lieutenant, and you are a platoon leader or the equivalent. I will give you four hypothetical situations: A private walks into your office and says, "Lieutenant, I must tell you I am gay"; second, another private walks into your office and says, "Lieutenant, I don't know, I may be gay"; third, at PT—6:30 in the morning—you go out, and the troops yell, "Good morning, Lieutenant, we are all gay." Fourth hypothetical. A private, every Friday night for a period of two months, gets off the bus with his buddies and goes into the adjoining town and walks into a gay bar. He also is seen nearly every day reading the magazines next to his bunk that are all gay magazines, and he also appears in a gay parade in a nearby city—all of which are known to the fellow members of the platoon. How would you as a first lieutenant handle each of these situations?

General McPeak: Mr Chairman, your question—your examples raise two issues. The first issue is, What is the impact of homosexual statements? The second issue is, When do you

*During the 1992 election campaign, candidate Clinton promised to end the practice of excluding declared homosexuals from military service. Following the election, the service chiefs advised that they could stop asking about homosexual orientation or previous behavior on entry forms. They also concurred in ending investigations based on less-than-substantial evidence of homosexual behavior. On the other hand, the chiefs advised against allowing open homosexuality in the ranks. After six months of national debate, President Clinton announced what he called an "honorable compromise" that receded to the chiefs' position in all essential respects. This became the so-called Don't Ask, Don't Tell, Don't Pursue policy. The day following the president's announcement, the secretary of defense and the joint chiefs were called to Capitol Hill to testify on the new policy proposal.

launch an investigation? or How do you differentiate between an inquiry that is legitimate and a "witch hunt"? Let me deal with those two issues.

First of all, the new policy defines a homosexual statement as a type of homosexual conduct. The airman who comes to the orderly room and tells me he is homosexual is headed out the door. He is leaving the Air Force. "Don't tell" means "don't tell." Now, there is this so-called right of rebuttal presumption or whatever it is, so he can start making the case if he wants.

Mr Skelton: May I interrupt you right there? And I will get to this a little bit later—probably with the folks tomorrow—but, How do you prove a negative? is my question.

General McPeak: That is his problem. This young airman has come in the orderly room and said he is homosexual. That, by definition in the new policy, is a type of homosexual conduct, and he is headed for the exit. "Don't tell" means "don't tell." And so that is scenario number one.

Scenario number two—the youngster comes in and says, "I don't know whether I am homosexual or not, but I may be." I would say, "Come back when you've made up your mind." Because, you know, this is not "telling"; this is a guy coming in that is a little confused—who wants to talk things over. So we will give him the help we can.

Hypothetical number three is a statement made by a whole unit. They are headed, all of them, for the door. They are about to leave the Air Force. Even considering that this is a very cohesive unit—an attribute we ordinarily like to have—these guys are all going home because that is a statement about homosexuality, which is defined as a type of conduct.

Your next issue is what constitutes credible information under which a commander might make an inquiry. The new policy says that if you go to the gay bar, that in itself is not a good enough reason to launch an investigation—or if you are in a gay parade or if you read gay literature.

My interpretation is that isolated instances of that kind do not give the commander the right set of indicators he needs to ask for an inquiry. But the way you put the question was, he goes every day—he spends all his off-duty time in a gay bar. There is a pattern of behavior here. In my judgment as a

commander, I think the scenario you described is enough to launch an inquiry.

Now let me just put in context how big these problems are, because I'm sounding like a hard-liner here, but I think we need to just put this in a total context. In fiscal year 1992, the Air Force had 81,600 discharges. Ten thousand of them were involuntary discharges, and of those involuntary discharges, 115 involved homosexuality. That is, less than two-tenths of 1 percent of all the discharges out of the Air Force involved homosexuality last year, before the policy changed.

Now, of the 115 homosexual discharges, about 50 percent of them were for conduct, which would be actionable under the new policy in any case. So we are talking about 57 cases of homosexual statements unassociated with any provable homosexual acts. In the case of most of those statements—I don't have any data on this—my hunch is those 57 people wanted out of the Air Force, so they came to their commander and said they were homosexual. And they would be out of the Air Force under the old policy or the new policy.

So, what we are focused on here is that very small number of cases where a person wants to make a statement about homosexuality and also wants to stay in the Air Force. Now, each such case is worth considering at length because they are human cases, and we should take them seriously—but this is not the biggest problem in the world. I mean, we had five times as many people involuntarily discharged last year for drug abuse. We had 10 times as many people involuntarily discharged for being overweight. So if you put this in the context of the kinds of problems the commander faces administratively, this is not a big deal.

Chapter 31

The Tuskegee Airmen Story: An Air Force Legacy

Keynote Address, Military Luncheon,
Tuskegee Airmen 22d National Convention,
Sacramento, California, 13 August 1993

There's no group I'd rather break bread with than Tuskegee Airmen. Thank you for making me one of you.* I'm going to talk some today about what "we" have done or "our" achievements. Some of you may think, "What's this 'we' stuff?" I hope you will take no offense at my presumption. I'm just very darn proud you honored me by including me in the outfit.

Like the larger Air Force, we Tuskegee Airmen have a rich heritage. Sometimes I think the value of heritage is not always clear to everyone. I've heard the word *generation* defined as the time between tearing down a historic landmark and kicking off the fund-raising drive to build an authentic reproduction. So, your convention theme—"A valued heritage dictates a proud future"—provides a very useful reminder that we need to think more seriously about heritage.

It may surprise some when I say protecting Air Force heritage is one of my major preoccupations. As you know, we're going through a major drawdown, and—if we're not careful—we could end up closing up some of our most celebrated formations. Now, you and I both know it takes more than force structure and hardware to make a war-fighting team. A fighting Air Force is built as much on heritage as it is on facilities or equipment. So, today we risk creating a new kind of readiness problem—an Air Force made hollow by neglecting its heroes, its famous flags, its core values. I'm not going to let this happen. We simply must ensure that successor generations of airmen are steeped in our history and heritage—

*Some months before this speech, General McPeak had asked to join the Tuskegee Airmen—not as an "honorary" but as an ordinary, dues-paying member of the group.

taught in the classroom, reinforced in squadrons, bragged about at beer call.

Part of our legacy is the story of Tuskegee Airmen. All of us here know this story by heart; many of you lived it. But I hope you'll indulge me for a few minutes while I talk about our exploits—the great deeds of the Tuskegee Airmen—as an example of what this special heritage means to me and to the Air Force. You see, the Tuskegee Airmen story is important—important for a lot of reasons. One reason is that it's about people who had a vision of a better society. Martin Luther King said he had a dream—a dream we all share. But who came before him? Who prepared the way? Who made it possible for him to have that dream? An earlier generation of dreamers—some here in this room. The Tuskegee heritage is also important because it personifies, it embodies, it represents some of our institution's most important values—values like tenacity, leadership, teamwork.

Take tenacity. It took years of unrelenting pressure to get access to aviation slots. Once the door did finally, reluctantly crack open, it took more tenacity, perseverance, and hard work to dispel the myth that black airmen could never learn to fly and maintain aircraft.

Take leadership. We had outstanding leadership up and down the ranks. It started with the commander—Lt Col (later Gen) Ben Davis. Over and over he reminded everybody of the mission: protect the bombers. No running off after Germans just so you could be an ace. Protect the bombers.

Others, too many to mention them all, appeared throughout the organization and took up the challenge. On 18 July 1944, Capt Lee Rayford led 61 P-51s to escort US bombers to targets in Germany. The bombers were late. If the fighters departed, the bombers would have no protection for the most dangerous part of the bomb run. If the fighters stayed, they might not have enough fuel to get home.

As you know, Rayford waited longer than orders required, escorted the bombers, and fought off a superior force. That day they shot down 11 German fighters without losing a single pilot.

On 24 March 1945, with Davis leading, Tuskegee Airmen went in with five other fighter groups in a maximum-effort

mission. The assignment was to escort bombers to the edge of Berlin and then pass them off to another fighter group. The target was the Daimler-Benz tank assembly plant, a very well protected target in Germany.

Approaching Berlin, our guys ran into a swarm of German fighters, including 30 of the newest jets—Me-262s. At the rendezvous point, the relieving fighter group had not arrived. Despite needing to fly 1,600 miles round-trip and taking part in one dogfight already, Tuskegee Airmen stayed with the bombers.

As they got closer to the target, they fought off another jet formation. In the end, Tuskegee Airmen flew through the heaviest defenses of the war, fought off the best the German air force had, did not lose a single bomber to hundreds of attacks, and downed three German jets with the loss of only one P-51.

Tenacity, leadership, and—finally—teamwork. I recall hearing about the first Tuskegee Airman to drop a bomb on the enemy. The pilot was Lt William Campbell. The time was late spring 1943, during the air assault on the island of Pantelleria. When Campbell returned to base, he said, "I was scared but determined to stay on lead's wing even if he carried me into the front door of enemy headquarters." That's teamwork. The payoff occurred when Pantelleria surrendered—the first time in the history of warfare that ground resistance was overcome by airpower alone.

Our heritage was built on teamwork—not just in the air, but also on the ground. We flew 15,500 combat sorties. That proves how good our crew chiefs were. No one flies over 15,000 sorties without serious help. Trying to keep aging equipment safe and in fighting form was no easy task. We've all heard the stories: how line chiefs had to hold a hose over the old engines in the P-40Cs to keep them from overheating during warm-up; how ground crews would ask pilots if they flew through an oil storm—that's how bad the engines leaked.

Other times, new equipment was a challenge. When one squadron got P-47s, Washington sent a team from Republic Aircraft out to explain how to fly and crew the Thunderbolts. But our engineering officers and line chiefs already had it figured out. Before the Republic Aircraft team got there, Tuskegee Airmen tallied five kills in their new planes.

After the war, the success on the support side of the house was just as important as the success of the aircrews in giving the Air Force the push to move out on integration. For every pilot there were 10 others providing support. From the beginning, Tuskegee Airmen included the entire airpower team—pilots, navigators, bombardiers, gunners, radiomen, mechanics. So, we should never forget this important aspect of teamwork.

This history; this tradition; this legacy of tenacity, of leadership, of teamwork—this is heritage worth remembering and retelling. It means a great deal to the whole Air Force. So, Tuskegee Airmen—perhaps more than others—know heritage has real-life implications. Take the nickname "Redtail Angels." That red tail stood for a reputation: no escorted bombers lost to fighters. Seeing one coat of red paint gave confidence to bomber crews—inspiration to fighter crews. Such simple things—a red tail, a unit flag—are often key aspects of heritage that can pay big dividends in combat.

The Air Force is fortunate to have units like the Tuskegee Airmen that carry the traditions of our greatest heroes, our toughest campaigns.

Back in Washington, my problem is that the defense drawdown is putting some of our heritage at risk, causing us to fold, case, and shelve many proud unit flags. To me, these flags are more than symbols. They are living reminders of values that define the Air Force.

Since the Air Force hit its peak in 1988, we've about cut in half our offensive combat forces—fighters, bombers, missiles. So far, we haven't paid enough attention to the heritage fallout. If we're not careful, just taking down a squadron here and a wing there will whittle away at our Air Force heritage. Can any of us imagine the Army without the 82d Airborne, the 101st, the Big Red One? We must be vigilant to ensure our proudest flags don't get lost in the shuffle.

To protect our heritage, we've recently taken a deliberate look back at wing and squadron flags across all categories. First, we traced our original Air Force flags from those that were organized before the buildup to World War II began. This is sort of the original Air Force, including our first 13 groups, now wings—our elder statesmen.

Second, we tagged certain flags with particularly distinguished records: flags that have earned the right to be kept flying. This list would include units like, for instance, the fighter wing with the most aerial victories (4th), the mobility wing making the first nonstop flight around the world (43d), and so forth.

As our force structure contracts, the original flags—and the special heritage units—will be the keepers. We'll keep them flying as we progressively close the others. Now, let's circle back to what happened to the Tuskegee Airmen flags.

By the end of 1949, the 332d Fighter Wing and the four Tuskegee squadrons had been inactivated. One of the squadrons—the 301st—has never been brought back to active service. The first Tuskegee Airmen flag to fly again was the 302d Fighter Squadron—reactivated in 1987. Now serving with the Reserve at Luke AFB, Arizona, the 302d has continued its proud World War II record. Flying F-16s, the 302d took part in Operation Provide Comfort in northern Iraq. Their parent wing was the first Reserve unit to be equipped with the AMRAAM.

The 100th Fighter Squadron was reactivated in 1989 as a flying training squadron at Williams AFB, Arizona. When Williams closed this past April, the 100th's flag went back on the shelf.

That leaves the venerable 99th—which also served at Williams. As you know, after Williams closed, the 99th was inactive for only a month. By May, the 99th Flying Training Squadron was back in business at Randolph AFB, Texas, where today it operates the Air Force's newest trainer aircraft—the T-1.

Let me add that I'm pleased to announce that the 99th—the first Tuskegee Airmen flag, the squadron Davis and Maj George S. ("Spanky") Roberts commanded, the Tuskegee unit that fought in more campaigns and earned more honors—is one of those special heritage units I speak of: an Air Force keeper. We will keep this flag flying. The 99th will be permanent proof of how much we value the Tuskegee Airmen heritage and of how much we draw on it to build the world's most respected air and space force.

Too often, we hear that history is being made faster than people can learn it. In the rush to a new era, we must ensure

that we do not forget our heritage. This convention is dedicated to the idea that an Air Force without a past will not have a future. With your help, we will ensure that our story—the Tuskegee Airmen story and heritage—are preserved in the Air Force of today and tomorrow. Thank you.

Chapter 32

Preserving Air Force Heritage

*Keynote Speech, Air Force Historical Foundation, Bolling AFB, Washington, D.C., 9 September 1993**

If we try to look at today's developments from the viewpoint of some future historian, it is clear that the early 1990s will be seen as a time of sharp downsizing, as a time of reorganization, and—I hope—as a time in which we took care to protect our heritage. Let me spend a few minutes explaining why heritage is so important to us and what we're doing to protect it.

All of us understand that our air forces exist for the ultimate purpose of putting fire and steel on targets. That means the combat function is the core of our business. If you asked a man on the street what it takes to get this job done, he'd quite likely point to some tangible thing: a stealth aircraft, a precision guided weapon, an air base—in any case, a material (and usually high-tech) object—a *thing*. But—and all professionals understand this—the important mission component is *people*. And, therefore, the most important improvements we can make have to do with the human dimension—with recruiting and training and keeping and motivating high-quality people. In my view, our history, our legacy, our heritage play an essential role in these human values.

Now, combat is often an individual event—like, say, tennis. It sometimes comes down to pilot versus pilot—1 v 1. And so we recognize individual achievement or personal valor. But, more often than not, combat is a team sport, more like soccer than tennis. Individuals still score, but it's the team effort that makes scoring possible. You all know this, and I mention it only to help me explain to myself why it's so important for us to pay attention to team performance, to the units that people served in, to the flags that have flown under circumstances that cause us the greatest pride.

*The audience included members of the RAF Historical Society.

Anyway, we are paying attention. We've recently taken a comprehensive look back at wing and squadron flags across all communities—fighter; bomber; mobility; missile; command, control, communications, and intelligence; trainers; space; test; special operations—all of them. Before this initiative, our heritage-preservation effort, such as it was, was disjointed. Each command was left to its own approach. Commanders who cared—and many didn't—watched over their own small pot of unit flags. It was to prevent the piecemeal loss of our legacy that we decided on a systematic, three-step approach.

First, we looked at the age of our formations. This was fairly straightforward. As you know, by the early 1930s, we had established 13 combat groups. Of course, these groups are called wings today, but their numbers and their heritage still carry through. These groups and their squadrons are the oldest combat organizations we have—kind of the original Air Force, our elder statesmen. If you go back to the cities, towns, and villages of this country, these are the units people would most associate themselves with. This is true because, simply by being on the books for 50 or 60 years, more Air Force men and women would have cycled through these units.

So, we first resolved to protect our oldest units—to keep these original 13 flags flying. By the way, some of these unit flags had already been folded by the time we got around to doing this, so we had some work to do. Second, we looked at units established starting about 1940—during the rapid buildup for the Second World War. Here, the issue was not age but unit achievement. We identified flags with illustrious accomplishments to their credit—the flags that had literally earned the right to keep flying. We didn't reach for particular specifics, preferring instead to let the history speak for itself.

This list would include units like the following:

- the 23d Wing—the Flying Tigers.
- the 4th Wing, with the Royal Air Force "Eagle Squadrons" and more combat kills than any other wing.
- the 56th Wing, with 39 aces.
- the 60th Wing, which made our first paratroop drop of World War II, helped in the Berlin airlift, and made the first jet landing in the Antarctic.

- the 305th Wing, whose logbook includes Schweinfurt, the Battle of the Bulge, and a commander named LeMay.

There are so many more—but you get the idea. We wanted to keep wing flags in each operating element of the Air Force, so we tried to find fighter flags and bomber flags and missile flags, and so forth, of special distinction. I'll admit, given the desire to keep flags in each category, there's a certain amount of subjective judgment here. In the missile category, for instance, we've never fired an intercontinental ballistic missile in anger, so it's hard to compare a missile wing's combat record against that of other kinds of combat wings. But President Kennedy called the 341st Wing his "ace in the hole" during the Cuban missile crisis, and this fact distinguishes the 341st—sets it apart as a missile unit.

Other wings are associated with one-time spectaculars—the 509th Bomb Wing, for instance. The 509th was recently reestablished to stand up the B-2 operation at Whiteman AFB, Missouri. The 509th, of course, is the only outfit that has ever dropped nuclear munitions in anger. Its record otherwise is not all that distinguished. Nevertheless, the 509th has a secure place in history, and we thought it ought to be protected.

So, we decided first to preserve our 13 oldest wings. Second, we identified a small number of additional wings that had a record of special accomplishment. As you might expect, there is some overlap here, because some of our original 13 flags have served with great distinction. But for our purposes, it didn't matter. The 13 oldest were given a bye into the finals and were joined there by the units that fought their way through the qualifying rounds.

The final step was to rank-order the remaining wing flags. Here we used a scoring system with points awarded for years of service, decorations, streamers, aerial victories, and so forth. We've done exactly the same thing for squadron flags that I've described for wings. That is, we've identified our oldest and our most distinguished squadrons and have rank-ordered the rest.

Now, the idea is, as our force structure continues to shrink, the oldest and the most distinguished flags will be keepers. We will deactivate and turn in other wing and squadron flags,

starting with units that have the lowest heritage scores. As installations close, we'll move unit flags around to ensure the keepers are protected. We will no doubt take some criticism for this. Some will say, "What difference does it make? You take one number down over the door and put another one up. So what?" We can't really respond to these critics because they don't understand the institution. If the numbers don't mean anything to them, if heritage isn't important to them, they'll never understand what we're about.

I don't expect we'll see much of this kind of criticism inside the Air Force. We haven't been in business long—less than 50 years as a separate service. Even so, most Air Force people understand the importance of pride and roots. A second kind of criticism will be more effective because there is a certain cost to doing this. We'll have to change signs around the base. We'll have to order new patches and new stationery and so forth. I've put out guidance that says don't repaint wholesale—wait until it's necessary. Don't buy new stationery until the old stock is used up, and so forth. We'll try to think it through so people don't have to go through this two or three times. But, in the end, there will be a certain cost associated with this initiative.

In the context of our mission, the costs are trivial. I have absolutely no doubt that we'll be a better organization to accomplish our mission if we preserve our heritage. In fact, this may be the lowest cost approach to increasing combat effectiveness. Anything else we do—enhancing training or buying better equipment or improving facility support—would certainly cost more.

I don't suppose any of this would make much difference if the Air Force were growing—or even if it were staying the same size. Then all our organizations—all our flags—would be safe. But the problem in the Pentagon—or in Whitehall, for that matter—is that the drawdown is putting our heritage at risk, causing us to fold and shelve many proud unit flags. To me, these flags are more than symbols—they are living reminders of values that define the Air Force. If we're not careful—just taking down a squadron here, a wing there—we'll whittle away at our legacy; we'll create a new kind of hollow Air Force—one

that's lost its heritage, its heroes, its famous campaigns, its core values.

That's a quick look at our heritage program. I know this was a bit like preaching to the choir, but I thought you'd appreciate my view of the process. I'd like to take credit for recognizing that an Air Force without a past will not have a future. Unhappily for me, that simple, powerful idea was put forward by another chief of staff—Carl Spaatz.

He remembered the lean years of the 1930s—how the future great captains of World War II prepared by studying and debating the lessons learned from World War I Spaatz saw a parallel developing in the 1950s, so he set up the Air Force Historical Foundation. That first meeting in 1953 was a who's who of airpower: Twining, Vandenberg, White, Eaker, McKee, others. It would have been fun to have been there. Spaatz gave one charge to the group—preserve and perpetuate the history and traditions of the Air Force and of the people who've devoted their lives to its service. All that's left for us to do is salute smartly and say, "Yes, sir."

Chapter 33

Year of Equipping the Air Force

Speech, Air Force Association National Convention, Washington, D.C., 15 September 1993

I'd like to spend a little while with you discussing how we are doing in this year, 1993—the "Year of Equipping the Air Force." As you know, we started the "year" business in 1991, using the law of the land as our guide. Recall that Title 10 of the US Code gives us our functions to "organize, train, and equip" air forces for prompt and sustained operations. We concentrated on organization in 1991 and on training in 1992. Our reorganization effort was very important and is having far-reaching effects but was fairly easy to do. By and large, we are trusted on the issue of how to organize air and space forces, and our streamlining approach not only strengthened us but also saved money. So, it was relatively easy for the secretary and me to sell.

Training reform has been harder. Although people believe us when we talk about training needs, setting higher standards usually carries a price tag. As a consequence, many of our training improvements must be phased in over time as we find money to put against the problem. So, training reform is doable, is already under way, but has come along a little slower than reorganization.

Now, we knew we would face the toughest challenge of all when we came to this year, the Year of Equipping the Air Force. In part, this is true because the system we use to acquire hardware is much closer to total failure than ever was the case for organization or training. There is simply much, much more to fix. And, in part, the job is tougher because the Air Force has so much less scope in being able, on its own, to come to grips with the problem. Quite frankly, we do not have the same kind of credibility on this issue. The fact that military procurement provides steady work for more than 25,000 auditors is compelling evidence of a widespread skepticism about the defense acquisition process. So, the system is badly broken,

and there is not much the Air Force—acting alone—can do about it.

I will return to each of these points in a minute, but—first—I should tell you about a little reading I've been doing on our early hardware acquisition efforts. Did you know that, before the turn of the century—during the Spanish-American War and well before the Wright brothers made their first flight—the War Department secretly gave $50,000 to Dr Samuel P. Langley, who subsequently was unable to produce a promised flying machine? This was, of course, the first "black" program. When Congress and the press found out about it, they had a field day. Does any of this sound familiar? Think about the lessons learned on this very first aircraft-procurement failure. "Fly before buy" sort of jumps out at you. Maybe we could add a point about excessive security classification.

Incidentally, by 1917, the scandal had blown over to the extent that we were able to name one of our premier bases after the aforementioned Dr Langley.

Of course, the Wright brothers did fly in 1903—a sort of "concept demonstration" at Kitty Hawk—and then had great difficulty getting anybody interested in their "silver bullet." The brothers put together a tough marketing effort, with Wilbur himself appearing at a formal hearing of the Ordnance Board in late 1907 and guaranteeing that they could provide a successful aircraft for $25,000. This finally pried loose a Signal Corps specification tailored to fit the Wright brothers' machine.

It's interesting to read this document—what we would today call a "request for proposal" (RFP). Then it was an "advertisement and specification for a heavier-than-air flying machine," Signal Corps specification no. 486. I have it here at the podium, from beginning to end—one page long. The specification says the aircraft must carry two persons and enough fuel to fly 125 miles. If it flies 40 miles an hour, the producer gets the $25,000. If 39 miles an hour, 90 percent of the money; 38 miles an hour, 80 percent; and so forth. Less than 36 miles an hour, and you're out of there. Similarly, bidders are "incentivized" for higher speed: 41 miles an hour, 110 percent of the money, and so forth, up to a maximum of 140 percent for 44 miles an hour.

Today, I suppose we would say that speed is a "key requirement," with 36 miles an hour a "threshold" and 44 miles an hour an "objective"—a pretty sophisticated contracting concept, all spelled out in a one-page document. By the way, I was going to bring along the F-22 specification, for contrast, and to show how much we have "learned" in 80 years. But, luckily, it's classified.

Anyway, after having done all the work and after getting a specification that was tailor-made for their product, it must have shocked the Wright brothers when 41 bidders submitted proposals. This probably doesn't surprise many in this audience. In the end, though, only the Wright brothers actually delivered an aircraft for trials.

One thing you notice as you read the Signal Corps specification is that it is just that—a specification. It is not what we would today call an operational requirement. That is, it does not attempt to describe a needed military capability. In fact, the guy who signed the specification—Brig Gen James Allen, the chief signal officer of the Army—was a little skeptical about what could be done with airplanes. In one of his letters, he says that aircraft are obviously unsuitable for dropping explosives because of their high speed. I'll quote the letter: "Traveling at the rate of 30 miles an hour, even after considerable practice, it is not thought a projectile can be dropped nearer than half a mile from the target." Many of you will be able to detect, in these words, the faint outlines of a continuing controversy.

But my point is that there is a big difference between a requirement and a specification. A requirement is generated by the user and identifies a needed capability. For instance, we could say that a modern bomber needs to penetrate hostile ground defenses and survive. Such a requirement would not normally be part of the contract but would provide a baseline for subsequent operational testing.

By contrast, a specification is generated by the acquisition agency and identifies specific design details or performance levels. To continue the bomber example, a specification might call for our bomber to appear to be a certain size when illuminated by radar of a particular frequency. A specification of this

type is stated in discrete, measurable values that do become part of the contract and are measured in development testing.

I know you all understand this, but just let me say it again. In development test, we measure to see whether new hardware meets contract specifications. What size does our bomber appear to be for a radar of a certain frequency? We want to know whether it meets the specification. In operational test, we ask an entirely different question: Can it penetrate and survive? We want to know whether it meets the user's requirement.

Naturally, a lot of thought goes into specifications, and we're serious about meeting them. Ultimately, however, what we need is hardware that fits our requirements. In theory, at least, a new system might meet none of the contract specifications and still suit the requirement very well. Or, it could meet all the specs and have absolutely no military value. This might have been, but wasn't, the case for Signal Corps specification no. 486. It was fairly easy for the Wright brothers to meet the spec, but it wasn't clear what use the hardware would be put to because there was no established requirement.

Now, let me return to those two points I was making about the problem of equipping the Air Force.

First, as I said, it is generally accepted that the system used by this nation to acquire new military hardware is badly broken. This is not to say we haven't produced some first-class equipment; we lead the world in this regard. But it takes too long and costs too much in both money and people to make the system produce—almost in spite of itself. The public dialogue about specific acquisition programs is bitter and divisive. Scandals are uncovered and trumpeted. Tarnish rubs off on all parts of our organization, destroying confidence in the entire institution. There is a certain irony in this. Public complaints about us seldom concern our actual performance in the field. In other words, the quality of our product has, in fact, never been better. Even so, the procurement process so taints us as to leave our citizens with a negative general impression.

The defense procurement system has been studied many times and at great length. I expect most of you are familiar in at least a general way with the recommendations of the Defense Science Board, the Grace Commission, the Packard Commission, and the many other groups that have studied the

problem. A main point of all these studies is that we should scrap or at least sharply reduce the seemingly endless volumes of rules and regulations that, in turn, lead to the hundreds of documents describing in great detail how every weapon system will be developed and bought that, in turn, lead to the thousands of acquisition personnel who oversee the paperwork generated by the documents. A recent Carnegie Commission report estimated that the overhead cost of regulation consumes about 40 percent of the acquisition budget and that this figure will grow as programs—but not overhead—are cut.

Eight months ago, a detailed set of proposals was put forward by the so-called Section 800 Advisory Panel. Their 1,800-page report recommended deleting or repealing 135 statutes and amending or modifying 364 more.

So, the system is broken, and everybody knows it. Everybody also knows it will be hard to fix. It has kind of been reformed to death. The Carnegie Commission, of which I spoke, said forget reform; make a clean break and start over again. And that might be the best approach. In any case, Secretary Aspin and his new team understand the problem and are hard at work on it. The Air Force will enthusiastically support any defensewide effort aimed either at reform or more radical change. But it is obvious that this is a national problem requiring a national solution. There is not a lot the Air Force can do to fix the overall system. On the other hand, we—the Air Force—cannot and do not want to give ourselves a free ride. We're a customer—a big customer—and we need to make sure that we are as good a customer as we can be under the circumstances.

The first step we took in this regard was as part of the reorganization of the Secretariat and Air Staff back in 1991. We established, under the deputy chief of staff for plans and operations, a director of requirements—XOR. Now, that makes operations the advocate for requirements. A statement of requirements becomes official when signed off in my office. I have personally reviewed and approved 31 operational-requirements documents to date, and the vice-chief has signed off 48 more in my name. There are another 200 or so documents working their way through the process to the command

section for approval. XOR has established a library of requirements statements. Our aim is simple: If you don't have a requirements document held by XOR and signed by the chief of staff, you do not have a requirement.

Why this is important is clear from what I've said about requirements. If I read in *Aerospace Daily* that the Wright brothers can't make 40 miles an hour or the B-2 is not quite as stealthy in a certain frequency as we hoped, then I'm interested, and I check and find out what's happened. But, strict specification compliance is not my game. Specs can and should be changed. If you tell me the Wright brothers or the B-2 cannot do the needed military task, then that system is in real trouble. So, it's very important that we have the right person—the operator—as the advocate for the requirement; that we have top-level agreement and understanding of the requirement; and that we have stability in the requirement—that it's kind of hard to establish one or to change one, once established.

I stress the point about stability because of the pressing need to reduce turbulence in the acquisition process. Both intuition and experience tell us that constant change in defense programs can be even more damaging than highly debatable—but enduring—decisions. For example, a poor decision (that stays decided) may produce second-rate hardware. Decisions that do not stay decided typically produce no hardware at all. Moreover, when we do manage to sustain a program to the point where it actually fields hardware, we often experience "sticker shock" as costs are driven out of sight by the seemingly interminable routine of starts and stops, stretches and rephases. Someone has observed that running one of these programs is like trying to manage an earthquake.

It may be impossible—in our style of defense procurement—to do orderly programming because of the annual cycle of debate, authorization, and funding. But this just makes it more important that the Air Force not further disturb an already unstable system. As I've indicated, we made a start on this by formalizing and strengthening our requirements determination and approval procedures.

Now, during this year, the Year of Equipping the Air Force, our major effort is to further enhance the stability of our acquisition programs by focusing top-management attention on long-range equipment-modernization planning. We have challenged the leadership of our major commands to project their equipment-modernization requirements and write acquisition plans out to the next 25 years. We will shortly have such plans in hand from every operating element—from our forces for air combat, for mobility, for space, and for special operations. These will be quite comprehensive plans, covering needed modifications to existing equipment as well as procurement of all kinds of new hardware, munitions, and supporting systems.

For example, Air Mobility Command at Scott is busy right now producing an integrated mobility modernization plan covering light, medium, and heavy air transport, administrative lift, and tanker requirements. In each of these mobility segments, it must also address crosscutting equipage issues. For instance, what do we need for effective command and control of the modernized force to give us true global mobility? What's our plan for self-protection as we increasingly fly in and out of aerodromes with marginal security? And so forth. I think you can see how comprehensive the approach is—and, frankly, how much hard work is involved.

In addition, our major support commands—Air Education and Training Command and Air Force Material Command—must prepare long-range modernization plans for their areas of concern. AETC must address equipment requirements for accession, education, and training. AFMC must address its needs in the labs, in test and evaluation, and in the depots.

On top of all this, functional chiefs in areas like civil engineering or medicine or communications must write plans for their specific, long-term needs. For instance, our deputy chief of staff for logistics must tell us what equipment he will need in order to work problems like reducing the deployment support tail for forces that will increasingly be stationed here at home. The chief of security police must lay out his equipage requirements for air base defense, law enforcement, and nuclear security.

So, we will soon be deluged by long-range modernization plans. It will then be the job of the headquarters to produce one integrated plan for the whole Air Force. Once complete, this corporate plan will be the guiding document for developing budgets, pushing technology development, and generating support for Air Force programs. I mention the public support aspect because it is especially important. All of us—the Air Force and our congressional and industrial partners—will be much better positioned to argue our case when we can claim a comprehensive understanding of our acquisition needs, laid out in a reliable and agreed-upon long-range plan.

Naturally, we will need to update our modernization plan over time, as operating concepts change and technology evolves. But, what we hope to do is resolve the phenomenon that divides a 25-year acquisition program into 25 separate one-year efforts. Accordingly, this plan should make a major contribution where it is likely to help the most—that is, in enhancing our reliability and stability as a customer.

Well, that's a broad overview and update on this Year of Equipping the Air Force. So, what's next? In three years, we're covering the bases—organize, train, equip. Not bad. So what's left to do? Some might hope that 1994 will be the "Year of Taking a Breather." Others may fear we'll begin all over again—maybe the "Year of Reorganization."

As I see it, we're not there yet—we haven't finished what we started. We've rounded third—we still have to get across home plate. At any rate, we do not "organize, train, and equip" without an objective in mind. The end product—the sole reason the Air Force exists—is to put fire and steel on target. That's what readiness is all about. And, quite frankly, we ought to be concerned—as resources available to us continue to dwindle—that we may see a return to those bad old days of the 1970s—the era of "hollow" armed forces. So, Secretary Widnall and I are proposing that 1994 will be the "Year of Readiness." We do not consider this a new start. Rather, it is both a logical continuation of our previous initiatives and the offspring of the secretary's principal concern—a Quality Air Force for today and tomorrow.

Ladies and gentlemen, the secretary and I are grateful for AFA's solid, unwavering support. We know that you know we

are maneuvering at pretty close to the limit load. And, at the same time, we reckon you understand we are not interested in simply maintaining airspeed and altitude; we want to accelerate and climb. Thanks for hanging in there, for staying on our wing. It's worth it, as we continue to build a force ready to fight and win—the world's most respected air and space force.

Chapter 34

The Quest for Quality

Speech, First Quality Air Force Symposium, Montgomery, Alabama, 21 October 1993

Thank you for that introduction, and good evening. I always enjoy visiting Montgomery. From the earliest days of airpower, this city has served as a mecca for quality. Still, I have to admit to some mixed feelings about traveling here. On the one hand, you'd expect a quality show from this group—and we weren't disappointed. On the other hand, there's the challenge of delivering a quality speech in front of quality experts. Of course, if my remarks don't go over well, I can always claim a desire to show continuous improvement at the *next* Quality Symposium.

As we look back, we see the Air Force has always been a quality outfit. We are the best air force in the world—no doubt about it. Air Force leaders in every generation, at all levels, have practiced a leadership style that's promoted initiative, innovation, continuous improvement. Many of the philosophies espoused by the quality gurus—Deming, Juran, Ishikawa, and others—have long been practiced by the Air Force. We've used these principles from our beginnings as an institution—long before TQM became fashionable.

This quality legacy was uppermost in my mind when I returned to the Pentagon as chief of staff. I was very aware that MAJCOMs like MAC, AFLC, and AFSC were out in front of the headquarters when it came to incorporating the latest in quality principles. So, one morning, I announced how important a "quality outfit" was to me. Two weeks later, my staff came back with plans for the new uniform. Not quite what I meant by "outfit"—but a good idea nevertheless. We also learned a valuable lesson: quality requires more than a blanket statement of intent—it needs serious planning and thought.

So, really, the first step in our journey was recognizing that, despite a heritage of quality, we had work to do—groundwork to lay—to make the Quality Air Force a continuing reality. We

also knew that we couldn't afford to graft every popular movement onto our organization. We had to be careful. We had to make sure our actions made sense within our culture. So, we set out to capture the parts of the total quality movement sweeping the nation that applied to the Air Force. At the senior levels of the Air Force, we focused on three areas—creating a vision; defining the mission; and identifying our core values, basic principles, and operating style.

The vision statement was an important milestone on our quality journey. We wanted to inspire people to high levels of achievement by showing how their hard work contributes to a worthwhile end. We needed to create a vision that not only would describe where we wanted to go as an institution, but also would tie into our strategy of global reach—global power for America. You know the result. Our vision is *Air Force people building the world's most respected air and space force—global power and reach for America*. So far, so good.

But vision alone is not enough. Deming once said that if you ask me to clean a table, I can't do it. If you tell me what you'll use the table for—eating, surgery, or so on—then I can do the job. So, in addition to vision, every enterprise needs to figure out just what it's supposed to be doing—what its *mission* is. We can't ask people to work on continuous improvement if they don't know what they're trying to achieve.

In our short history, the Air Force had never really spelled out a formal mission. So last summer, we unveiled a definitive statement. The mission of the Air Force is to defend the United States through control and exploitation of air and space. To put it in business terms, this mission statement clearly lays out who our customer is and what products and services we are expected to provide.

With the vision and mission statements in hand, our next step was to identify what constitutes the Air Force brand of quality. We started by articulating our core values—like integrity, tenacity. We identified basic principles—like moving authority to the point of contact, managing by fact. We described our operating style—like setting goals, giving everyone a stake in the outcome. I could go on, but we have a shorthand way for referring to this. It's the Quality Air Force definition: "a leadership commitment and operating style that

inspires trust, teamwork, and continuous improvement, everywhere in the Air Force." Everything we've done over the last three years has promoted elements of this definition.

Of course, senior leadership commitment was never in doubt. At Corona conferences for the past two years, the three- and four-star commanders—along with senior military and civilian leadership from the Pentagon—have discussed the Quality Air Force.

We established the Air Force quality council—composed of senior leaders representing the total Air Force. The council establishes policies and strategies; reviews and assesses our progress; acts as our senior quality champions. So, as you can see, our leadership is committed to quality.

Next, we worked on the trust component. Of all the factors—leadership commitment, trust, teamwork, continuous im- provement—it was this idea of trust that required the greatest amount of care and attention.

One aspect of trust concerns how the system views its workers. At one time or another, we've all worked in a micromanagement kind of environment. No detail is too small—no decision too trivial for review by some central authority. Have you ever worked in a situation where nothing gets done without the boss checking it off? How many times have you accused the headquarters of having a 200-mile-long screwdriver?

Of course, we know what happens in these situations—something gets overlooked, people at the point of contact won't show initiative, the mission eventually suffers. When we hoard power, what we're really doing is withholding trust. We're saying, in effect, we don't trust you to make good decisions or to know what you're doing—even though you're on the line every day.

Our year of organization worked on this aspect of trust. We redistributed power inside our Air Force—shoved it down and out from the headquarters. We empowered the people who were working on the actual problem. To support this initiative, we started replacing regulations with policy guidance—the "what and why" of something that needs to be done. We leave the "how" part to the people who know the mission best—and we provide metrics to help measure operational performance.

But, empowerment is meaningless unless our people also trust the system to let them *use* this power. We have to be willing to let people make honest mistakes—to allow some risk taking. We hope people will not make too many mistakes—we value good judgment when it comes to making choices. But, we recognize that nobody bats a thousand—everybody's going to make mistakes. What we tried to do is create the kind of trust that allows people to use their power, make decisions, take risks—then we'll reward them with promotion and more responsibility.

Because we expect people to use their power, we changed our inspection philosophy. As you know, the old unit-effectiveness inspection looked at technical compliance. How often have you sat through the outbrief—where you performed the equivalent of bombs on target but received a ho-hum rating because you didn't dot some "i" or cross some "t" according to the reg? Inspectors weren't paid to look for initiative—they looked for mistakes. The Quality Air Force Assessment Program is turning the tables. Now the focus is on results—on operational output—not on compliance.

After commitment and trust comes teamwork. Frankly, we've had this aspect of quality pretty much nailed down. The team spirit is a cornerstone of both our heritage and our current operations.

Of course, our reorganization helped to foster teamwork. Breaking up staffs, eliminating stovepipes, combining commands, and putting more people in the field were bound to create new teams. Empowerment also brought with it accountability, which inspires teamwork by ensuring everyone recognizes his or her impact on the system. Gone are the days when people on the line could point somewhere else—usually up the chain—and say that an issue was someone else's problem.

So teamwork was pretty much okay—except in one area. While we've always honored individual merit—or unit achievement—we didn't have a good way to reward the ad hoc teams we expect to see in the Quality Air Force. So we created the Chief's Award to encourage teams that break the traditional mold—teams, like our honorees tonight, that cut across unit and functional lines.

Of course, the Quality Air Force is all about continuous improvement. This is where we expect to earn the largest returns on our commitment, trust, and teamwork. To me, the key to continuous improvement lies in education. That's why we devoted an entire year to reviewing the quality and timeliness of education and training. During this effort, the quality council designed an architecture that integrates quality tenets, practices, and skills into the curriculum of every formal Air Force school. When new airmen go through basic and tech school, they'll see initial quality tools important for their work. And we'll build on this knowledge as they progress through a career.

Finally, we stood up the Air Force Quality Institute to act as our quality experts, consultants, promoters, cheerleaders, whatever. They'll function as our center for continuous-improvement ideas and experiences.

That brings us up to the present; so, I think I'll end this retrospective here. Implied in the concept of rewarding performance is the idea of timeliness. We've kept our award candidates on the hook long enough. But I wanted you to appreciate the great lengths we've gone to reach this point—how much we've invested in making this work.

I hope you now see, if you didn't before, that improving quality was a guiding theme behind our major initiatives. The vision and mission statements tell us we knew what we were about—where we want to go. The Year of Organization breaks down barriers and empowers people. The Year of Training ensures people understand how to use quality tools. A new inspection system, replacing regs with broad policy direction to promote initiative, preserving heritage to foster pride in the Air Force team—everything we have done and are doing aims at a Quality Air Force. But, we can't relax. We must be open to new ideas. We must make the Air Force better. We can't afford to throttle back and level off—we must keep a good rate of climb. My position is that people should come in to work every morning saying this is a great place, but there's still room for improvement.

The secretary and I expect you to continue pushing the limits of excellence. When others look for an example of a quality operation, we want them to think first of the United States Air Force. Thank you.

Chapter 35

Reducing Air Force Costs

Speech, Air Force Association National Symposium, Los Angeles, California, 28 October 1993

One of the biggest puzzles facing service senior leadership these days is how to maintain capability despite shrinking resources. One way to put the problem is as follows: It seems to me we're doing a pretty good job of *getting more for the money* by improving productivity, readiness, quality, morale, and so forth. But, we haven't done very well with cost reduction—that is, getting the *same thing for less money*. In my view, reducing total costs—not holding cost steady and doing more, but reducing costs—is essential to fulfilling our vision of building the world's most respected air and space force. Let me spend some time with you discussing why reducing costs is so important and what we are doing about it.

We all recognize the budget imperatives driving our fiscal policy. In the 48 years covering the Truman to the Clinton administrations, the United States has run only eight budget surpluses. In 1946, after four years of war, the budget shortfall was about $16 billion. In 1993, after four decades of cold war, the deficit exceeds $300 billion. In other words, we are printing debt at the rate of nearly $1 billion a day. We can all understand why that kind of deficit, coupled with the collapse of the Soviet empire, results in a defense budget that is reaching historic post–World War II lows.

The Air Force budget is down in both real and absolute terms. Naturally, the most dramatic example is the real—or inflation-adjusted loss—where our budget has dropped 44 percent since the peak years of the mid-1980s. Inevitably, people and force structure have taken their hits. Active-duty end strength is already down a third. The combat fighter force is down to about half what it was just five years ago.

Now, if I read this situation correctly, we cannot expect funding to improve. In fact, our budget is, for sure, headed further south. We also can't, in good faith, support more cuts

in force structure over and above those called for in the Bottom-Up Review. We have already gone down as far as we can and still do what an air force is asked to do—what the president will rely on us to do if called on to fight and win two nearly simultaneous major regional conflicts. So, we're left with a dilemma. With a declining budget and a set force structure, where can we go to save money?

Trimming away redundant organizational structure is one obvious candidate, but we've already worked this area pretty hard. In restructuring the Air Force, we eliminated layers, consolidated headquarters, and reduced staffs. This morning I was at Kelly AFB in Texas redesignating Intelligence Command into the Air Intelligence Agency, reporting to the Air Staff. That means we've cut our major commands from 13 to eight—a 40 percent reduction. We've cut more than 1,000 colonel positions since I've been chief. We'll end up with about 3,500 colonels by 1995. It seems like only yesterday we had 6,000 colonels—now 3,500. We will continue to fine-tune our organization, but I believe the dramatic overhead savings that can be achieved by rationalizing structure are behind us.

Shedding cold war programs is another area where we've made substantial progress. Our modernization account is down 60 percent from its peak in the mid-1980s. Several programs were terminated outright: ASAT, mobile ICBMs, Tacit Rainbow, SRAM, and so forth. Other programs underwent a major restructure: among them the B-2, advanced cruise missile, C-17, and MX. These cancellations and restructures reflect our purge of cold war requirements. The programs that remain are designed to meet the threats and the strategies identified in the Bottom-Up Review and the current Defense Planning Guidance.

Reforming the acquisition process could also go a long way toward reducing our cost of doing business. This was a theme in my remarks at last month's AFA National Convention. The Carnegie Commission estimated the overhead cost of regulation consumes about 40 percent of the acquisition budget—a figure that will grow as programs—but not overhead—are cut. We all agree the system is badly broken, but there isn't much that the Air Force, acting alone, can do to fix it. Naturally, we will fly formation in any broader effort to overhaul the way this

country buys military hardware. In particular, we strongly endorse Vice President Gore's ideas on "reinventing" government, which—if implemented—will certainly reduce costs. But we are reluctant to take credit for or to count on such savings before they are actually achieved.

That leaves us with the cost of operating and maintaining the force. Of course, we must proceed with care when tapping our operations-and-maintenance account as a source for cost savings. We're talking about core tasks—flying airplanes, monitoring satellites, and maintaining missiles. These are the line items in our operations-and-maintenance account, and they're the bedrock of readiness, which remains our number one priority. But, we simply must look at O&M because there is nowhere else to look. By way of illustration, the Air Force will fly more than a million fewer hours in 1995 then we did in 1985. Yet, over that same decade, O&M costs will grow from 30 percent of our budget to 36 percent. So, I expect over the next year to put a lot of pressure on operating costs. We have to find cheaper ways to get the job done while at the same time keeping the force ready to fight.

It's instructive to take a system like the E-4B—a fancy 747 that we use as the national emergency airborne command post (NEACP). We don't have many of these platforms—only four. It costs $25,889 an hour to fly the NEACP. Almost 76 percent ($19,628) of that cost pays for contractor support—largely overhead. Note that these costs are about three times higher than the civilian sector pays to fly a 747. The solution to lowering the cost of flying the NEACP is not to cut the number of E-4Bs, but to find a way to reduce overhead.

I envision at least three steps that can help us reduce operating costs.

First, we need better cost accounting. Right now we're trying to make businesslike decisions without the standard tools American industry relies on every day. It would be nice if we knew what actual costs were, but our accounting systems often do not perform this simple and reasonable service. That is not to say we don't know how much we are charged. We know, for example, that the Defense Logistics Agency charges $29 every time we put something into or took something out of their distribution system. However, that $29 is an administrative

price, which may be something like the average transaction cost for all items across all services—from penny nails to tank engines—calculated after the fact, at year's end. We need a system that accounts for costs in a more timely manner and with greater fidelity. This is a long-term fix, but we need to get started on it.

Next, we must continue to improve the reliability and maintainability of our systems. In 1995, 13 percent of the Air Force's top-line budget will be spent on the reimbursable and most variable part of O&M—things like fuel, depot maintenance, depot repairable items, and so forth. We can address this issue in two ways. First, we can work the problem up front—by better design of the equipment we acquire. For example, due to better engineering, the flying-hour cost of the C-17 will be 40 percent less than that of the C-5B. Our second option is work the back end—finding ways to make the repair process itself more efficient. Much of the overhead I've been talking about is found in the surcharge that depots assess when repairing parts or providing supplies. This surcharge includes things like transportation, depreciation, inflation factors, storage costs, item managers, and software maintenance. We could spend an entire symposium trying to figure out how this surcharge works, but one thing is certain: surcharges often double the cost of a repair. That means it costs as much or more to manage the repair as it costs to make the repair. We simply must do better.

Finally, we need to turn loose the talent and creative energies of people at the point of contact. This is what the Quality Air Force initiative is all about—empowering people, letting them take the initiative to find better ways to do the mission. But, it'll take more than encouragement—we need incentives. For example, in fiscal year 1993, for the first time, we put the dollars for depot repair of exchangeable spare parts into the wing commander's budget—not into some global Air Force account. Now that the wing commander pays the bill, he's "incentivized" to come up with new ways both to reduce breakage and to fix broken parts on base—thus reducing costs. We're doing the same thing with fuel—giving the dollars to the wing commander. In 1993 we selected three bases for a pilot program. In one year, Seymour Johnson AFB, North Carolina,

alone saved $1.4 million in fuel costs—and they got to keep half that. Now there's a powerful incentive.

These then are some of my thoughts on how we can reduce the cost of operating and maintaining our Air Force. I know you understand the complexity and importance of this issue. However, we ask you today for more than understanding—we need your active support. The Air Force can't win this battle alone. We look to our partners in industry to join us in cutting costs, to help us find less expensive ways to get the same job done. A recent example of such cooperation occurred in the B-1B program, where an Air Force/industry cost scrub will save us about $5 million in support costs next year. We need more success stories like this. We need to look under every rock for cost savings.

As I said last month, thanks for hanging in there, for staying on our wing. It's worth it, as we continue to build a force to fight and win—the world's most respected air and space force.

Chapter 36

B-2 Arrival Ceremony

Speech, Whiteman AFB, Missouri, 17 December 1993

Good afternoon. This is a wonderful day for the Air Force and the nation. Let me add my congratulations to the entire B-2 team for creating this remarkable, awesome airplane. Its arrival represents more than a technical leap forward. It adds a revolutionary new dimension to air warfare.

It's easy to understand why this is so. Although stealth has been a part of the national security vocabulary for only a decade, the concept is as old as warfare itself. At the earth's surface, or in air and space, nothing good ever comes from being noticed by the enemy. But since World War II, when radar began augmenting human eyesight, finding airplanes has been easier than hiding them. Our response has been essentially to give up on achieving surprise and try instead to overpower air defenses. We build huge air armadas—flak suppressors, radar jammers, armed escorts—in order to push a fraction of the force through air defenses to the target. But air forces do not exist for the purpose of protecting themselves. Thus, the B-2 offers a much more satisfying and elegant solution: avoid detection and tip the scales back in favor of flexibility and offensive punch.

The B-2 also meets our need to carry large payloads over vast distances. This has been a long-standing American requirement. For most of our history, we have assumed that the starting line for military operations was located inside our national borders. In World War II, when it appeared Britain might fall, Jack Northrop developed a flying-wing concept, a bomber that could carry 10,000 pounds of bombs 10,000 miles—about the round-trip distance from the US to Germany. Today, we make this visionary concept a reality—just in time, since we are in the process of bringing our forces home from forward bases overseas.

In every sense of the word, the B-2 is a survivor. Already, it is a seasoned veteran of political wars, technical skirmishes,

fiscal battles. It has landed on this flight line today, not just because of its stealthiness and load-carrying capacity, but because of its toughness, its tenacity. It promises to be a terrible enemy of anyone who seeks mortal combat with America.

The B-2 continues the finest traditions of our bomber fleet. We're very proud to welcome her into the Air Force. Again, congratulations, and thank you to the B-2 team for a job well done.

Chapter 37

Ensuring Technology Preeminence of US Air and Space Forces

Speech, Air Force Chief Scientist's Group Dinner, Andrews AFB, Maryland, 5 January 1994

Today, we are the world's most respected air and space force—second to none. We have been second to none every time the nation has called on us in the era of an independent Air Force. Time after time, we can trace the roots of this success back to some lab—to a group of creative scientists and the operators who believed in what they were doing. In this same way, the future health of our Air Force rests on your shoulders—on what you and the labs are working on today.

To say that science is important is, of course, nothing new. Back in 1980, Dr Bill Perry—then head of Defense Research and Engineering—spelled out the rationale for service labs. He said we need in-house scientific talent to ensure that federal research and development programs are responsive to the president and Congress. Further, the government must have a deep understanding of complex scientific and technical issues to make sound acquisition decisions. Finally, and most important in my mind, Dr Perry noted that government labs allow us to take maximum advantage, to leverage the technical work being done by all the actors—private, university, and governmental. In our own case, for instance, the labs give us the knowledge base to direct and supervise the 80 percent or so of our research and development funding that is spent outside the Air Force. So, as you can see, there is a strong rationale for service labs, and there is good support for the lab system at the highest level in today's Department of Defense.

We are lucky that, very early in its existence, the Air Force recognized the importance of having its own in-house research capability. Gen Hap Arnold and Dr Theodore von Karman worked out the concept back in 1945, even before we had become a separate service. And since then, our labs have filled

that critical leadership role of focusing and leveraging the nation's technical resources to meet Air Force needs. You've performed research, convened industry teams, and transitioned technology to air and space systems. It's clear that without the stimulus of Air Force labs, we would look dramatically different. For example, Harry Hillaker—the father of the F-16—wrote that if it had not been for the breakthrough technologies being pursued by Air Force labs at the time, there would be no F-16 today. Hillaker was talking about fly-by-wire control systems, relaxed static stability, the high-G cockpit, and high angle-of-attack inlets. The pioneering work on all these features was done in our labs.

So, the work of previous Air Force leaders provided the rationale for our labs, and you and your predecessors have followed up with the deliverables—the new science, the innovative applications of existing science. This record of performance puts us in a position to offer tonight a concise mission statement for our lab system, and let me now do so.

The mission of our Air Force labs is to ensure technology preeminence of US air and space forces. Now, this isn't very startling—not even, perhaps, very original. But it is a straightforward way for the secretary and me to explain how the labs support the Air Force mission—where you fit in. The central idea is to define your mission in terms of the medium in which we operate—air and space—and the standard we expect you to achieve—technology preeminence. Please note that the word *technology* is meant in its broadest sense—to include leadership in affordability, reliability, maintainability, and so forth.

I believe it is a good thing to propose such a mission statement at this time because the secretary and I need your help in solving a tough problem. As you know, 1993 was the Year of Equipping the Air Force. The idea was to focus top management attention on long-range planning. We challenged the senior leadership of our major commands to project hardware requirements and write acquisition plans out to the next 25 years. We have their inputs in hand, and the Air Staff is putting them together into one master plan for the whole Air Force. Overall, I think the process has been useful. For the first time, the Air Force will have a comprehensive, long-range plan to cover modification of existing equipment as well as

procurement of all kinds of new hardware, munitions, and supporting systems. I believe the result will make us a better customer, will enhance the stability of the requirements part of the acquisition process.

But, I'm concerned that our end product reflects too much evolutionary thinking. Of course, I'm not surprised. Evolutionary thinking is what we should expect from operators. Folks in the field are always driving at top speed to put out today's fires—and rightly so. Their problems are current, tangible, and unforgiving. As a consequence, I've asked the Scientific Advisory Board to stretch beyond the evolutionary, to make sure we don't miss the leapfrog technologies—the breakthroughs that are our best guarantee that the Air Force will remain the world's dominant air and space power. I've challenged the SAB—and I challenge you—to give us creative, revolutionary thinking.

I don't want to leave you with the impression that the operations and scientific communities can't or shouldn't work together. But, frankly, long-range planning is too important to be left to operators only or to scientists only. We need both viewpoints. Arnold and von Karman talked about the importance of this partnership back in the forties. The war-fighting and laboratory team has served us well in the past. It continues to be the best approach for the future.

Now, where should we focus our thinking? Well, for my money, we should start with airpower's underlying strengths: speed, range, flexibility, precision, and lethality. I consider that these are more or less eternal verities. That is, no matter how revolutionary our technical approach, these will continue to be the defining values of air and space power. These are, after all, the features that give us comparative advantage. And, therefore, these are the features we must continue to improve: not just one or two of them—all five. But, our air and space forces will rely on you especially for help with four out of the five.

I'll set aside flexibility for a moment, and we'll talk about speed, range, precision, lethality. For instance, speed. We need to operate faster. We can do this any number of ways—not just by gaining airspeed. I would note in passing that it's very interesting what has happened to us with respect to airspeed.

My career as a pilot spans more than 40 percent of the history of manned flight, and I have never flown faster than I did as a lieutenant—in the F-104. And, we are still at least 10 years away from fielding the next major advance for operational aircraft—supercruise in the F-22. In any case, physical speed is very important—we say "speed is life"—so we will continue to have more than a passing interest in airspeed.

But the combat requirement is to operate faster—not just fly faster. We are vitally concerned about faster targeting, faster command and control, faster battle damage assessment, and so forth. We need to speed up the air tasking order process, both generating the order and breaking it down at the unit level. We want to quicken and tighten the loop between intelligence and operations so that we don't go into battle with stale information. We must shorten generation times—not just for aircraft, but also for space systems, where it can take months to get ready for launch. A reusable, single-stage-to-orbit space-launch capability would go a long way toward picking up the pace of space operations and could reduce costs in the process. So, speed is important, and you can help us there.

How about range? We simply must have improved range. Range is essential because we're bringing our forces home from overseas. I hope we can double turbine-engine fuel specifics by the turn of the century. Unmanned systems seem to offer promise. This is especially important in reconnaissance, where we need long-endurance sensor platforms that can do continuous wide-area surveillance and targeting.

Next is precision. Arriving quickly at a distant target provides absolutely no dividend if the result is a gross miss. In World War II, the average miss distance for bombs dropped in so-called precision daylight bombing attacks was one kilometer. By contrast, during Desert Storm, precision had a simple meaning: hit the aim point. We didn't always achieve it, but we all saw it was possible. Precision means hit what you're aiming at: at night, in bad weather—whenever—hit what you're aiming at. And in general, I think we know how to do that. The help we need here is to get the cost down. We need to lay in an inventory of precise munitions. We need sustainability. So, unit cost is the hard part. We need help.

Let's take up our last technical quality—lethality. As a practical matter, if precision means hitting the aim point, lethality means aiming at the right thing. For some, this problem was solved 50 years ago with the invention of nuclear weapons. It didn't seem to matter much whether we were aiming at the right thing. Now we know a lot more about the usefulness of nuclear weapons. Turns out, they are not all that usable, thank goodness. "Nukes" are not very discrete, and one of the remarkable—but, I think, overlooked—lessons of Desert Storm is the importance of discrete attack. Lethality has taken on an aspect of finesse. We must be able to attack and shut down targets with minimum collateral damage—even to the enemy, but especially to friendly forces, noncombatants, and the environment. If we define lethality in this manner, then we should address so-called nonlethal technologies—nonlethal in human terms but quite lethal in terms of killing systems or degrading capability. Possibilities include disabling hostile computer systems or altering material properties so that, for instance, rubber tires fall apart. I admit, this all sounds a little James Bondish—not something that should come from a guy who has spent lots of time thinking about putting "fire and steel" on target. But, I believe this is the kind of creative thinking we all must do.

Another promising—if more traditional—approach to lethality is to develop micromunitions that trade off yield for very high precision. Such munitions achieve the desired kill while avoiding unwanted side effects. Our political masters know one thing for sure about the new "world village": When they order military action, they are likely to see the results quickly on CNN, and so will everybody else in the world. There is a sense in which, to be lethal, we must be employable—and to be employable, we must be discrete.

That brings up an interesting point. Until now, I've talked about our technical strengths—speed, range, precision, lethality—as if they are entirely separable and can be worked on in isolation. But, of course, they are not. In this last case—micromunitions, for instance—we see a linkage of precision with lethality. The most creative and productive solutions will be crosscutting in this same way. Take intercontinental ballistic missiles. They travel thousands of miles. They arrive on target

in less than 30 minutes. What if we substitute for the traditional nuclear payload hundreds or thousands of very precise, individually targetable, conventional micromunitions? Can't we all imagine a target set that such a weapon would be ideally suited for? Moreover, such a concept builds on all four of our technical strengths—speed, range, precision, lethality. I'm convinced that our labs can help provide technical solutions needed to build on our technical strengths in this crosscutting way.

Finally, of course, the Air Force must improve its employment flexibility. I have spoken at length on this topic elsewhere. It's very important. And, there is a technical dimension to flexibility. Speedier, more widely ranging, more precise, and more lethal weaponry will surely give us the potential for greater flexibility. But, we know for sure that superlative forces, possessing all sorts of wonderful military attributes, can be—often have been—used in a very unimaginative, inflexible way. For example, the labs provided us with the best bombers and fighters in the world, yet for years we chose to separate them artificially into "strategic" and "tactical" categories. These labels weakened our combat potential and, in fact, our combat performance by producing an inflexible mind-set and doctrinal rigidity.

I want you to know that the operators are trying to do our part to improve flexibility, so as to make the most creative use of the weapons you provide. We worked organization first. We now require as a matter of policy that organizations be streamlined, de-layered, decentralized—so that we don't build inflexibility into our structure. Next, we're working to train our people better, more comprehensively. They will be less specialized, will have a deeper understanding of their jobs, and will possess a broader range of skills. Better organized, better trained—that means our people will themselves be more flexible.

Finally, we continue to redefine concepts and tactics, in part based on the new hardware you have pioneered. For instance, stealth is getting us out of the business of building huge, ponderous air armadas in order to push a fraction of the force through air defenses to the target. We're developing new concepts of "parallel" warfare to replace the old sequential

rollback approach. The point is to use our imagination to open up the possibilities for more flexible operational employment.

Well, no one ever accused us of tackling the easy problems. It's clear we have our work cut out for us. And it's also clear that we need your help. You must help us decide where our dollars will have the most impact. You must provide the creative insights we need. You must help provide the tools we will use to protect the nation. That is perhaps a sobering thought to start out the new year. But I'm not thinking of 1994—it's 2020 that's on my mind. I do, however, wish you a safe and happy new year as you continue your mission to ensure the technology preeminence of US air and space forces.

Chapter 38

Building an Information Infrastructure

Speech, Air Force Day Luncheon,
Armed Forces Communications and Electronics
Association, Washington, D.C., 10 January 1994

What makes AFCEA a great outfit is that you bring together ideas from across government and industry. So, I appreciate this opportunity to discuss the Air Force view. One thing you'll notice from each of the service chiefs is that we all agree on the increasing value of information for military operations. We're all trying to understand how technology will help us use information in new ways. The real fear people have these days is that somehow the so-called information highway will pass them by. It's up to us to make sure the Air Force doesn't suffer this fate. We must be plugged in. We can't let ourselves become like the ghost towns that missed the railroad.

As I see it, two problems stand in our way. First, while the 911 calls keep pouring in, our budget is heading south—fast. We've got to find a way to answer those calls—but on a shoestring. The second problem is that information technologies are not helping like they could. What we need is an approach that establishes sound standards up front, so that we get the most bang for our buck.

Unless they've been on Mars for the last 10 years, most people understand the southbound budget problem. However, most people don't realize how the business end of our job is actually picking up. Often we have to remind folks that even though the big-league threat is gone, there's still plenty of work for us to do—that the Air Force is not throttled back, cruising on autopilot. In Iraq, we've now flown over 170,000 sorties protecting the Kurds in the north and the Shiites in the south. That's more than twice the number of sorties, since Desert Storm, as we flew in Desert Storm. In Somalia, we've delivered 83,000 tons of supplies over 16 months in 5,600 missions. A quarter of those missions were flown before our ground-force partners went into Mogadishu. In Bosnia, 3,600

airlift and airdrop sorties have delivered 39,000 tons of food, fuel, and medicine. This activity has now surpassed the Berlin airlift as history's longest humanitarian air operation. We've got hundreds of Air Force people stuck in some pretty exotic spots—like Andean mountaintops or in the Amazon Basin, fighting the drug war. And, thanks to many of you here, we have about 50 satellites on-orbit and are launching at the rate of just over one new satellite per month.

I'm proud that the Air Force has kept up this pace, supporting national objectives despite a historic drawdown. The Air Force budget has dropped 47 percent in real terms since the peak years of the mid-eighties. Active duty end strength is already down a third. Our fighter force is down to about half what it was five years ago. What's probably even more critical to you is that the Air Force modernization account is down 60 percent from its peak. We're working very hard to reduce the cost of doing business, but—frankly—I'm running out of ideas.

Now some people—perhaps many in this room—point to reaping the benefits of the "information age" as the answer to our problem. Maybe so. Talking about the information age has become a kind of cliché, but it strikes me as a little odd. It's as though someone woke up one day and discovered this new commodity called "information." Of course, we've always prized good information—especially in military operations. I'm reminded of Admiral King's famous remark during World War II: "I don't know what this 'logistics' is, but I want some of it." Well, we all want information. The trick is exploiting information technology to get data to the right user, at the right time, in a form he can use.

Today we're on a steep learning curve when it comes to understanding the full impact of information technology. That's why Vice President Gore established the Information Infrastructure Task Force to study this issue from a national perspective.

That's important. Information technology is a big issue—a national problem. When I try to look at it from an Air Force perspective, I quickly see that we're not the driver. We don't own or even make much of a dent in the marketplace. In this consumer-driven industry, business has to focus on the bottom line—and rightly so. You work independently, develop

proprietary technology, go your own way, get the edge on your competitors. That may be okay if the customer is, say, a small accounting firm, but it doesn't work well for us—the armed forces. We can't go separate ways. We found this out, again, in the Gulf War.

After years of talking about command, control, communications, computers, and intelligence (C^4I), we used it in Desert Storm. We found that older terminals were overwhelmed by the volume of communications. The air tasking order that orchestrated over 2,000 daily coalition sorties was hundreds of pages long. For some units, it took more than five hours to transmit and print. We had to hand-deliver it to the Navy. One reason the services couldn't talk to each other was that our Pacific and European commands had their own systems. This put the Navy in the awkward position of trying to select a system that might not be the right one and then put it on a carrier where space is at a premium. In other cases, it took the better part of Desert Shield to patch together commercial and military systems so we could track supplies. Our own Gulf War Air Power Survey listed the STU-3 secure telephone as one of the five most effective technologies in the war because people used it to bypass a C^4I system that did not fit their needs.

Now, as I said, we recognize that the Air Force does not own the C^4I market, nor do we want to. In fact, we want to divest ourselves of building in-house C^4I capability. We want to rely on the commercial sector to outsource, to buy off-the-shelf. We want to take advantage of what you produce and with minimum investment make it work for us. But, even though we don't drive the market, we remain big customers. It's incumbent on us to be the best customers we can be in this environment.

It seems to me one of the first steps we can take is to set firm standards, up front, to let both Air Force customers and industry providers know what's expected so we can work together to solve our problem. Lt Gen Carl G. O'Berry, my deputy for C^4, has developed a model based on the traditional building code, permit, and inspection process. This approach makes it easier to understand how the Air Force is going to set information standards.

The building code analogy refers to traditional construction codes with which all architects, contractors, and craftsmen

must comply. These readily available codes cover design and construction of everything from basement to roof. They guarantee that connections to common utilities work as expected. For example, they ensure that water-drainage pipes will flow into the city sewage system, the electrical circuits will accept power from the local grid, the water heater can be hooked up to the natural-gas line.

We can picture C^4I systems as traditional buildings in the sense that they must be built and operated to code. If not, then the system might not work as advertised, might not work at all—something we cannot tolerate in a combat environment.

We'll call our C^4I "building codes" Air Force technical reference codes. They'll contain the standards and guidance necessary to allow developers and users to produce C^4I systems. They will be user-friendly and concise. Our codes will cross-reference DOD, federal, national, and international guidance and standards. Anyone who wants to build any type of C^4I capability for the Air Force will need to comply with these codes—just as a contractor would when building a new home.

Along with codes there are also building permits. For example, when you begin construction of a home, a permit is issued and displayed to verify that your blueprints conform to all applicable codes. Building a C^4I system for us will require a permit in much the same way. We will compare proposed systems to the code to ensure the hookup is transparent to the user—that it will work as advertised.

Finally, there's inspection. During the construction process, a county inspector checks the home for code compliance. This examination includes the physical structure, electrical wiring, plumbing, and so forth. This will hold true for our future C^4I systems. When we hook it up and it passes data as designed, then we'll certify it as meeting our standards.

Well that's my cut at the C^4I world. I suppose there's not a person in this room who won't be affected by our "code-permit-inspection approach." As I see it, we need to be better customers so that you can be better suppliers. Together we can build an infrastructure that allows us to communicate anywhere, anytime, to anyone. That, in turn, will go a long way toward helping to answer those 911 calls, despite the budget drawdown.

Chapter 39

Air and Space Power: A Growth Business

Speech, Air Force Association Symposium, Orlando, Florida, 18 February 1994

A change is brewing in Washington. There is a growing realization that air and space power holds the title on our ability to fight abroad. Let me spend the next few minutes discussing what the Air Force is doing today and why I believe air and space power is a good bet for the future—a real growth business.

First, even though someone described the collapse of the Soviet Empire as "the end of history," the Air Force certainly has not throttled back. In northern and southern Iraq, we've flown over 175,000 sorties *since* Desert Storm—twice as many as we flew *in* Desert Storm. In Somalia, we've delivered 83,000 tons of supplies in 6,000 missions. In Bosnia, 4,600 airlift and airdrop sorties have delivered 51,300 tons of food, fuel, and medicine. We've flown over 3,900 air control sorties enforcing the no-fly zone. We've got hundreds of Air Force people stuck in exotic spots—like Andean mountaintops or in the Amazon Basin—supporting the drug war. We have about 50 satellites on-orbit, and we're launching at the rate of just over one new satellite per month.

As you can see, we remain very active, very involved. This is because the medium of air and space now offers the most attractive and the most varied military options for achieving US objectives overseas. People have come to understand, first of all, that you can engage in military operations solely through this vast vertical dimension of air and space. I smile to myself occasionally when I listen to talking heads debate "whether" we should engage in Bosnia. Our airlift there has now passed in duration the famous Berlin airlift, becoming the longest running humanitarian air effort ever. We've been engaged for 19 months, more or less painlessly, as such things are judged. More than 25 percent of our air missions to date in Somalia were flown before we committed ground forces. So,

the nation has found that it can and often does act through air and space when other, more traditional forms of military engagement seem unattractive.

Second, it is now common knowledge that we must control air and space for other military operations to succeed. Again, all of us have understood this all along. But I now believe that it has been driven home to everyone who's paid attention. Decision makers focus on runways and orbital mechanics at the outset because air and space constitute our first priority. In every national security crisis, whether you're a military leader formulating options or a civilian decision maker, the same questions get asked: Do we have reconnaissance coverage? Where are the air bases we will use? Do we have enough lift and refueling?

Third, we know we will almost always need rapidly responding forces. The Bottom-Up Review confirmed that quick response is essential in a major regional conflict. The longer we wait, the more territory the opposition takes, the more difficult he'll be to dislodge. If we're slow to intervene, victory may still come—but at a much higher price. Moreover, quick response is even more important if we have to switch forces from one conflict to another, near-simultaneous contingency, as is our stated national requirement.

Who can provide this quick response? Well, in every conflict of our era, the only way we've found to take the war to the other side early is through the air. Berlin, Tokyo, Pyongyang, Hanoi, Baghdad: the first—sometimes the only—direct attack on the enemy homeland occurred by air.

In addition to quick response, having the ability to operate underneath an air and space sanctuary is a priceless advantage. It's been more than 40 years since a US soldier was attacked by hostile aircraft. Air and space superiority produced and protected our ability to carry off the big left hook into Iraq. In short, air and space power is the currency backing our global involvement—our potential for maneuver on the world stage.

Now, so far we've talked about what happens after shots are fired. Air and space power also contributes to preventing regional conflict. As you know, forward presence is one way military forces deter aggression as well as promote US inter-

ests, access, and influence in other countries. As I see it, air and space power offers our nation a new form of peacetime presence.

While we expect to maintain a significant, if greatly reduced, commitment in Europe and the Pacific, this has always been an expensive and often heavy-handed approach to providing presence. Until recently, stationing troops forward was the best—maybe even the only—way to monitor events, to show the flag, to guarantee a rapid response. Air and space power now promises a more elegant solution to the presence requirement. As the United States brings forces home, space-based platforms obviously provide an alternative way to continuously monitor world events. This is a kind of global presence.

Or, look at it this way: Aerial refueling gives the Air Force global reach—and that, too, equates to global presence. Twelve hours before kicking off the Desert Storm air campaign, seven B-52Gs from the 2d Bomb Wing at Barksdale AFB, Louisiana, took off for Iraq carrying conventional air launched cruise missiles. As part of the initial air assault, these bombers hit facilities deep inside Iraq. The round-trip required four aerial refuelings and took more than 35 hours—the longest air combat mission in history and the first time we used conventional ALCMs.

This shows that, while the 2d Bomb Wing is present at Barksdale, it is also present 20 hours later at any spot on the globe—and everybody now knows it. So, if you're sitting in Country X and you're holding a council of war, you've got to think about the 2d Bomb Wing at Barksdale—or the 509th Bomb Wing with its B-2s at Whiteman, in Missouri—as being less than a day away. That is presence. It's a new definition of presence made possible by the rapid-deployment feature of air and space forces.

But the main point is that we're moving away from a period characterized by forward stationing of forces overseas to an era of stateside basing with combat forces configured in an expeditionary mode. Air and space power makes it possible for the United States to progress toward this concept without at the same time abandoning the idea of "presence."

So, as you can see, the Air Force remains engaged and active despite the drawdown, despite the end of the cold war.

Because air and space forces exert a global presence, I believe we're going to get more of the 911 calls.

Question-and-Answer Session

Question: Please comment on the projected balance of land-based and sea-based airpower as you see it. I guess that's a derivative question from the Bottom-Up Review.

General McPeak: I don't think the Bottom-Up Review focused on the roles-and-missions aspect of that question. It did apportion force structure so it was a de facto decision about the fraction of this nation's airpower—tactical airpower—which will be waterborne and the fraction which will not be waterborne. That is an important national issue and one which I think may come back in the coming roles-and-missions debate.

As you know, Congress has directed the secretary of defense to appoint a roles-and-missions commission. SECDEF has to do that shortly, and that commission has a charter to make a one-year study and report back on this issue. That's not the only roles-and-missions question, but certainly the question of the balance of sea-based and land-based TACAIR is the important roles-and-missions question for that element of our military power. No one will deny that we should have some part of our tactical air force capable of launching from seaborne bases. It's absolutely invaluable that we have that kind of capability. It's more expensive to do TACAIR power application that way, but it's worth it for those contingencies where bases are not immediately available, or if for some other reason we're blocked from using bases for a while at the outset.

But the real question is how much can we afford? How much of our total TACAIR capability can we afford to configure this way? I don't have a handy answer. I don't think you can work it out on your fingers or divide that out in your head. I'm a little bit concerned that the Air Force tactical fighter force has been cut roughly in half since 1988—down to 20 wings, including the Guard and Reserve. So we really have only 13 active wings of TACAIR. This is too small a fraction of the nation's total tactical airpower to be configured in this form.

But we will have to work out what is the right number, and I consider that one of the high-priority items over the next year.

Question: You mentioned the new roles-and-mission study. Secretary Aspin was in the process of appointing people to that study group when he left office. Has Dr Perry picked that up? Are you aware of any senior leaders who will be involved in that—what kind of schedule it's on now?

General McPeak: I'm not aware that Dr Perry has made any decisions in that regard. He must do so relatively quickly. I would expect him to announce the names of appointees to the commission in the next week or 10 days.

Question: You've testified to the Congress about the importance of funding for readiness. Do you think you have the balance of funding properly arrayed to cover your readiness needs in the years ahead?

General McPeak: I'm reasonably confident we're in good shape. Readiness is always not as good as you would like it to be, because we would like to have 100 percent of our equipment operational, 100 percent of our crews trained, and 100 percent of the spare parts we need in the warehouse. It's natural that we should want that condition. We are not in that condition today. And as a matter of fact, at the margins, the trends are slightly down from readiness highs we established in the early nineties. But it's still good enough in my opinion to properly carry out any task the president may ask us to do.

This is true only because we have cut force structure very rapidly. I mean, I'm not happy about this; I'm not bragging about it; but I believe the Air Force has cut force structure much faster than the other services. For instance, when confronted with the same problem, we realized there are essentially three pots of money we have to deal with. One is a readiness pot, a second one is force structure, and third is modernization—which is a way of thinking about future readiness.

We cut modernization to the bone. We cut it by almost 60 percent from the high in the mid-1980s when we had a lot of cold war programs: small ICBM, MX rail garrison, advanced cruise missile, and so forth. You remember all those programs. Those were cut quickly when the downturn started, and—as a consequence—our total investment pot is down about 60 percent

in real terms from what it was in the mid-1980s, and in my opinion should not be cut further.

Essentially, the modernization programs that remain in the Air Force budget are all very high priority, and we must bunch our muscles and keep them going. Modernization was pared back first, about as much as we could. Therefore, force structure has been all we could trade off against our readiness concern. The Air Force has voted its convictions in this case. We have let force structure go rather than try to maintain it and watch its readiness deteriorate. And, by the way, if I have anything to say about it, we will continue to do so. We will continue to insist that, whatever size Air Force we have, it is ready to fight and it has the proper modernization programs in place to keep it ready to fight for our successors. In my opinion, that's more important than force structure.

So, when confronted with those choices, we have traded off force structure—to a greater degree than the other services—and therefore I am confident that we're ready to do just about anything that you could reasonably ask us to do. And we'll stay that way for the near term. Beyond the mid-1990s into the late nineties, readiness can evaporate awfully fast on you. So this is something you have to watch all the time, and it's a reason why the secretary and I are focusing on it.

And some very unusual things contribute to readiness. In my opinion, housing does. Go look at base housing if you want to tell whether the wing is ready to fight or not. We have to keep good people. The key to readiness is having good people in the outfit. By the way, keeping good people means you have to be serious about readiness. The minute our people believe that we're not serious about what we do for a living, they will walk immediately. The good ones will walk. Some will stay. We will lose our good people the minute we show that we're not concerned about readiness. So for me, the people aspects are probably of overriding importance when you consider the issue of readiness. And so I look at what we're doing in the pay account, what we're doing for housing, and so forth, as readiness concerns.

Question: You've spoken on cuts in forces, cuts in personnel, and we know we have excess infrastructure. Would you ad-

dress how you're going to approach that issue in the years ahead?

General McPeak: Well, I think we do have excess infrastructure, but in a sense it's hard to blame the Air Force for this. Look what we have done over the years. If you talk about bases, for instance, the Air Force entered World War II with about 30 main operating bases—the old Army Air Corps. It built about 100 bases in World War II. When we were stood up as an independent outfit, we had about 130 air bases in the United States. In the last 50 years, we've closed about one base a year, net. We've still got too many, and we're still closing World War II air bases. The bases we nominated for closure during the '93 round at Base Realignment and Closure Commission (BRAC) were Griffiss, McGuire, and Homestead. These are bases built in the early 1940s—every one of them. Another, K. I. Sawyer, may not be. It might be a cold war base, because in the early 1950s we built a band of bases across the northern United States. K. I. might have been one of them; I don't recall. Minot and others are where we put the bombers so that they were closer to their cross-polar routes.

Bases built since the end of World War II were mostly in connection with the fielding of the strategic force—the missiles and the bombers and the space force—Vandenberg and Kennedy. We froze base closures during Vietnam, which was an 11-year period. We virtually didn't close anything. So if you set aside the building we've done and the closure during that very long Vietnam period, we have closed on balance one base per year. We're down to about 80 main operating bases. Now that's still too many. When the Air Corps had 130 bases, it had 2.1 million people. We have 80 bases, and we will soon go below 400,000—and I'm talking about uniformed personnel. So we still have way too many bases per person. I mean it's just an objective view of infrastructure. And therefore we will have to close some more bases in the '95 round of cuts.

But my point is we haven't simply stiff-armed this problem. We have worked away at it conscientiously. We took half a dozen bases in '91, and we took another half dozen in '93. We have not allowed ourselves to drive up to the edge of the cliff and then fall off and close 50 bases or something like that. The reason I make this pitch is that I hear some talk like that in

Washington. Some say, OK, this is our last cut at this business—the law goes away after '95, so we must close an enormous number of installations. My opinion is the Air Force has dealt with this problem in a very positive, a very proactive, and a constructive way—over time. We didn't just get religion about this yesterday, and—as a consequence—we're in pretty good shape. We can take another bite out of it, but we don't need to have a train wreck in the '95 BRAC round.

Question: What about additional F-15E procurement?

General McPeak: I just had the pleasure of reintroducing Lt Jeannie Flynn to the nation yesterday. She completed her training out at Luke in the F-15E. I like Jeannie Flynn. She didn't ask for anything from anybody. Nobody gave her anything, and she went right through that course just like everybody else. Everybody in the squadron had very high respect for her. And, in her opinion, the F-15E is the world's greatest airplane. It's also my opinion. But you cannot cut the defense budget without cutting the defense budget.

Chapter 40

Allocating Roles and Missions

Speech, Oregon Air Force Association Convention, Portland, Oregon, 15 July 1994

As I travel around Oregon and the rest of the country, I meet with many hard-working Americans who believe in a strong national defense but also believe in good value for money. They are concerned that these have become mutually exclusive goals. This skepticism is exactly right for the post-cold-war era. I'm convinced that improving the economy is our number one security challenge because, ultimately, military power springs from wealth—the riches a country can create. The fate of the former Soviet Union provides contemporary and convincing evidence of what happens when defense spending overreaches the economic base.

As this audience knows well, the Air Force is doing its part to reduce the cost of defense. Our budget is down 44 percent since the peak years of the mid-1980s. We have a third fewer people. The combat fighter force is down to half what it was just five years ago. We canceled many cold war acquisition programs. On top of all this, we restructured the Air Force In the past three-and-a-half years, we've cut out organizational layers, consolidated headquarters, and reduced staffs. Today's Air Force is simpler, more flexible, and tougher. Most important, we're less expensive to operate.

But no one service, acting alone, can do all that's required to guarantee the American taxpayer good value for the security dollar. The Department of Defense made a fine start on the larger problem with its Bottom-Up Review. The Bottom-Up Review—or BUR as it's called in the Pentagon—was nothing short of a clean break from the cold war. Instead of global conflict with the Soviet Union, we now plan to counter regional threats, as we did in Desert Storm. Accordingly, we are further cutting the number of Army divisions, Navy ships, and Air Force wings.

The Bottom-Up Review was an important step in restructuring our military forces, but more must be done. To some degree, we have used a "salami-slice" approach to reducing force structure—taking a wing here, a division there—by decrementing every kind of capability about the same amount. We now need a kind of "Inside-Out Review" to complement the Bottom-Up Review. For this review, however, the target is not threat scenarios but the outdated allocation of service roles and missions.

Anyone following defense issues knows that, since the invention of the airplane, our armed forces have had trouble dividing up the workload. In theory, this shouldn't be difficult. The Army works on land, the Navy at sea, and the Air Force in air and space. But, in practice, it's been tough to reduce overlap and duplication—principally in aviation forces.

This should not be surprising. All services recognize the critical role that air and space forces have on the battlefield. So, they naturally want *their own* ability to strike deep at the enemy, *their own* ability to defend their force against aerial attack, and so forth. The question is not whether, collectively, we should have such capabilities, but how much each of the services should have of *their own*—how much *independence* the nation can afford for each service. We must find the right mix, the right allocation of capabilities to produce an affordable, combat-effective balance between independence and jointness. This will be painful for some because self-sufficiency is a cultural imperative for all good commanders. But, remember, in the final analysis, jointness means depending on one another.

As you know, we got where we are because of decisions made after the Second World War. We were the new guy on the block, and money was very tight. This naturally led to a series of fights about who would get to do what, highlighted by the dispute between the Air Force and Navy over responsibility for strategic warfare. When Defense Secretary Forrestal got fed up with the bickering, he did what any modern CEO would do. He held an off-site—at Key West, Florida. There were some great military figures at the Key West meeting: Tooey Spaatz, Omar Bradley, and Adm Louis Denfield. They stitched together a compromise that quieted the Pentagon infighting and allocated

roles and missions among the services pretty much as we know them today.

That's an important point. The allocation of roles and missions is basically the same today as it was in 1948. This is true despite the vast change in our world position; despite the Goldwater-Nichols Act and all the other movement toward jointness; and—maybe most important—despite the tremendous growth in the size of the defense establishment, the federal budget, and the deficit. About the only changes in the formal allocation of roles and missions since Key West has been to tack on a few new roles as technology has evolved—technology such as satellites or electronic warfare. And, almost without exception, the Pentagon's approach to adding these new roles and missions has been to give the same new responsibilities to each service. Thus, for example, every department has basically the same tasking in space, and—as a consequence—every department has a space command. Think of it—three space commands.

This is not to say that serious people—good people—have not tried to rework the roles and missions issue since 1948. They have. The most recent run at the problem came in 1993 under the direction of the then-chairman of the Joint Chiefs of Staff, Gen Colin Powell. But this and earlier attempts to relook roles and missions have, in my view, yielded little more than cosmetic change. Meanwhile, there has been a growing sentiment, particularly in Congress, that we can no longer afford the duplication—the overlap—that exists among the services.

Thus, the 1994 Defense Authorization Act, signed into law last November, called on the secretary of defense to establish an independent commission to recommend changes in the current definition and distribution of roles, missions, and functions of the armed forces. The commission actually formed up late this spring under the chairmanship of Harvard University's Dr John White. Their report to the secretary of defense and the Congress is due next summer.

The commission faces a big challenge. Nothing stimulates the glands as much as a threat to one's rice bowl. And the commission will, if it is serious, threaten many rice bowls. You will soon hear assertions that the status quo is, after all, not so bad. Our success in Desert Storm will be cited as proof that

the system isn't that "broke," that it doesn't require radical surgery. It will be said that, sure, some consolidation here or a few cuts there may be in order—but nothing dramatic. It's crystal clear, however, that a piecemeal or incremental approach to the allocation of roles and missions will result only in piecemeal, incremental savings—not the very substantial savings that can, and really must, be achieved.

I, for one, am taking great interest in the work of the roles and missions commission and plan to cooperate fully with them in meeting the ambitious objectives mandated by the Congress. To this end, I'd like to offer a couple of general thoughts on how the commission—and the rest of us—might contemplate the task they face.

First, the law charges the commission to recommend "changes in the current definition" of roles, missions, and functions. The people who crafted that language knew what they were doing. In requiring the commission to focus on definitions, they struck oil. We cannot hold an idea in the mind—think about it, manipulate it—unless we can name it, give it a label. So, if people don't agree on labels, it's difficult—more than that, impossible—to have a meaningful debate. Right now, there is a real hang up on definitions. What is a "role?" What is a "mission?" What exactly do we mean when we speak of the "functions" of the armed forces? These terms are used almost interchangeably—even by professionals. The first thing the commission needs to do is to agree on what these words mean.

Let me offer my two cents worth. For me, a mission is the basic purpose of an organization. If we tell an infantry company to take an objective, then taking the objective is the mission. Mission statements have lots of active verbs such as *go, seize, occupy*. What President George Bush told Norm Schwarzkopf to do was *liberate* Kuwait. That was a mission.

A role, on the other hand, is a core process that must be performed in order to accomplish the mission. To my mind, things such as infantry operations, air superiority, peacekeeping, and submarine warfare are roles. They are processes military organizations perform—alone or in combination with others—that are needed to accomplish the mission.

Finally, a function is a support activity that enables core processes to be accomplished efficiently over time. Here, I am thinking about things such as communications support, logistics, legal and medical services, transportation.

Let me illustrate the differences among these terms by using a show-business analogy. Suppose we were a theater company. A producer wants to stage Shakespeare's *A Midsummer Night's Dream*. To do that, we need actors. Each actor will have a specific role to play. That's what we call these parts: roles. There are other activities—let's call them functions—that also must get done: costuming, set decoration, lighting, ticket sales. They are all necessary for a successful performance. So, our "mission" is to perform *A Midsummer Night's Dream*. We have "roles" that are absolutely essential and must be acted for the production to make sense. And we have support "functions" that will, if performed well, make the play an artistic and financial success. It will be seen from this analogy that combatant commanders have missions while services really do not. The combat arms of the services have roles. The services do not. As we are now organized, what the services do have is support functions—and some very expensive ones at that.

I don't want to belabor the definition problem. But, believe me, it is not trivial. Before we can start assessing the appropriate allocation of roles, missions, and functions, we need to agree on how to think about the problem at hand.

Another task Congress gave to the commission was to consider the "division of responsibility on the battlefield." Again, I have to compliment the drafters of the law because they hit on another key point. The mental construct you have of the battlefield is directly related to the question of how you divide missions among the possible commanders, roles among the possible players, and support functions among the possible providers.

In my view, modern land warfare can be seen as containing four battles: the Rear Battle, which includes all the base and supporting elements; the Close Battle, where the main opposing ground forces engage one another; the Deep Battle, which includes hostile territory well beyond the line of contact; and the High Battle—the arena of air and space combat.

Today, the overall commander (CINC) of a particular theater is responsible for all these battles, but he can not personally conduct each one. The job is just too big. Instead, he delegates responsibility for various aspects of the battlefield to subordinate commanders. Aside from picking the right subordinates to put in charge, the CINC's principal challenge is to locate the boundary between each of these battles at the right place so as to maximize the performance of the forces operating within each battle area. How this should be done, it seems to me, is what the law asks the commission to help decide.

Here's my cut at the problem. The Rear and Close Battles should be the responsibility of a ground-forces commander—an Army or a Marine officer. His forces should be capable of relatively autonomous operations. They should be capable of engaging the enemy in the friendly rear and immediately in front of them, without a lot of outside help. True, the ground commander has a deep interest in what goes on overhead in the High Battle or over the horizon in the Deep Battle. He may even have some capability to get into these fights. But, his forces are not the most effective for the High or Deep Battle. Instead, it's the air component commander who should fight these battles. Air assets provide the best—most often the only—capability to operate in these parts of the battlefield. This air commander will likely be an Air Force or Navy officer, depending on which service puts more forces in a particular fight.

This approach to dividing battle space provides a logical starting point for identifying unnecessary overlap and duplication. If you accept the scheme I just laid out, it follows that the commander with responsibility for the Close Battle does not require systems or capabilities that reach across the boundaries into the Deep and High Battles. If there are such systems in the field or on the drawing board, they might be good candidates for retirement or transfer to another service. Alternatively, the commander with responsibility for the Deep Battle does not need forces that are configured for direct support of close combat operations. If there are any, they too could be transferred or cut. Such transfers or cuts would, of course, be painful. Just remember, there is no painless way to cut the defense budget.

I admit this is pretty heavy stuff. So, let me sum up. The roles and missions commission should start with a clean sheet of paper, settle on definitions and basic organizational principles, and identify how our armed forces should operate together for success on the modern battlefield. Once you understand how we intend to fight, then you can decide how best to allocate roles and missions. We want and must have some overlap. But more is not always better. I'm reminded of the guy who went bungee jumping at a county fair. Right after he jumped, the owner told the fellow's wife not to worry since he had added a little extra cord, just to be safe. Finding the right mix, the right balance is the challenge.

Many will resist major change for all the usual reasons. They will say, "We know what we're doing, and you don't" or "Let's see hard evidence that there are any savings to be made." You've heard all these arguments before. I call them "Management Maginot Lines." Just remember, our problems and our prospects are all much different than they were nearly a half century ago at Key West. We "fight different," and therefore we must "be different."

We need to get as many ideas on the table as we can. A lively debate will be good for all of us. But, whatever argument is offered, the logic must track back to saving dollars. I take it as a given that US military forces can and will be sized and shaped so as to support the national effort to improve our economic strength relative to our international competitors. As far as the Air Force is concerned, roles and missions reform can improve our effectiveness on the battlefield and lead to large dollar savings. The people of Oregon and the rest of the country should expect nothing less.

Chapter 41

Order of the Sword

Speech, Induction Ceremony,
Wright-Patterson AFB, Ohio, 20 August 1994

Good evening. Thank you, Chief Bob Jones, for that introduction and my thanks to Chief Gary Pfingston and all of you for putting on this great show.

As many of you know, the Order of the Sword is displayed right outside Gary's office. It's a highlight of the Pentagon tour. Sometimes the tour guide tells an unsuspecting tourist that this huge sword is the one used by Conan in the movies. Gary points out that nobody has yet confused me with Arnold Schwarzenegger.

I noticed this particular sword is the Excalibur model. I guess that makes the Pentagon, Camelot; me, King Arthur; and Gary, here, the Lady of the Lake! That's not fair. Gary's more like Merlin because his ways are mysterious; he's as old as the hills; and he's got an uncanny sense of when to disappear.

You know, this sword could really come in handy. We could pick the next chief based on whoever can pull it out of a stone. Knowing my luck, no one would even try, and then I'd be stuck in D.C. forever.

Actually, I like the Camelot image. Arthur had his Holy Grail, and I'm still looking for one good *Air Force Times* headline. Well, *they* think the pen is mightier than the sword, but obviously the selection committee isn't made up of dedicated *Air Force Times* readers. Can you see the headline for this event? "Hundreds Stab McPeak in Saturday Swordfest."

Let me tell you I'm very honored to be inducted into the Order of the Sword. In particular, the headquarters award has special meaning to me. Previous inductees are some of our best—Charlie Gabriel, Cap Weinberger, Larry Welch. That's quite a group to claim *any* association with. To be inducted into the same order as they were is a very special distinction.

But, for me, the honor is not the ranks I join but the ranks from which this award comes.

Today, we're the world's most respected air and space force, second to none. Make no mistake, the reason for this is the enlisted force—the muscle and bone of our organization. That's what produces the results we get every day—often in circumstances that literally involve life and death. I simply would not be here today if it were not for my crew chief on Thunderbird 5—C. D. James. And, by the way, that also goes for a bunch of other crew chiefs who have kept me alive through 4,000 hours of single-seat fighter flying. Hundreds of senior NCOs gave me solid support and advice during my years in midlevel leadership positions. And, I wouldn't have accomplished anything as a senior commander or as chief of staff without my good friend and counselor, Gary Pfingston. He was with me at Twelfth Air Force and PACAF and later selected me for the chief job. Gary and a whole planeload of other top NCOs carried out the good ideas I had and tried, sometimes successfully, to get me to let go of the bad ideas. Without them—without you—I could have done nothing—zip, zero. So, by honoring me tonight, you also honor all those NCOs who really made it happen.

This is a beautiful sword. It is, of course, more than just cold steel. This sword is a symbol of things we value, ideals we dedicate ourselves to: truth, courage, strength, leadership, followership. I'd say these values are the bloodstream of our organization—the oxygen delivery system. It's this set of beliefs that allows us to say that the Air Force is more than just a job. Our shared beliefs—our values—are what passes down from generation to generation. They're what we fall back on from time to time—and this happens to all of us—when we ask ourselves, "Why am I doing this? What's the point?" You've probably asked yourself these questions—especially lately—during this period of high personal and organizational stress. These are good, reasonable questions. And, I think it's very important that we be able to give ourselves good, reasonable answers.

To me, the most basic response is that anyone who voluntarily puts on the uniform must believe that there are values and ideals worth risking life for. Think about that! That's sort

of the gold standard. Very few occupations pass the test. Our purposes are so valid, so important, they transcend individual self-interest.

In January, it was my privilege to present the Air Force Cross and two Silver Stars to three enlisted men whose heroism in Somalia is just what I'm talking about. Their actions took them well beyond concern for self-preservation. You would have to see and meet these guys to know how proud I was to decorate them.

It would be nice to think that everybody joins the outfit with these high ideals in mind. But we all know that many join up because our recruiters promise security, good pay, benefits. Frankly, this was true in my own case. I signed up to Air Force ROTC because it paid $30 a month to upper-class cadets. I can tell you that check meant a lot; it meant being able to eat. That's why I was first attracted. But, I turned down a regular commission at graduation because I had no intention of making the Air Force a career. Thank goodness I was offered another chance at regular and accepted because by that time I had fallen in love with flying.

Now, flying is a great reason to stay, but—today—I realize that something more was needed. For me—and I know for many of you—the clincher was our way of life. I like the people I work with. I respect the values and ideals of our community, our brotherhood. We do important things. I wanted to contribute, to be a part of it.

I suspect that many of us go through this same sort of process—a journey we take that has three milestones. At the first milestone, you join up—the Air Force is a *job*. So, you get some great training, you mature, you maintain high standards, you reach the second milestone—the Air Force as a *profession*. Then you gradually come to recognize your own personal obligation to your comrades-in-arms, the responsibility we all have for protecting our country. This is the third milestone—when you see the Air Force as a *calling*, a *vocation*. At this stage, you *are* the organization; the Air Force and you have become one thing.

Part of reaching this third phase is integrating *our core values*—like courage, integrity, tenacity; *our basic principles*—like having authority to do the job; *our operating style*—like setting

goals, rewarding performance, continuous improvement. Today we call all this the Quality Air Force, but it really just describes some important elements of the Air Force way of life.

But the foundation, the basis, the gold standard for all this is our higher purpose—to defend the United States, even at the risk of our lives. It is very important that we take good care of the material side, the benefits for our people. But, in the final analysis, our people are not in the Air Force to secure a BX privilege or to protect against the rising cost of living. We're here, doing what we do, to defend the United States—its people, its values, its institutions.

Ladies and gentlemen, it's part of our job to help people make the journey past these three milestones, to show by leadership and example that the Air Force is not just a job—not even just a profession. The Air Force is a calling. We honor doctors because their essential function is to preserve something we value—life. We honor judges because they support a higher cause—justice. Military people can and should be honored because we have the most noble calling: to defend—if necessary, to die for—the values and ideals of our nation. My induction into the Order of the Sword, this honor you have bestowed on me, reaffirms my own sense of calling. It is an award I will always cherish. Thank you.

Chapter 42

Reinventing the Air Force

Speech, Air Force Association National Convention, Washington, D.C., 14 September 1994

There's a lot of talk in Washington these days about "reinventing" government. The president has challenged his administration to do this—to make government work better, cost less. The vice president headed a National Performance Review that canvassed America for new ideas. When his report came out last year, it surprised some that there was high praise in it for the Air Force. It turns out our men and women had already gone through the drill. Over the last four years, we can claim to have reinvented the Air Force. Today I'd like to review the bidding, to talk about what we did and why we did it, and to offer some observations along the way about how our efforts may affect the current dialogue on roles and missions.

I should start by noting that reinvention is not the same thing as incremental change. Reinvention amounts to a break with the past—a transformation. What emerges at the end is something new in the same way that a butterfly is not just an improved caterpillar; it is an entirely different creature.

Well, first of all, why should anyone want to reinvent the Air Force? I've been associated with this outfit for all but six years of its existence, and I can say—based on close personal observation—that it has always been first-rate. We weren't "broke"; we didn't need "fixing." So, why undertake radical change?

To understand why, we have to go back to our roots. Our very existence as a separate service springs from the doctrine of independent strategic bombing. Basically, the idea held by airpower pioneers—Douhet, Mitchell, and company—was that in the long-range bomber we had an unstoppable offensive weapon of such great destructive power that it was bound to dominate all-out war between industrialized states. Some even claimed that having an air force was sufficient—all that was needed to win wars. In any case, having achieved our independence, we rapidly designed an organization, wrote doctrine,

drew up requirements—in general, developed a *culture* built on the unifying concept of independent strategic bombing.

I want to dwell for a moment on this idea of a service culture, because it is very important. We all recognize that our organizational behavior is driven by shared values and experiences—unspoken, even unacknowledged, conclusions about the past—that give us our institutional identity. It is this culture that explains how we feel about things—how we really operate—and that determines our present and future possibilities as an organization.

As I said, up to very recently, the concept of strategic bombing provided the principal rationale, the hidden context for our institutional culture. Meanwhile, we didn't do any strategic bombing—at least, not any of the type envisioned by our founding fathers. This was because during the era of the independent Air Force, we have not had to fight an all-out war with an industrialized state. We should have expected this, since the best way not to have a fight is to be prepared for it. We did involve ourselves in a series of limited wars against second-rate opposition, with mixed results, which we should also have expected, since we had not done enough to prepare for this kind of conflict. By the way, we also found that airpower was not sufficient in itself to determine the outcome of these engagements. Indeed, our actual experience should lead us to conclude that the most effective use of airpower is as part of a combined-arms team featuring strong land and sea components.

So, from the beginning, we had a culture based on the concept of independent strategic bombing, and—over time—this concept got more and more out of sync with our real-world experience, which seemed to require a different kind of organization, training, doctrine, requirements—in other words, a different culture.

This situation had two notable results. First, some of our people got disoriented. I mean, we had here a vertigo-inducing difference between our cultural imperatives and our actual experience. Some were not able to handle it and lost their sense of identification with the organization. They left us, or—if they stayed—the Air Force became for them a job like lots of other jobs—with concern about career moves, pay, benefits,

and so forth, taking center stage. It seems likely there will always be a small number of such people, but I believe that this kind of alienation was increasingly prevalent toward the end of the eighties. So, the first result of the cultural disconnect was a kind of aimlessness inside our ranks.

The second result was that, gradually, the ground was prepared for large-scale change. That is to say, people came to understand more and more clearly that our existing structures had ceased to deal adequately with the problems we faced.

In an interesting way, institutions are themselves often responsible for creating the new conditions against which they are then tested and found wanting. Thus, it is only a small stretch to claim that Strategic Air Command won the cold war but that the cold war's end brought along a new set of problems which SAC was not well suited to handle.

The end of the cold war certainly affected the Air Force more than it did the other services. We were, after all, a sort of creature of the cold war. We came into existence in 1947—about the time the cold war started. Up to its end, our entire existence was coincident with the cold war. When it ended, we had no previous experience to fall back on. Unlike the other services, there was no institutional memory of peace, no nostalgic recollections, no "business as usual" to return to. In any case, the end of the cold war provided an unmistakable signal that it was time to reinvent the Air Force.

But, reinventing the Air Force required more than simply a lot of hand-wringing followed by a jump in the deep end. It was not enough just to break up the old order. We also had to orchestrate the creation of a new culture so that all of us could come to believe in powerful new possibilities—a promising future that in the context of our old culture would have been out of reach.

We started the process by drawing up a much more comprehensive statement of how air and space power contribute to national security. This statement was called *Global Reach—Global Power*, and I will say no more about it, except to note that one insight which can be drawn from this document is the paradox that we are now able, at last, to employ airpower as first envisioned by the early advocates. We have in hand, finally, the technology that produces the combined effects of

maneuver and mass. These two qualities are well understood to be of transcendent importance—indeed, they are universally regarded as principles of war—but for most of history, you could have one or the other, and many battles have been lost because commanders massed when they should have maneuvered or maneuvered when they should have massed.

Until recently, we too had to trade these qualities off. Target defenses made us compromise maneuver for mass—one thinks of the large bomber formations of World War Two or the alpha packages into Route Pack Six. Even then, our use of inaccurate weaponry meant we did not achieve mass effects anyway. Stealth aircraft and precision guided ordnance are therefore developments of fundamental significance. Stealth defeats target defenses and restores our ability to maneuver. And, of course, precision guided munitions produce mass effects at the desired point.

Let me say it again: we now put into action air and space instruments that permit simultaneous application of both mass and maneuver. This does not mean that the work done on land or at sea is unimportant. Indeed, our success often will and should be measured by its impact on the performance of our colleagues working at the earth's surface. For instance, one hears Desert Storm called the "100-hour war" because that was the duration of the land combat. This may rankle some airmen, but in the end we should be proud that we helped make this very important ground operation as short and as bloodless as it could be. However, we must not be trapped into thinking it is a question of equal thirds. Because mass and maneuver are so much more easily combined in air and space, we can almost always be relied on to make up for the limitations of land or sea power. The reverse is certainly not true.

It was in this context that we were subsequently able to put forward a mission statement. I'm sure you all remember that we said the job of the Air Force was *to defend the United States through control and exploitation of air and space*. We never had a clear, simple statement of our purposes before. Now we do.

Note two points about this mission statement. First, it is our conviction that in modern war the contest for control of air and space precedes and largely determines the outcome of the con-

test for territory and population. Incidentally, it seems to me that almost everyone recognizes this. The current roles and missions debate is not about whether air and space forces are pivotal; it is about how they will be organized and directed. For us, this is not an issue of secondary importance. The youngest of the armed services, the Air Force has had to carve its operating arena out of territory formerly possessed by the older services. While, over the years, there has been no serious challenge to our legitimacy to operate in the air and in space, each of the other services has sought to preserve a portion of that environment for itself. Controversy about roles and missions was the inevitable consequence of such an arrangement. If, as we assert, defending America's interests through air and space power is, indeed, our mission, then this fact has important implications for the roles-and-missions debate.

Second, note that the mission statement ties our role, our activity—*control and exploitation of air and space*—to a higher purpose: *defend the United States*. We are not in the Air Force to preserve the Air Force or, by the way, to provide meaningful career opportunities or protection against the rising cost of living. These things are important, and we will get them for our people, but they are not why we have an Air Force. We're here, doing what we do, to defend the United States—its people, its values, its institutions.

So, *Global Reach—Global Power* and the mission statement provided the new theory on which we now base our legitimacy as a separate service.

Meanwhile, we initiated the Quality Air Force movement. It began with a vision: we want to be *the world's most respected air and space power*. This statement is certainly short on specifics and establishes what is for us only a modest goal, at best. But, make no mistake, this is a compelling vision statement. It reminds us that part of every duty day includes a challenge to business as usual. It tells us that we simply must resist the downward pull of habit and routine.

By and large, institutions do not welcome such challenges. History is littered with the wreckage of organizations that could not or would not change. We hear a lot of talk today about readiness, and we would all agree that readiness is a good thing. But, in 1939 it made absolutely no difference

whether the French armed forces were ready or not. They had become irrelevant because of inability or unwillingness to adjust to new circumstances.

Our quality movement aims at continuous change—institutionalized change. Its target is the objective Air Force—not the Air Force that exists or even the one that ever will exist but the Air Force as we would like it to be—the Air Force that is a perfect match for its mission and its circumstances—the Air Force America ought to have.

While the quality idea signed us up to incremental but continuous change, our classic functions—organize, train, and equip—needed more immediate and more radical reform. You remember that 1991 was the Year of Organization. This was not just an exercise in swapping furniture around. It was the most comprehensive restructuring in our history, and it's not done yet. We are still cleaning up the details, but you all saw very rapidly what was afoot. Over time, our structure had gotten too complicated, too elaborate. That's what always happens in large enterprises—a kind of second law of "bureaudynamics"—even though we know that the more complex a mechanism is, the less likely it will work under anything but ideal conditions.

Attacking complexity creep was at the heart of reinventing the Air Force, so I will pursue this topic for just a moment.

I believe that no invention is entirely new, each necessarily being made up of existing elements. Nevertheless, the essence of invention might also be described as an act of violence, by which these existing elements are wrenched out of their accepted frameworks and put together in new combinations. That's what we did with the structure of our organization. But we were also mindful of the fact that our organizational design needs to be rooted in the past, to recognize what has and what has not worked in military history and experience.

For instance, a big part of our business is to run theater air forces. So, we've collectively thought a lot about theaterwide applications, and we have considerable experience—both good and bad—with how to do theater air operations. Every time we've done it, we have seen the power of integrating all kinds of air platforms—fighters, bombers, airlift, recce, and so forth. But in our old organizational format, the ownership of these

assets was divided, and whenever we wanted to put them together, we had to set up ad hoc command arrangements. Today, by contrast, the overseas theater air commanders in Europe and the Pacific own virtually all the various kinds of air assets they will be required to integrate in combat. And, because the continental US is just another theater—the one where most of us serve in peacetime—Air Combat Command is organized that way too.

We also know from experience that we often must integrate activities at base level. This is especially true where we have only a single base in a theater—like, say, Howard AFB in Panama. The way we did this in the past was with a lot of dotted lines on an organization chart—tenants and detachments and nobody really in charge. But now we have composite wings almost everywhere overseas—at Howard, to be sure, but also at Incirlik in Turkey, Dhahran in Saudi Arabia, Spangdahlem in Germany, Elmendorf in Alaska, and Kadena in Japan. In all these locations, wing commanders run integrated air operations. Since we must be ready at all times to send a potent, integrated air team to some distant, dangerous spot, we have composite wings here in the continental US: at Mountain Home, at Pope, and now at Moody.

The emphasis up and down the line has been on giving operational commanders greatly increased flexibility and authority. We put first-echelon maintenance back in the operating squadrons. We restored the group as an operating entity, with a guy in charge called "commander." Fifty-six of our wings are now led by general officers. We tore down the stovepipes so that all the functional specialties—weather, rescue, communications, contracting, and so forth—now report to the local boss. We eliminated air divisions. We made the numbered air force a tactical echelon instead of a management layer. We cut the major air commands from 13 to eight—a huge reduction in overhead. We reorganized and streamlined Air Force headquarters. We had high hopes that all this restructure would work well, and results have far surpassed expectations. Operations is our product, and we have greatly strengthened our product line.

In making all these structural changes, we paid a lot of attention to our heritage and to what we call things. We will

save our most prestigious formations. That doesn't mean the squadrons and wings that go off the books have no importance to us, but we have had to choose, and we are trying to keep our best—like the 3d Wing, now safe at Elmendorf, one of the Air Force's original 13 formations. Note that the 3d is simply a "wing"—no modifiers. Again, that illusive objective of simplification, in this case trying to simplify unit titles and names. What we call things is important because it sets in concrete how we think about them. We want to think about our units in the most flexible way because we want to use them in the most flexible way. Elaborate titles promote overspecialization, necking down the possibilities.

We followed through in 1992 with the Year of Training and in 1993 with the Year of Equipping the Air Force. I have time today only to say that we are well along on reinventing training, with a much stronger major command in charge and retooled training and education concepts. It's still a little early to forecast results on the "equipping" part, but it looks like we've made a good start in laying out a road map for our modernization needs in all mission areas out to the year 2020.

Well, I've talked about only some of the things that were important in reinventing the Air Force. Everything has changed and will not be the same again. Even the uniform—perhaps, especially the uniform—has changed. I've only skimmed the surface, but I think you can sense that there was a method here, an interlocking and mutually supporting set of initiatives: a new theory of air and space power; a quality movement; the reform of our organize, train, and equip functions—altogether a revolution aimed at providing us a new culture—a new and different Air Force.

Someone reportedly once asked the celebrated Chinese foreign minister, Chou En-lai, what he thought about the French Revolution. He is said to have answered, "It's too soon to tell." That is a wonderful way to sum up a characteristic of revolutions—that when they happen, people do not fully understand what is going on. Thus, there has been a fair measure of criticism about reinventing the Air Force, by and large from people who are well intentioned but who just don't get it yet—and maybe won't get it ever.

Whatever they may think or say, this is no longer the cold war Air Force. This is a different Air Force—a simpler, tougher, more flexible Air Force. And while we are building it, we're going through a very significant downsizing and all the bad news associated with it: base closures, program cancellations, unit deactivations, end-strength loss, selective early retirements, reductions in force, and so forth. We've loaded reinventing the Air Force right on top of all that. An outsider might have thought, "It's too much. They've already got so much change, they won't be able to handle it."

We knew better. The Air Force—like war itself—is not, in the end, a technical enterprise. It's about people. And the one thing that didn't need reinventing was our people. Don't ever expect Air Force people to just let change happen. We get ahead of change, shape change, make change work for us. We reinvented the Air Force. And, we've showed the rest of the country how it's done.

This is the fourth and final time I shall address this assembly as a service chief. (Hats off to some here who have earned all the oak leaf clusters!) Each appearance has violated the unwritten law of luncheon speeches by asking you to consider serious topics. This approach has meant that it has not been easy writing these speeches, and I expect it has not been easy listening either. Speaking for myself, it has been worth the effort because I admire and respect this group so much. You make it worthwhile. Your support has been the strong foundation on which we build the Air Force. I cannot thank you enough.

Let me end on a somewhat lighter note by laying out three axioms that at the same time provide a theory of leadership and some principles of war. First axiom: the important things are always simple. Second axiom: simple things are always hard. Third and final axiom: the side with the simplest uniforms wins.

Thank you, and see you on the flight line.

Chapter 43

The Future of America in Space

Speech, SPACETALK '94,
Salt Lake City, Utah, 16 September 1994

We are here tonight to commemorate the 25th anniversary of man's first landing on the moon. This marvelous technical achievement showed everyone that the United States was, beyond doubt, the premier air and space nation. Since then, we've continued to push back the frontiers of space, with space systems becoming increasingly important in the conduct of our affairs at the earth's surface. This is especially true as far as the American armed forces are concerned.

The recent Gulf War showed just how important space systems have become for military operations of all kinds. More than 80 percent of the messages we sent to and from the region traveled through space-based communications systems. Weather satellites provided data essential for planning operations over Baghdad and the battlefield. Early warning satellites alerted us to Scud missile launches, providing time to take cover and to alert active defenses. Global positioning satellites provided precise navigation data, allowing our forces to move with ease over featureless terrain. Intelligence satellites kept track of enemy positions and activities. I hate to think how much more difficult—how much greater—our losses in the Gulf War would have been without support from space. Our success in future conflicts will no doubt require the same or even greater reliance on space.

So, it's no surprise that the military services are vitally interested in space and in employing space systems to support the war fighter. It follows that each service wants to ensure that its requirements for space support are met. This concern—a quite legitimate concern, I might add—has gotten caught up in the current Washington debate over the proper allocation of roles and missions among the services. The trade journals are having a field day with this topic. Earlier this week, one paper carried a front-page headline that proclaimed "USAF Aggres-

sively Guns for Roles." According to this and other accounts, the Air Force is trying to shut the other services out of military space operations altogether. You can't believe everything you read in the newspapers, and this is one of those cases of more heat than light on the subject. So I'd like to take a few minutes tonight to set the record straight.

To begin with, it is true that the Air Force has put forward a proposal to consolidate and streamline the development and acquisition of military space systems and to make the Air Force the lead service for accomplishing that task. Let me explain why we think this is a good idea for the Defense Department and for the American taxpayer.

Like most issues in Washington, discussion about the management of military space acquisition starts with money. Space systems are, of course, expensive to develop, launch, and maintain on-orbit. And, as you know, money is a problem. The 1995 defense budget represents the 11th straight year of real decline in defense spending, following the buildup of the early 1980s. In fact, from 1992 to 1995, overall DOD spending declined by 22 percent. The portion of the Air Force budget devoted to space has fared better, dropping only 11 percent over the same period. But that's still a squeeze. So the dilemma we face is to find ways to realize the tremendous potential of space while our budget continues to head south.

Now, obviously one way to reduce costs is to cut overhead and streamline the organization. We've already done this in the Air Force. Over the past four years, we've totally restructured our service to prepare it for the challenges of the post-cold-war world. We stripped out unnecessary headquarters elements and at every level of organization consolidated those activities that needed integration. In the process, we've really slimmed down. We reduced the number of our basic combat and support units—what we call wings—from over 200 four years ago to 90 now. We eliminated air divisions altogether—an entire management level, gone. We cut our major commands from 13 to eight—40 percent of our major command headquarters, gone. And we reorganized and streamlined our Washington headquarters, sending 17 generals out of the Pentagon and back to honest work. We have literally reinvented the Air Force.

What we're proposing is that we take the same approach to how the Defense Department develops and acquires military space systems. Here's the problem. Over the years, several different defense organizations, including each of the military services, have developed their own satellites or satellite control systems. At one time, it may have made sense to have a lot of different players in the game. Fielding space systems was a risky business. No one had a monopoly on experience, much less expertise. Budgets weren't quite so tight.

But there are clearly penalties for doing business this way. First, there are costs associated with management overhead. Right now each service maintains a separate bureaucracy for space development and acquisition. That's offices, buildings, computers, copying machines, and the small army of people that go with them—all of which cost money.

There are costs directly related to the lack of standards. Because separate organizations develop separate systems, nearly every satellite is a kind of experiment, with unique interfaces between it and the booster it rides on. This lack of commonality drives up costs and often imposes substantial delays in the launch schedule.

Finally, there are costs associated with duplicate and overlapping capabilities. In some cases, we have deployed two or more satellites to perform missions that might have been combined on a single space platform. It's true that the services have made some effort to rationalize space requirements and to share satellites. But with separate development and acquisition bureaucracies, this has been more the exception than the rule.

This problem of overlap in developing and acquiring military space systems isn't simply a matter of Army versus Navy versus Air Force. During the cold war, two separate military space communities sprang up: one dealing with so-called white systems—such as communications, weather and navigation satellites—and the other dealing with so-called black systems—reconnaissance satellites. Because of security classification, it has always been difficult for the "white" and "black" communities to share lessons learned on engineering and operations—lessons that could hold down costs. Of course, each community has its own bureaucracy and costly overhead.

This is no way to run a business, particularly in austere times. And many outside observers, including Congress, have rightly criticized the military for lacking focus in its space programs and insisted we get our house in order. Recently, the Defense Department asked the Air Force to explore possible approaches to streamlining the Pentagon's processes for developing and acquiring space systems. At the risk of sounding parochial, I think the department's civilian leadership was absolutely right in turning to the Air Force on this matter. When most Americans think of military operations in space, they naturally think of the Air Force. After all, the Air Force manages nearly 85 percent of the military space budget, employs over 90 percent of the people involved in military space operations, and owns the vast majority of the infrastructure—launch pads, satellite control stations, and so forth. It just makes sense to turn to the Air Force to develop an approach for better, more focused management of military space.

The Air Force has responded to the department's request with a proposal. Let me give you the high points. To begin with, each service would continue to state its own requirements for capabilities that might be met by space systems. For example, the Army might say it has a requirement to communicate over secure, jam-resistant channels between a field headquarters and an airborne air cavalry unit. The Navy, on the other hand, might state a requirement to communicate with a surface task force at extrahigh, superhigh, or ultrahigh, jam-proof frequencies; over various band widths; with low probability of intercept. These service requirements would be validated by the Joint Requirements Oversight Council, which includes the vice-chiefs of staff from each service. Requirements would also be reviewed by a Joint Space Management Board, led by senior Defense Department and intelligence-community officials. Then the Air Force, as the Defense Department's executive agent for space, would be responsible for developing and acquiring the space systems that meet these requirements.

So what's the advantage to the Defense Department and, more important, the taxpayer? Our proposal would simplify the process for acquiring DOD space systems and shrink existing bureaucracies. By consolidating DOD space acquisition

within one service, we can create common architectures for military space capabilities and make trade-offs between competing systems. So, instead of developing two separate satellite systems to handle Army and Navy communication requirements in the example I just used, we might develop a common satellite, using a standardized satellite bus, that would meet both sets of requirements.

Furthermore, adopting the Air Force proposal would start breaking down some of the unnecessary barriers between classified and unclassified space programs. If we are going to bring down costs, establish standards, and improve capabilities, we have to get more commonality between the space white and black worlds. We're dropping cold war concepts in the way we develop and employ our forces operating at the earth's surface—we have to do that for our space forces as well.

Now, putting the Air Force in charge of space acquisition doesn't mean that the other services would be entirely out of the space business. As I said, all services would present their requirements for space capabilities directly to senior Defense Department leaders for approval. All services would provide talent to staff program-management offices. All services would participate in space-applications development and in war games to integrate space into their surface activities. In fact, under this proposal, the other services would have more insight into Air Force internal deliberations and operations than is currently the case. It ought to be—and in my view, would be—a win-win situation.

That, in a nutshell, is the rationale for and basic thrust of the Air Force proposal. At the moment, it is still under review within the Pentagon. All the services and the Joint Staff have had an opportunity to address the issues our initiative raised. After much lively and necessary debate, the Joint Chiefs of Staff have endorsed the principal elements of our proposal. It now goes to the Office of the Secretary of Defense for staffing. I'm confident the remaining issues will be resolved very soon, and we'll be able to report to Congress that we have a streamlined, more sensible approach to managing military space programs.

If the Air Force becomes the lead service for space development and acquisition, the other services will come to trust us

to meet their requirements in space. *Trust* is the key word here. Trust is what "jointness" is really all about. The Army and the Air Force trust the Navy to provide sustaining sea lift. The Air Force trusts the Army and the Marines to seize and secure territory from which we can operate aircraft. As budgets continue to fall, all of us will increasingly be forced to rely upon each other, to trust one another to perform specialized roles and functions.

While there's always room for improvement, our track record should give others good reason to trust us for support from space. Early in my tenure as chief of staff, Air Force senior leadership developed a vision statement to guide our institution into the post-cold-war world. That statement challenged our people to become *the world's most respected air and space force*. Though I admit to some bias on the subject, I'm proud of the work we've done over the past four years in pursuit of that vision.

We've continued to launch and operate satellites of the global positioning system—the system, as I mentioned earlier, that was so important to our troops in Desert Storm. In fact, in March of this year, an Air Force Delta II rocket lofted the satellite into orbit that completed the 24-ball GPS constellation. We'll continue to update and replace satellites in the constellation as required in the years ahead.

We've also continued to launch satellites for the Defense Satellite Communications System, which supports many different customers, including the other services, the State Department, and the White House. And, we just recently launched the first of the new MILSTAR communications satellites. You may have read that the Air Force does not support the MILSTAR program. Not true. Admittedly, as with all resource-constrained mission areas, we favored—and still support—continuous review to ensure the most cost-effective approach. But we in the Pentagon all agree that staying the course with MILSTAR is the best answer, for now. For the long run, however, we will have to find a cheaper way to meet requirements, so lighter and less complex alternatives will always be of interest to us.

We've continued to invest in boosters for all military space users. Since the 1986 *Challenger* disaster, the Air Force has taken the lead in ensuring access to space through expendable

launch vehicles—new generations of Atlas, Delta, and Titan. We are also devoting nearly $1 billion over the next five years to improve the infrastructure that supports launches out of Cape Canaveral and Vandenberg.

The Air Force continues to be the major provider of space-based ballistic-missile warning systems for the nation and all the services. Since the early 1960s, we've invested over $22 billion in early warning systems. The current system was designed and deployed at the height of the cold war to detect launches of Soviet intercontinental and sea-based ballistic missiles. We are now developing a new spaced-based warning system that will provide better warning of shorter-range missiles, such as the Scuds used by Iraq during the Gulf War.

As the post-cold-war era takes shape, we will continue to face uncertainty. Nothing makes planning for future wars more difficult than not knowing what tomorrow's threat will look like. But I am certain that if we maintain and improve our military space capabilities, they will give us that added edge in meeting any threat. Space is important to the nation's security, and it is vitally important to the Air Force as an institution. To keep our space forces at their best while we are reducing budgets and drawing down, we simply have to organize sensibly. I am convinced the Air Force should play a leadership role in making that happen.

Chapter 44

Roles and Missions

Speech, Heritage Foundation,
Washington, D.C., 17 October 1994

Roles and missions has always been a highly charged subject, erupting periodically like some still-active volcano. The proximate cause for the most recent eruption has been the establishment of an independent commission to recommend changes in the allocation of roles, missions, and functions of the armed forces. The commission actually began work late this spring under the chairmanship of Harvard University's Dr John White. Its report to the secretary of defense and the Congress is due next summer.

Last month, the service secretaries and chiefs had an opportunity to present their views to the commission. As tidbits of our discussions have leaked out, the trade journals have had a field day. One paper carried a front-page headline "USAF Aggressively Guns for Roles." The truth is not nearly as dramatic as this headline suggests. But, the Air Force *has* put forward a conceptual framework for analyzing the issues, and we've identified to the commission areas they might look at for possible savings in our defense budget. I will not be able to cover all the ground with you this afternoon—I spent more than four hours in front of the commission—but I would like to cover some highlights.

Ever since the invention of the airplane, armed forces all over the globe have had trouble dividing up the workload. In theory, this shouldn't be difficult: armies work on land, navies at sea, air forces in air and space. But, in practice, it's been tough to reduce overlap and duplication—principally, as I say, in aviation forces. This should not be surprising. All services recognize the pivotal role air and space capabilities play on the battlefield. So, each service naturally wants *its own* ability to strike deep at the enemy, *its own* ability to defend against aerial attack, and so forth. All this is natural and exactly what we would expect. But, as the defense budget drawdown begins

to really hurt, the question for US armed forces becomes *how much airpower independence the nation can afford for each of our services*.

It seems to me that we must find a better balance between independence and jointness. This is bound to be a painful process. Self-sufficiency is a kind of cultural imperative for good field commanders. But we simply cannot afford to configure each service's combat forces for sustained, independent operations. The key word these days is *jointness*. And, in the final analysis, jointness means depending on one another.

Now, how you allocate combat roles and support functions among the services should relate to how we fight on the battlefield. In my view, modern warfare can be seen as containing several distinct "battles," each with associated battle space. Setting aside the Maritime Battle, about which I am *not* the expert, land warfare can be seen as encompassing the Rear Battle, which includes bases and supporting elements; the Close Battle, where the main opposing ground forces engage one another; the Deep Battle, including hostile territory well beyond our front lines; and the High Battle—the arena of air and space combat.

Today, the overall joint force commander or CINC of a particular theater is responsible for all these battles. But, he is very unlikely to conduct each one in person. Instead, he delegates responsibility for various aspects of the battlefield to subordinate commanders. Aside from making the right resources available and putting the right subordinates in charge, the CINC's principal challenge is to regulate battlespace boundaries so as to maximize the effectiveness of the operating forces.

One way to approach this task of boundary regulation is to borrow a page from industry and focus on core competencies. As you will recall, many large corporations diversified into conglomerates during the bullish years of the seventies and eighties. They then found that the best response to the stagnating economy of the nineties was to go back to doing what they did best. When they did so, profitability was restored. The services might well follow industry's example and focus on what they do best. For example, since operations in the Rear and Close Battles revolve around seizing, holding, and secur-

ing ground, these battles should, in my view, be the responsibility of a ground-forces commander—an Army or a Marine officer. Likewise, the Army and the Marine Corps should have the lead for organizing, training, and equipping forces that secure rear areas and engage enemy forces in close combat.

On the other hand, the air component commander should fight the High and Deep Battle. True, the ground commander has an abiding interest in what goes on overhead and over the horizon. He may even have some capability to get into these fights. But, his forces are not the most effective for the High or Deep Battle. Air assets provide the cheapest and best—often the only—capability to operate in this battle space. The air commander will likely be an Air Force or Navy officer, depending on the resource contribution each service makes to a particular fight. It seems logical that the Air Force and Navy should lead in fielding forces for the High and Deep Battles.

This approach to dividing battle space provides a logical starting point for identifying unnecessary overlap and duplication. If you accept the scheme I have laid out, it follows that the commander responsible for the Close Battle has a much reduced requirement for weapon systems that reach across his battlefield seams into the Deep and High Battles. If there are such systems in the field or on the drawing board, they might be good candidates for retirement or transfer to another department. Alternatively, the commander with responsibility for the Deep Battle has little need for forces designed to support close ground combat. If there are any, they too could be transferred or cut. The overall effect would be to reduce component commander autonomy, mandating jointness and also reducing costs. In my view, if it is done right, this increased jointness could also enhance combat effectiveness. In other words, the cost of excessive overlap is not just financial. There is also a loss of skill, of knowing your business, that occurs when focus is diffused—a cost for wandering away from core competency.

Let me give some concrete examples of what I mean. Let's start with munitions designed to attack targets at long range. Recall that I suggested that the Deep Battle should be the responsibility of an Air Force or a Navy commander. As it turns out, all three departments are investing billions of dollars for Deep-Battle munitions. Key Air Force and Navy

programs include TSSAM, JDAM, and JSOW, just to give you an acronym attack. For its part, the Army is investing almost $6 billion on a long-range surface-to-surface missile known as the Army tactical missile system or ATACMS. ATACMS would be used to attack both fixed and moving targets deep in the enemy's rear—a capability that airpower has provided for at least 50 years. Now, we should ask whether—at projected funding levels—ATACMS is really necessary. I cannot conceive of any conflict in which our ground troops would be engaged without the support of land- or carrier-based air. Even if one were willing to concede that it might be nice for all commanders to have deep-attack systems—which I'm not—the question should be whether the nation can afford to have all three service departments investing in what are essentially overlapping capabilities.

Now, I've just violated one of the cardinal rules of civil discourse within the Pentagon by questioning the need for a system being fielded by another service. So, let me suggest an Air Force capability that is at odds with the concept of the modern battlefield. Earlier, I stated that responsibility for the Close and Rear Battles should be assigned to a ground-forces commander—an Army or a Marine officer. Yet, today, all four services provide close air support for ground forces. The Air Force, Navy, and Marine Corps all field fixed-wing aircraft that do close air support. Additionally, the Army and Marine Corps operate large fleets of attack helicopters to support their ground units. The bill for all this close air support capability is high. To be more precise, planned future investment for Close-Battle TACAIR totals nearly $58 billion—98 percent of which is going to improved attack helicopters.

While all the services have significant CAS capabilities, the actual use of fixed-wing close air support has decreased steadily since World War Two. In Desert Storm, ground commanders preferred to use their own artillery and attack helicopters for the Close Battle, while pushing fixed-wing aircraft far in advance of friendly lines. In fact, a study commissioned by the Marine Corps estimated that only 14 percent of their fixed-wing attack sorties were flown anywhere near Marine ground units.

Thus, it would be no great break from recent experience to assign the Army and Marine Corps primary responsibility for close air support. If we did, Air Force A-10 and OA-10 squadrons could be retired, saving about $5 billion over the next five years. This doesn't mean the Air Force and Navy would never provide close support to ground units. In an emergency, we would *always* be able to augment the Army and Marine Corps with multirole fighters and gunships. In any case, with Joint STARS and other deep-attack systems, we are going to be able to deal with ground threats at standoff ranges, further reducing the workload for close-in aviation systems.

So there, I've done it. An Air Force chief of staff has suggested that the Air Force could give up some of its aircraft—some of its force structure. In fact, let me digress a moment to say I believe our nation has too much TACAIR. For years, this country has maintained four air forces. We've justified our TACAIR investment on the basis of providing both unique and complementary capabilities to defeat a large and well-armed adversary. The end result is a TACAIR inventory that dwarfs anybody else's. The United States has nearly twice as many fighter aircraft as any other nation and more than five times the combined fighter inventory of North Korea and Iraq—two frequently cited major regional contingency candidates. In fact, Navy and Marine Corps fighters alone exceed Russia's entire tactical air force. Yet, each service continues to pursue independent TACAIR procurement programs at significant cost. For example, the Army's Comanche attack helicopter will require $46 billion in future investment. The tab for the Navy's F/A-18E/F program is about $89 billion. I doubt whether, in present circumstances, we can afford this much TACAIR.

There are several different ways to get at this problem. One option would be to transfer enough Marine Corps F/A-18 squadrons to the Navy to fill out their carrier air wings and retire the remaining Marine F/A-18s. Marine vertical-lift aircraft—helicopters and Harriers—are ideal for over-the-shore force projection and Close-Battle operations. But Marine F/A-18s require the same improved airfields as other high-performance, fixed-wing, land-based fighters. They are best suited for Deep- and High-Battle operations, where they duplicate existing Air Force and Navy TACAIR capability. Some

overlap is needed. We should never set ourselves up for single-strand failures. But, we're talking here about *excessive* overlap—too much service duplication. By focusing on the Close Battle, the Marine Corps could optimize their force for what they do best—and we can save money. Retiring just six F/A-18 squadrons could save up to $230 million per year or about $1.4 billion over the FYDP. Savings increase significantly if support units and potential F/A-18E/F procurement reductions are considered.

Having discussed the Deep and Close Battles, let me turn to the High Battle for a moment, starting with theater air defense. I take it as an article of faith that the United States will not commit ground or naval forces to battle without certainty that we will have air superiority. We've come to expect—even depend on—ground maneuver free from aerial attack. In fact, the last time an American soldier was shot at by enemy aircraft was over 40 years ago, during the Korean War. Thus, one of the first priorities for the joint force commander in any future conflict will be control of the sky. Our experience in Desert Storm bears this out. Almost 60 percent of the initial sorties were dedicated to offensive and defensive counterair.

Freedom from aerial attack is so important that all the services have fielded capabilities to defeat the enemy air threat. In principle, I have no problem with this. Each service has an inherent right to self-defense. But over time, the exercise of this right has led to significant overlap in capabilities and to the world's most *dis*integrated air defense system. As a result, we are spending a lot more for theater air defense than we need to and, even so, cannot be confident that our air defenses will be effective.

As a practical matter, it is far preferable to fight for control of the skies over the other guy's territory than over the heads of your own troops. In every conflict since World War Two, Air Force and Navy aircraft have done this. I may be wrong, but I do not believe the Army has fired even one surface-to-air missile at a hostile aircraft. That's not to say we will always be so fortunate. But, it does illustrate that there is—or ought to be—a process for trading how much we invest in aircraft to do counterair and how much we invest in surface-to-air missiles.

But, no single department can make such trades because no department is in charge of theater air defenseas a whole.

Incidentally, we have no way of knowing whether our style of "disintegrated" air defenses—unique to us among the world's first-class military powers—will really work under stress. We all should be highly skeptical. It is for these reasons that the Air Force has suggested that land-based air defenses should be our responsibility. This would allow us to save money, provide for integrated command and control, and increase effectiveness while reducing the odds of fratricide.

Now, I'm sure many of you will agree that the points I've raised today are entirely noncontroversial and will be accepted by the Army, Navy, and Marine Corps with open arms. Be that as it may, our approach is really not that radical. It simply applies commonsense management principles: cut excessive overhead, focus on core competencies, let the experts in a particular field define the requirement, buy the right tools, and use them effectively and efficiently.

Many will resist change for institutional reasons, but others will listen because of the bottom line: maintaining the status quo is not acceptable. It costs too much. And the world has changed. Our problems and prospects are different from what they were 46 years ago when the current allocation of service roles was hammered out at Key West. Today's armed forces fight differently and therefore must be different. Our approach so far to the defense drawdown has been to shrink the size of our forces while keeping the same roles and missions geometry—what the president once called "cold war minus." This approach is no longer good enough—if it ever was. You might say we need an "Inside-Out Review" to go with the Bottom-Up Review.

Thank you for having me here today, and thank you for your support as we work to build a more effective, efficient, *joint* force for the future.

Chapter 45

Retirement Dinner Remarks

Bolling AFB Officers' Club,
Washington, D.C., 24 October 1994

I think you know how honored I am by this occasion. When a chief goes, it's really an opportunity to honor all the men and women of the Air Force. It features the chief and his wife. I'm grateful for it and feel lucky, but I know that by your presence here tonight, you really honor our institution.

I must tell you that, except for this evening, nothing has gone right today, starting with the morning paper. It's a sure sign of short tenure when the newspaper starts saying nice things about you.*

Tonight, as I look back on 37 years of active service, there are so many people to thank. First of all, the secretary and her deputy: Sheila Widnall and Rudy de Leon.

Representing foreign air forces are Gen Raul Sampedro (Uruguay), Gen Akio Suzuki (former Japanese air chief), Gen Olav Aamoth (Norway), and the air attachés of 23 countries.

In a special category are Gens Giora Romm and Joshua Shani of Israel. At an early point in my career, I worked closely with the Israeli Air Force. Two former US officers here—David Brog and Gerry Gentry—worked with me, and I'm proud of the help we were able to provide.

Here tonight are all of the current active four-stars and their wives: Ron and Connie Yates, Mike and Barbara Loh, Ron and Jane Fogleman, Chuck Boyd, Butch Viccellio, Skip and Kita Rutherford, Tom and Barbara Moorman, Jim and Lynda

*The morning of this speech, *The Washington Post* ran a front-page article concerning what was at the time an ongoing debate in Washington—roles and missions of the services. The article, entitled "Air Force Chief on Attack: McPeak Boldly Criticizes Other Services' Roles and Plans," began, "Army, Navy and Marine Corps leaders are fuming over a blunt and unusually public campaign by the Air Force's chief of staff to limit the functions performed by the other military services. But the initiative by Gen. Merrill A. McPeak has helped frame a major new debate over how to reduce overlapping roles and missions among the armed forces."

Jamerson, Joe and Sue Ashy, and John and Susan Lorber. I'm very proud of this group. I "voted" on all of them. The thing I like best is that they've often disagreed with me. I've got a pretty thick skin; it takes a lot to penetrate my strongly held convictions. On the other hand, I take direct, hard-hitting disagreement as a sign of fitness in an organization. This is a very healthy group. I will not have time tomorrow at the parade to thank everyone by name, as I am trying to do this evening, but I will mention the current crop of four-stars.

If you have to get in a fight, these are guys you want with you. I've been a strong supporter of our Reserve component. My thanks to the Air Force Reserve and the Air National Guard, represented by Jay and Angela Closner, Don Shepperd, and Phil Killey.

It takes a lot to make the chief's office and Air House work. I will thank a few here tonight who kept me productive because they carried that load. First, house aides: Evelyn Crenshaw, Dave Davis, and Frank Rodriguez.

My security detail: Paul Hilterbrick, Mike Newsom, and Charley Hall.

My personal staff: Topsy Taylor, Betty Isaacs, Bev Griesemer, Bob Otto, Scott Gration, Denny Eakle, and Shari Miller.

Official photographer: Ron Hall.

Protocol officers: Rick Lach, Leola Wall, Kay Archer, and Larry St. Marie.

The world's best string quartet: Octavian Slima, Chris Moehlenkamp, Mark Helm, and Paul Swantek.

Especially helpful in the front office have been Mark Bean, Tony Aldwell, Tom McInerney, Frank Klotz, Rebecca Grant, Danny Gardner, Tim Collins, Bill Davis, and Mike Isherwood.

The next group goes back a ways. There is nobody here tonight who went to high school with me except my wife. But with us tonight are some of my college fraternity brothers: John Deblanc, Bill Denton, and Rear Adm Phil Whitaker.

Someone who checked in with me to officer preflight at Lackland AFB in November of 1957: Maj Gen Rubin Autery. Someone who went to flying school with me at Hondo, Texas: Don Nordmeier.

In the early sixties, I was in the 20th Wing in England. There I served with John Bartholf, Ernie Cragg, and John

Baer. Denny Sharon was stationed with us—but in the 81st Wing.

I was part of the "Misty" high-speed forward air controller unit in Vietnam in the late sixties. From that unit are Gib Ahl (also my roommate at Phu Cat), Bob Cassaro, Dave Skilling, and Ron Fogleman. (This is the only name I'll mention twice tonight.) Also, Matt Husson, Ralph Kellum, Ray Lee, and Lanny Lancaster. And please join me in recognizing a Medal of Honor winner: Bud Day. Bud was the first commander of Misty. Many of you know his story. He makes us all proud to be American airmen.

Also here from my Vietnam days: Lee Denson (my roommate at Tuy Hoa) and Steve Ritchie. Steve went back for a second tour and drew a lot of attention himself.

In the mid-seventies, I spent a year at the Council on Foreign Relations in New York City. Friends here from that period are Zig and Marie Nagorski, Jim Pfautz, and Grant Smith, of the State Department.

I served a second tour with the 20th Wing in the late seventies. With us from that period are Chip Roadman, Fred Nelson, Hugh Hunter, Don Lamontagne, and Frank Pyne.

I subsequently was tagged by Charlie Gabriel to come to his headquarters at Ramstein, where I ran into Ed and Karen Eberhart, Shelly Lustig, John Paul Hyde, Max Bralliar, Janice Gowens, and Helen Gregory.

By the early eighties, I had been reassigned to TAC (Tactical Air Command) headquarters, where I put in some time with Bob Kelley, Al Rogers, Paul Stein, Hollis Glover, Roy Goodwin, John Pickett, and an old friend of Ellie's and mine—Marie Tyler.

I took command of Twelfth Air Force in the mid-eighties, where I first met the former chief master sergeant of the Air Force, Gary Pfingston, and many good friends from Clovis, New Mexico: Doc and Martha Stewart, Randy Harris, Ted Hartley, and Dr Jake Moberly.

I had a wonderful two years in Hawaii as CINCPACAF. Here with us from that period are Rick and Celia Richardson, Jim McCarthy, Norm and Prudence Lezy, Tom and Karen Gensler, Chuck Fox, Mike Kosar, and Tom Keeney.

There are some other groups here tonight who mean a lot to me. First, the Tuskegee Airmen: Earl and Gloria Brown, Al

Edmonds, Chuck Jiggetts, Sam O'Dennis, Broaddus Butler, Win Powers, Fred Cherry, Woody Crockett, Al Gropman, Marcie Harris, Lucas Theus, and Dr Florence Parrish, the widow of the first commander of the Tuskegee Airmen. I'm very proud to be a Tuskegee Airman myself—not honorary, not ex officio—a dues-paying, actual Tuskegee Airman.

Here tonight from the Air Force Association: Tom McKee, Jim McCoy (former CMSAF), Mary Ann Seibel, and Bill Webb.

We have the world's greatest military chaplain, without question: Don Harlin.

Here from my home state of Oregon are Bob Joseph and Tom Stevenson.

I'm very proud to have been a member of the Air Force Aerial Demonstration Team, the Thunderbirds. Here tonight from my 1967 team are Neil and June Eddins, Stan and Dawn Musser, and Lore Dickey—Jack's wife. The other flying members of the 1967 team—Chris Patterakis and Bob Beckel—could not make it here tonight. Of the six guys on that team, five made general. The year 1967 was what Frank Sinatra called a "very good year."

Other Thunderbirds here with us include Steve and Cookie Murata, Keith and Peggy Ferris, Greg and Zoe Kolligian, Bobbie and Jennie Janca, Jerry Larson, Mike and Joan Kerby, Tom and Christina Gibbs, Tom and Charlene Swalm, and Lacy Veach. Like many others here tonight, Lacy could be on another list. He was with me in Misty. He's also an astronaut, with a couple of shuttle rides under his belt. But his proudest boast is that he was a Thunderbird solo pilot.

There are some other people to introduce, but before I do, there has been a lot of talk about how the secretary and I have changed the Air Force, and I believe we did sort of "reinvent" it, to use a current buzzword.

But, when I came in the Air Force, it was less than 10 years old, was not yet even a teenager. And I remember quite vividly how great the Air Force was then. It was marvelous being a lieutenant, flying century-series fighters in the late fifties. In the decade of the sixties, the Vietnam War was not much to shout about, but the Air Force performed well, did everything asked of it. The seventies is said to have been the decade of the "hollow force," but I was a wing commander in the late

seventies, and let me tell you it was a great business to be in. And the eighties were even better—the defense buildup, followed by the collapse of the communist system, as complete a victory as has ever been won by the West. It was not bloodless, not without some cost; nevertheless, it was a remarkable victory and one that inevitably is being followed by a demobilization that, while it has been relatively cautious and prudent, still contains a fair measure of pain for our people. Even so, the Air Force of today—much like that of earlier decades—is a great institution, a wonderful outfit to work for. The secretary and I did not change that; didn't want to change it; sought to preserve it. And so, the group I will mention now are special because they built the Air Force.

First, some fabulous names in our heritage: John Alison and Anna Chennault, who remind us of those great days of the Flying Tigers; Ruth Eaker (if the Air Force had a queen, it would be Ruth); Peg Ellis; and Alice Price, who did so much to make our history live in art.

Then, there are the former secretaries of the Air Force: Mike Donley and John McLucas. I feel a special bond with these guys, since I'm a former secretary (acting) myself! The only serving military officer so honored. And other former senior civilian officials: Marty Faga, Jack Welch, Ty McCoy, and Tom Cooper.

Here tonight are two former chiefs: Larry Welch and Davy Jones.

Also here are many former four-stars: Bob Oaks, Jimmy Adams, Don Kutyna, Bob Russ, Al Hansen, Bob Bazley, Bryce Poe, Russ Dougherty, Spike Momyer, and Bennie Schriever.

It is because of these people and thousands of others like them that the Air Force was a great institution from the moment of its birth. The secretary and I could have felt quite comfortable just being custodians. Keep a chair warm, there in the Pentagon, and hand it on to the next guy in reasonable shape. That's what a lot of others seem to be doing. Why make waves?

We did it because we love the Air Force. We knew that we had to adjust to the new set of security challenges facing the nation. Crisis is a strong, often overused word. So maybe what we see going on around us in the world is not a crisis, but it certainly is a time of considerable turbulence. States, societies, institutions that survive and emerge from an extended period of turbu-

lence have to be transformed—not merely preserved. In other words, the only way to assure that this Air Force we love has a future at all is to make it become a different organiz-tion.

We worked on it a little. And, here's what's wonderful. Usually, in a big organization, leadership is forced to choose between progress and popularity. You never forced that difficult choice. You came close, a couple of times. But, in the end, I think we made a lot of change, and I'm still about as popular as I deserve to be. For that I thank you from the bottom of my heart.

And now, my family. I have two sons: Mark and his wife, Jean. Brian and his wife, Tori. I can't tell you how proud I am of my two boys. Career fighter pilots are not known for their maturity. These guys provided a lot of adult supervision over the years as I struggled to grow up.

Here also are my aunt, Lou Stewart; my cousin, Jimmy Stewart; and Sgt Kevin McGinnis, my nephew. My niece, TSgt Shannon McGinnis, could not be here. (All my physically eligible relatives joined the Air Force as soon as they were able because they thought it must be an easy job, if I could do it.)

Also here are Ron and Linda Moskowitz, my wife's cousins; and Ed and Cathy Kane, parents of Brian's wife, Tori.

Finally, and most important, I need to thank my wife. Ellie has been a force for good in our family and in our nation. She has contributed an awful lot to the Air Force. She's also my best friend.

Ellie and I are currently in the middle of a move, and I can report that no human activity, except perhaps adultery, liberates more destructive power in a marriage than a government move. It's our 30-somethingth move. We're having a little argument about the exact number, but it's at least 30. You could think of it as our 10th divorce, according to the commonly accepted formula: three moves equals one divorce. But we always get back together again. I don't know why. Probably that old fighter pilot sex appeal.

We've decided that, since we've done what she wanted to do for 37 years, it's now my turn. We're finally going to do what I want to do. My most heartfelt thanks go to her.

Thank you all and good night.

Chapter 46

Farewell Address

Retirement Ceremony,
Andrews AFB, Maryland, 25 October 1994

Secretary Perry, Secretary Widnall, General Shalikashvili, honored guests, ladies and gentlemen.

I can't tell you how proud I am, Mr Secretary, to occupy this stage with such distinguished company. Our nation is so well served by you, Mr Secretary. I believe we have all rightly concluded that just having you around, on scene, makes us stronger as a people.

And, the Air Force boss, Sheila Widnall, is our real secret weapon. I know others will find out how good she is, but we hope it's a slow process. We don't want to give her up. And, finally, I'm up here with a hero, John Shalikashvili. I've worked for two great soldiers, Colin Powell and John Shalikashvili. Remarkable men. Much has been and more will be said about Colin, a great American. But, no one can watch Shali and not feel he is an amazingly good choice to be this nation's senior military officer. He has so many fine qualities. I will mention only one: his utter selflessness. He works your problem, Mr Secretary, my problem, our problem, the nation's problem—never his problem. We are blessed to have him as chairman and, indeed, to have this, your team, heading up America's defenses.

Time is short, and there is so much I'd like to say. But it all sort of reduces to saying thank you. Thank you, Mr Secretary, and thanks to the president for letting me serve in this important appointment.

I also want to thank the fine young men and women in formation here today. This is a great band, in the tradition of Glenn Miller, and a wonderful honor squadron. As always, they call our attention to the thousands of men and women in blue, many doing difficult and dangerous things at 100 different spots on the globe. They and the flying formation we shall soon see, make me very proud.

They are today's Air Force, which is led by strong commanders. All of them are here with us: Ron Yates in Materiel Command, Mike Loh at Combat Command, Butch Viccellio at Education and Training Command, Skip Rutherford at Air Mobility Command, Joe Ashy at Space Command, Jim Jamerson in Europe, Johnny Lorber in the Pacific. Believe me, Mr Secretary, these are hard men, principled, and therefore difficult to deal with—exactly the sort of people who will stay with you when it gets dark and scary. We are very fortunate they run the actual Air Force—the real Air Force. I haven't spent much time on it. I thought about and worked on the virtual Air Force—an imaginary Air Force. Not the Air Force that exists or perhaps ever will be, but the Air Force we dream of, the Air Force that ought to be, the Air Force America deserves. I could do this only because we have such strength in the field—these great commanders who have given Secretary Widnall and me the freedom to plan the future and whose support has moved us steadily toward the planning targets.

A marvelous thing happens at the very top of the military profession. You sort of merge with the institution, become one thing. These senior officers *are* the Air Force, as have been so many others before them who are here today. I thank them all.

Mr Secretary, I'd like to say something about flying. I had no intention of making the Air Force a career. (And if I get much more publicity, I may not make it yet! Better get through this speech quickly!)* But flying captured me. The Air Force way of life kept me, but flying came first. As I said, I'd like to talk about it, but I literally cannot tell you what flying has meant to me. It is a puzzle, how to express it. Many fliers present will understand, but they can't explain it either or even talk about it at length without recourse to nonverbal gestures—to "flying with the hands," as we say. I can only tell you that, for me, flying is a kind of music—mysterious, half-understood, enigmatic—and wonderful in the same way that music is full of wonder because it somehow makes contact with that ancient, mythical self—the genetic remnant, I suppose, of a time when man's precursors felt the exhilaration of swinging from tree to tree.

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*See chapter 45, page 335 (footnote).

I can't explain it.

At an altogether different level, flying is a skill, a craft, something you can be good at, as I immodestly claim to be. I can fly! So I know that when every other plan falls apart, I can fall back on something I do with my hands. I have a skill. Me? I'm a pilot. Air Force trained.

Now, my brother service chiefs sometimes think I've flown too much, pulled too many Gs—the blood perhaps permanently drained away from my head.

No, the unnewsworthy fact is we have a great relationship, built on respect for each other, each other's convictions, each other's institutions. In trying to reshape the Air Force, the secretary and I have stolen every good idea we could from the Army, the Navy, the Coast Guard—even the Marines. (I should say especially the Marines!) I admire so much the substance and style of these brave outfits. Like the Air Force, they are essentially people—the really magnificent soldiers, sailors, airmen, marines, doing their duty, as I speak, in so many corners of this small planet.

As I look around today, I see lots of reasons to feel lucky about being an American. Not proud, though I very often am proud of this country. Just lucky. Nobody picks the country they're born in. I realized at a very early age how lucky I had been—just the luck of the draw—to be an American. I welcome many representatives of foreign air forces here today, and I mean no disrespect when I say that, for me, America is special, and there's something special about being able to defend her.

Finally, Madam Secretary, you decorated my wife today, giving her the highest award the Air Force can offer a mere civilian. I'm delighted you did, because I don't otherwise know how I would say thank you. She and my two sons and many other family members are here today. "Thank you" simply doesn't work, is inadequate. But I believe everybody knows what a good wife and two strong sons can mean to a man, so I'll say nothing more.

Mr Secretary, as I step down after many exhilarating years of wearing Air Force blue, these are the things I think about: my family, my service, my country. This seems so commonplace, so ordinary, so entirely lacking in imagination. When we get home, Ellie will say, "Boring."

The Air Force song appears in today's program, not by accident. Most of you will be familiar with the first few lines. Unless I miss my guess, you will soon have an opportunity to sing them.

The final verse is not so well known. It has some wonderful stanzas. Let me quote one:

> *Flying men guarding our nation's borders*
> *We'll be there, followed by more. . . .*

That has a wonderful rhythm, doesn't it? And it's as good an obituary as any ex-air chief would want.

Flying men. . . . I see many here. No better way to make a living.

. . . guarding our nation's borders. . . . Also not a bad job. And we lucky few get to do both things.

We'll be there. . . . You can count on it; you can, as they say, take it to the bank.

. . . followed by more. . . . Out there, stretching to the horizon and beyond—Ron Fogleman now standing in the first row—are more proud Americans, proud airmen. Madam Secretary, we'll be there, followed by more.

Thank you and good flying.

Chapter 47

Fiftieth Anniversary Dinner of the Scientific Advisory Board

Speech, National Academy of Sciences, Washington, D.C., 10 November 1994

Thank you Secretary Widnall for that kind introduction. I'm delighted and honored to be with you tonight. As you all just heard, I retired 10 days ago. Being your speaker tonight is my first shot at a second career. I understand Colin Powell is making good money on the banquet circuit. This effort tonight is, of course, pro bono—the last of that sort of thing, I hope. My wife and I celebrate today our 38th wedding anniversary, and she remarked rather pointedly that, whereas she strongly supports freedom of speech, free speeches are an altogether different matter!

The secretary suggested that I address an appropriately scientific topic, like aerodynamics. I believe that I can deal with the main aspects of this subject in a few sentences. First, if you pull back on the stick, the houses get smaller. Second, if you pull back real hard, they start to get bigger again. Next subject.

I make light of it, but the truth is—like lots of other pilots or generals, even air chiefs—I am not a trained scientist or engineer. And neither was Hap Arnold, by the way.

Just recently I've been rereading Arnold's magnificent memoir, *Global Mission*. Frankly, I'd forgotten all about this book. I read it some years ago and rediscovered it only when Ellie and I were packing up our stuff and moving out of Air House. I now see I should have reread it at the beginning of my term as chief—not the end. So much in this book is relevant today. I thought that tonight I might just cite a few of Arnold's experiences and read a passage or two, to get some insight into why he asked von Karman to set up the Scientific Advisory Board and what the two of them hoped to achieve.

As I said, Arnold was not a scientist or even a particularly bright student. He graduated in the lower half of his 1907 West Point class—not high enough to get his much desired posting to the cavalry. Instead, he went to the infantry, kicking and screaming—thought hard about resigning.

In 1911 Arnold and another officer, Tom Milling, were sent to Dayton, Ohio, to take flying instruction with the Wright brothers. Over a 10-day period, Arnold got 28 flying lessons from a Wright instructor named Al Welsh. Total flying time at graduation: three hours and 48 minutes. That means the average sortie duration was eight minutes. Arnold's flying log notes that after lesson 10, he taxied the aircraft himself. On lesson 19, he "landed without assistance."

Arnold either participated in or was present at an astonishing number of aviation's ground-breaking events—ground breaking in every sense of that word. For instance, the first goggles worn by Army airmen came about because a bug hit Arnold in the eye as he was landing his plane. The bug left one of its wings sticking in Arnold's eye. The pain was terrific, and—blinded by tears—he could scarcely see to land. As it turned out, it was some days before doctors were able to find the transparent wing and remove it. The possibility of being shot down by a bug had never occurred to the Army *before. After that, they wore goggles*.

Arnold was there during the first arguments about how loops would be done: whether inside or outside. Of course, none of the craft then flying could possibly do anything like a loop, but the argument—which got quite heated—was not about whether loops were possible but how they would be done. By the way, about this same time, the seat belt was invented because an early aviator was ejected by turbulence from his seat on top of the lower wing and killed. Imagine! They were arguing about doing outside loops before this innovation—the seat belt—was invented!

Flying was, naturally, dangerous in those days—still presents its challenges, even today, but very risky then. One is constantly reminded of those risks by the names of many current and former Air Force bases. Of course, Lt Tom Selfridge was killed quite near here, at Fort Myer, in military aviation's first fatal accident. Selfridge had been Arnold's mathematics instructor at West Point. Selfridge Field, near Detroit, is no

longer an active Air Force base, but we do have Reserve components there still. George Kelly was the second aviation fatality, killed in San Antonio. Kelly Field is quite near the spot where the accident occurred. The aircraft Kelly crashed was subsequently rebuilt and shipped to College Park, Maryland, where Arnold had meanwhile set up an aviation school for Signal Corps officers. Just about every day some new altitude or distance record was set, but this work was considered by ground officers to be only semiserious. Afternoons, Arnold reported to his desk job at the War Department. In September 1911, one of Arnold's mechanics, Corp Frank Scott, was killed. Scott Field, headquarters for Air Mobility Command, is our only base named after an enlisted man.

As you will recall, in the thirties, what had by then come to be known as the Air Corps was given the job of flying airmail. In short, it was a disastrous experience. At the time, Arnold was commander at March Field, in California. He was given the additional job of supervising airmail operations in the western US. He tells how, one night, he lost track of a young, inexperienced aviator in very bad weather. Finally, the telephone rang and he heard a voice at the other end.

"Sir, I'm checking in from Tintic."

"Are you all right?"

"Yes, sir, I'm all right."

"How about your plane?"

"Well, sir, it's a bit damaged." *"How much?"* "Well, it has no landing gear."

"Is that all?"

"Well, the lower wing is off."

"What else?"

"Well, the tail surface is broken off, and the engine flew out of the fuselage, sir."

I suspect many serving officers here tonight could tell of similar incidents with youthful subordinates. The fact is, some of us have been on the sending end of similar phone calls! I could go on at length with these stories—absolutely fascinating to an airman, and I hope of some interest to nonaviators as well. But I will turn now briefly to Arnold's connections to

science and engineering. And here I will read a few passages from the book. As I said, Arnold and Tom Milling went to the Dayton factory for training. And here I quote:

> Milling and I were soon grateful for the days spent in the factory, for in addition to learning how to fly we found we would have to master the construction and maintenance features of the Wright machine well enough to teach our mechanics the ABC of a ground crew's job when we went to our first station; there were no crew chiefs nor aircraft mechanics in the Army in those days.

So, Arnold became our first engineering officer, responsible from the beginning for maintenance and logistics. It was Arnold who trained Corporal Scott. Later, while Arnold was at College Park:

> We had been buying a few aircraft engines abroad, such as the 103 h.p. Renault which held the world endurance record, the 120 h.p. Austro-Daimler which held the world's altitude record, and the 160 h.p. Gnome which held the world's speed record. As engineering officer, I made the tests of these engines on the stands, but with difficulty. The United States Bureau of Standards had no dyna-mometer which could absorb more than 100 h.p. and after a fruitless search throughout the entire east I was forced to improvise by connecting an electrical dynamometer to a water dynamometer.

Here is a young infantry officer, having to invent instruments to take engineering measurements.

As I said, by the early thirties, Arnold was in command at March Field near Riverside, California. He notes in his book that he

> made friends with a man who was to be an important contributor to the Air Corps' development in World War II. I had worked with him in World War I and knew his wonderful ability and technical knowledge. This was Dr. Robert Millikan, of the California Institute of Technology. He came to me to ask if I would help him with his cosmic ray experiments. I said, "yes, of course," and then asked him what it meant.
>
> He said the experiments would involve flying a lead sphere, weighing five to six hundred pounds, to various altitudes. Within this metal ball were all kinds of instruments which measured the intensity of the cosmic rays. Since none of our bombers were equipped to carry such a machine, our squadron mechanics devised a special rack for the lead ball. We made many altitude flights with this lead ball until Dr. Millikan's air experiments were successfully concluded. The noted scientist then took his lead sphere to the bottom of a limestone mine, five hundred feet below the earth's surface, to see if the rays would

> penetrate there. His first mishap came when, wishing to measure intensities on various mountaintops, he carried his cosmic ray machine to Lake Arrowhead to load it into a somewhat flimsy boat. The heavy lead ball plunged through the bottom of the boat as if it were paper, and disappeared in thirty-five feet of water. The next time I saw him, I called him "Admiral."

Through his connection with Millikan and Cal Tech, Arnold got to know many important scientists working at the frontiers of disciplines like, say, meteorology. Here was a subject—another was flight medicine—where Arnold had a practical requirement for immediate theoretical advance.

By the time Arnold came to Washington for the 10-year stint that lasted right up to his retirement, he was already

> doing business with . . . R. A. Millikan, Vannevar Bush, C. F. Kettering, C. J. West, Frank Lilly, F. B. Jouett, Carl Compton, Lyman Briggs, Arthur Compton, J. B. Conant and other outstanding scientists. Few high-ranking army officers seemed aware of the close relationship developing between these specialists and the little Air Corps. A relationship that was to grow to such importance in World War II that civilian scientists would work side by side with staff officers in our overseas operational commands, frequently flying on combat missions to increase their data.
>
> Once, after George Marshall became chief of staff, I asked him to come to lunch with a group of these men. He was amazed that I knew them. "What on earth are you doing with people like that!" he exclaimed. "Using them," I replied. "Using their brains to help us develop gadgets and devices for our airplanes—gadgets and devices that are far too difficult for the Air Force engineers to develop themselves."
>
> "Does the rest of the army use this same organization?" George asked. I had to confess I didn't know.

I will leave off reading to you now. I recommend the book. It's impossible to read it and not be filled with admiration for the man and, in the context of this gathering, to see how he was able to develop an understanding of the requirement for a strong partnership between operators and engineers.

That's really why, in December 1944, he asked his friend, Dr Von Karman, to set up this Scientific Advisory Board. The initial group contained some great minds, as this group still does. Men like Hugh Dryden, Lee Dubridge, and—here tonight—Courtland Perkins. As you know, they issued a wonderful document in 1945, *Towards New Horizons*, a water-

shed report advocating such wild propositions as supersonic flight, pilotless aircraft, all-weather flying.

More important than what they did is the charter Arnold gave the group. From the beginning, the board reported directly to Arnold's office. He didn't want their advice filtered through and bogged down in staff channels. He wanted the scientists to make bold predictions, to look 20 years into the future and prepare a guide for what airpower might become.

So, that's how the board started out. Have they met those expectations? I think so. Let me give a couple of examples.

One that comes to mind is Project Forecast, which Secretary Zuckert and Bennie Schriever initiated in the early sixties. Sharing the same aggressive vision of Towards New Horizons, this report described many of today's leading-edge space technologies, such as reusable space-landing vehicles, orbital laboratories, and hypersonic aircraft. In the process, the report focused our attention on the role of space in the Air Force mission. And, Project Forecast anticipated development of many important technologies, such as high-bypass jet engines.

Over the years, the board has also encouraged other initiatives that we rely on today. Ivan Getting's work on the global positioning system comes to mind. But we haven't acted on every idea or report. I'm thinking here about the board recommendations on solid fuel for aircraft or nuclear propulsion, which were right—but right too soon. For me, these are the best ideas—these "failures"—because they meet the vision Arnold had for the group—to think boldly.

For me—maybe for Arnold too, although I wouldn't speak for him—ideas not adopted could be the most important metric. In 1993 we had a Year of Equipping the Air Force. I challenged everyone to come up with modernization plans out to the year 2020 (by coincidence, about the same planning horizon Arnold had in mind). Frankly, the results were disappointing. Not much imagination shown. We really must push farther and harder.

Let me give you three small examples of areas where, in my view, we must think more boldly.

First, space. It has become a commonplace to observe that we are, in space, about where we were in aviation at the outset of the First World War. We use space for reconnaissance, for

signaling, and for some other limited support applications; except for the ICBM, we are making almost no use of space as part of combat operations. We simply must find a way to be more aggressive in exploiting the enormous "high ground" advantage space gives us.

Second, aircraft quieting. We can, if we solve some technical problems, enter the age of virtually invisible aircraft. Already we have reduced aircraft observability remarkably, with corresponding increases in our ability to achieve tactical surprise. Surprise conveys almost overwhelming combat advantage, so it is very important that we continue to "quieten" aircraft, as we have submarines. Two technical problems worth thinking about in this regard are how to do pilotless air refueling—because range is very important and really low signatures may require removing the pilot—and how to develop more energetic conventional munitions so we can reduce the size of combat payloads.

My list should not be considered exhaustive, but a last area I would leave with you involves the broad topic of air base vulnerability. (By the way, this problem is much reduced if we properly exploit space and long-range, stealthy aircraft.) We sent about 55,000 airmen to Desert Storm to support a relative handful of active air combatants. We created a very nice target array for the other guy. We were lucky and got away with it, although the Army was on the receiving end of an example of what might have happened when that Scud missile hit their dormitory in Dhahran. We must find ways to reduce the density of the target array we present to the opposition. Incidentally, it will be much easier for us to do this than it will be for the other services. Think about amphibious or armored operations in terms of the target array presented, and you will see what I mean. There is under way a historic trend that is disconnecting the factors of size and military effectiveness. That trend is accelerating. We ignore it only at our own peril.

You can help us with these three issues because we're not being innovative enough. And we must innovate to survive.

As an aside, the most difficult and most important decisions are not about what to do. Almost everyone with any brains in an organization knows what to do. The hard thing is to decide what to abandon as no longer worthwhile—what to stop doing, what to give priority to, what to concentrate on. An organiza-

tion, whatever its objectives, must be able to get rid of yesterday's tasks and free its energies and resources for new and more productive possibilities. Here, too, you can help us.

In closing, I'd like to go back to Arnold's *Global Mission*, for two tag ends. Not about science. Just things that I can confirm from experience. Here's a great quote: "Of all the air force's faults, its greatest has always been the fact that it has made its work seem too easy."

I can't tell you how many times I had that same feeling as I listened to a sales pitch on behalf of Brand X or Brand Y. We in the Air Force daily do difficult and often dangerous things, but our style is to make it all look dead easy. Now, I wouldn't trade styles with anyone, but in the context of the daily skirmishes along the Potomac, I have often wished for a more dramatic story to tell.

And, finally, when Arnold was selected to head up the Air Corps, his nomination had to go through the political approval process:

> *I presume that when any man gets his head up above the pack in public life, he must expect to be a target for public criticism, and even be ready for a smear campaign. When my name came before the president, he was informed that I was a drunkard; that when on duty in Honolulu I had frequently been seen drunk around public places. This suggestion was weakened by the fact that I had never been stationed in the Hawaiian Islands. Further, as my friends know, I hadn't had a drink of hard liquor since 1920.*

Once again, here is a complaint that resonates. The secretary has been nice enough to compare me with Arnold. I fear there is too little comparison. For instance, I cannot deny having been stationed in Hawaii.

There is so much else in this book. A nice example is how Arnold felt about Bob Lovett, assistant secretary of the Army for air. In a word, he admired his secretary, as I admire mine. But I will stop plagiarizing now and lay down this wonderful book.

Well, there are exciting times ahead for the Scientific Advisory Board. Use as your guide what Hap Arnold asked the original board to do—think boldly. I'm confident that you are up to this challenge over the *next* 50 years.

Chapter 48

The Roles and Missions Opportunity

Armed Forces Journal International, *March 1995**

At the heart of the "roles and missions" issue is the matter of how to divide the work we will do together on the modern battlefield. So this is an argument like those that trade unions have about jurisdiction, except here we are talking about combat—the core work of our profession. If we get it right, we can be stronger as a country; all of us *together* can gain. However, from the trade-union perspective, it is naive to assert, as a senior officer did recently in these pages, that this is "not a zero-sum game" (*AFJI*, January 1995, 47). Indeed, any meaningful revision of roles and missions would shift the workloads, creating at least the perception of winners and losers.

We are understandably reluctant to open debate on such a divisive issue. We all know the problem was papered over only with great difficulty at Key West and Newport and has burned us every time it has come up since then. By and large, we have silently conspired to keep it in the basement, like some crazy relative. Although Goldwater-Nichols mandates a roles and missions review at three-year intervals, two careful chairmen have managed to fill the square with finesse and a minimum of substance. After all, they had urgent problems to deal with; real-world solutions require consensus and cooperation. They could not afford to allow the acrimony that serious roles and missions reform would provoke.

Now, however, there are compelling reasons why we must step up to roles and missions, painful as that will be. First, the resource crunch means we have to do more with less. (I argue that it is a good thing to spend less on defense because today's number one security concern is getting in shape for the economic competition with other major players. But that is the topic of another debate.) A cleaner distribution of roles and

*Reprinted by permission.

missions would help squeeze out more combat power at the same or less cost.

Second, it's hard to argue that our performance in battle since World War II has validated the committee design produced at Key West. Of course there has been some splendid work done, but insiders know the record is spotty enough to support rethinking the problem. (Here again, we ought not to leave out economic cost as a measure of performance. What we did in Desert Storm was impressive in many ways, but cost was not one of them.)

Finally, we have no choice. For better or worse, Congress lost patience with us and laid on a public review of roles and missions. The crazy so-and-so will have to be brought up from the basement.

What the Issue Is Not

The roles and missions debate is not about which service is the most important. Those who would rather avoid honest roles and missions debate sometimes start by arguing that the Air Force is raising, once again, the exaggerated claim that victory can be won through airpower alone. That hobbyhorse is always ready to be saddled, but so what? The issue is not whether any one service can do the job by itself (it can't). It is about how we can do the job together—better and cheaper.

Roles and missions is concerned only secondarily with support functions and infrastructure. How we will do aviation depot maintenance, for example, is a question of great consequence. But it is primarily a management issue. We should not allow tantalizing targets like this to divert our attention from first-order roles and missions issues.

Finally, we should also dismiss at the outset any claim that the services ought not to specialize. So far as I know, no one has suggested that everybody should do everything, but the Air Force proposals have been attacked as "an attempt to limit service contributions." At the bumper-sticker level of analysis, this seems like a telling criticism, but one has to hope it does not literally mean there should be no limit on the types of work the services do. Of course there should be. We can—and do—specialize because this is the only way to get technically

difficult work done efficiently. The issue is not *whether* but *how* service contributions will be limited, and as guidance for this, it's not much help to assert, without elaboration, that "each service should concentrate on doing what it does best" (*AFJI*, January 1995, 47).

What the Issue Is

There is one exception to the rule of specialization: the theater commander in chief (CINC). The CINC has unqualified responsibility for the mission; for him, the battlefield is undivided. Thus, the CINC's responsibilities are awesome, but at least they are specified (i.e., the "mission"), and—since the Goldwater-Nichols Act—he has authority ("combatant command") commensurate with his responsibilities.

The CINC's principal subordinate commanders have lesser, not-well-specified responsibilities. Defining these responsibilities ("dividing the work") and describing how they will be accomplished is what "roles and missions" is all about.

This is such an important point that I will risk repeating it: Once we get beyond the most basic tasks, we "organize"; that is, we divide work. A useful way to describe *dis*organization is to say we have not yet figured out who will do what.

By way of illustration, consider a basketball team. Our side has only five players on the floor at any time, but there are guards, forwards, and a center, and even these categories do not fully describe the degree of differentiation (e.g., "point" guard, "power" forward). Even if all our players were seven feet tall, somebody would have to play guard because the good teams will kill us if our guys all stand around under the basket. (As an analog to our recent operational experience, we probably could get away with it against weak-enough opposition. It only matters when it matters.) So we specialize, and specialization creates complex relationships ("seams") among the players. It is the coach's job to produce an integrated team effort, obviously including the important and difficult matter of regulating constantly changing player relationships ("seam management").

We can push the basketball analogy too far, but the recent appearance of seven-foot guards shows that there are no easy

rules for dividing work. What is important about the Air Force proposal on roles and missions is that it is an attempt to describe a method we might use to get at this difficult issue.

We start by defining *role* as an *operational process* important to the outcome in combat. Infantry, armor, and artillery operations are all "roles" in ground combat. By contrast, *functions* are *support processes;* logistics, communications, and medical support come to mind. Technically, the service departments have neither roles nor missions but the Title X *functions* to "organize, train, and equip" forces for employment by a CINC. Rationalizing component combat responsibilities would have immediate impact on Title X functions, altering budgets—Washington's shortcut to judging winners and losers. There's the rub.

How to Do It

When we visualize the modern battlefield, we notice immediately that there is a zone in which friendly ground forces are engaged. We will call this zone, wherever it is located and however dynamic or "deep" it is, the Close Battle. It's worth emphasizing that the Close Battle is defined by the fact that our people are fighting on the ground there; they take the Close Battle with them, so to speak, wherever they go. We will say that the Close Battle is the responsibility of a land component commander (LCC), who will probably be an Army officer but who might also be a marine. The Close Battle includes close airspace. That is, the air to some altitude over the Close Battle is an integral part of the Close Battle. Making the LCC responsible for the outcome of the Close Battle means that he must integrate the work of units performing all the close-combat roles, including close air support (CAS) and close air defense.

Integration, which means the blending of combat elements into a combined-arms team that is a unified and functioning whole, is not ever going to be easy, no matter what scheme we use for roles and missions. But the LCC's chances of doing a reliable job of integrating, say, close air support would be much improved if the Department of the Army had primary responsibility for this role—that is, if the Army established

equipment requirements, procured the systems, funded the activity, fielded the squadrons, manned the aircraft, set performance standards, supervised the training, exercised the units, and so forth. This is not only Farmer Jones logic, it is the way the Marines do it. In the Marine Corps, close air support does not just *work* for the customer, it *belongs* to the customer.

We do not need a one-size-fits-all approach to every roles and missions question. I will argue later that it is often a good thing to have available a range of alternatives. Moreover, if you were to put it to a vote in the Air Force, we would keep close air support. I have done a good bit of CAS myself, and—for me at least—it is the combat role of choice. It is a genuine emotional high to help our guys on the ground, especially when the world around them turns ugly.

But the verdict is in on CAS. I never met a marine who wasn't delighted with his CAS, but there seem to be lots of unsatisfied Army customers. Moreover, since CAS is provided to the Army as a free good, the Pentagon resource allocation dialogue has that unreal quality you always see when program advocacy is separated from funding responsibility.

Giving the Army and Marine Corps primacy for CAS (and leaving the Air Force and Navy with a backup, emergency capability) creates at least the possibility of better Close Battle integration, not least along that difficult air/ground seam, where the unhappy prospect of fratricide is always present. Because he *commands* his CAS, the LCC possesses the strongest integration tool we have available and the only authority that is a match for his responsibilities. Accordingly, something like "combatant command" should be extended from the LCC down to all formations participating with him in the Close Battle.

We can also visualize a "Deep Battle" and a "High Battle."* These battles take place at some distance laterally and vertically from the zone in which our ground forces are engaged. In these battles, too, there is a need for integration and seam management. We shall say that these battles are the responsibility of an air component commander (ACC), who will

*Airmen will think of these as two aspects of a single "High-Deep" Battle. This is the battle that must be fought by air and space forces.

probably be an Air Force officer but who might also be a Navy flyer. Whatever service he comes from, he should have unambiguous command of the Deep and High Battles.

Please note that this is not a formula for giving the Air Force "two out of three." (It would be more accurate to say it makes the Air Force an equal partner.) There are other battles: a Rear Battle, an Amphibious Battle, a Maritime Battle (which could itself have several subsets), and so forth, for which an Air Force officer would be an unlikely command candidate. We feature here the Close, Deep, and High Battles because the Air Force proposal mostly concerns this battle space.

Just as it is the LCC's or the ACC's job to manage seams inside defined battle space, it is the CINC who manages the seams between the Close, Deep, and High Battles. How far in front of friendly forces do we draw the Deep Battle line? CINC decision. How much airspace above the Close Battle belongs to the LCC? CINC decision. In a highly dynamic battlefield, the answers will vary according to the situation. The key point is, only the CINC is in a position to regulate these seams because only he has authority over forces operating on both sides of the seam.

There may be a better way to divide the workload. (If so, it would be a good idea for somebody to put it on the table.) But this concept is one we can all understand and one that produces clear, straightforward command relationships—a not-inconsiderable virtue. There are rules, but they are few and simple. The system is not rigid; it responds rapidly to changing circumstances. Coordination requirements are much reduced. The commander's focus can be external—on the mission, on the enemy, on results.

Such a concept has the additional benefit of allowing us to make reasoned decisions about very expensive Title X issues—the ones concerning how the service departments "organize, train, and equip." For instance, the Department of the Army must provide the principal forces employed in the Close Battle. Our country is best served when the Army provides sizable, modern, ready forces for this battle. The Army does other things—even does other things quite well—but this is the one thing they *must* do, that we all rely on them to do, and that fact should help guide resource allocation decisions.

As a contemporary example, the Army urgently needs to modernize its artillery and helicopter fleet to improve fire sup-

port in the Close Battle. The centerpieces of this effort, AFAS and the Comanche, are against the wall because of funding constraints. On the other hand, the Army continues to purchase very expensive missiles (of doubtful value) like ATACMS for use in the Deep Battle, continues to operate the lion's share of the operational support airlift fleet (more than 250 fixed-wing aircraft, including some jets), and even stakes a claim in the arena of space operations. This kind of extravagance is probably unavoidable until we eliminate the fuzziness about roles and missions that obscures our understanding of what each of us really must do.

The Case for (and against) Redundancy

There are good reasons why both the Army and the Marine Corps should be available for use in the Close Battle. Failure here would have grave consequences for the country, so it is good to field overlapping capabilities. Also, it has been very useful, over the years, to have alternative models of how the job should be done. For example, Air Force TACAIR is certainly better for having watched the way carrier air operates. Some redundancy, some competition, is good insurance, and we should be willing to pay a price for it. In this regard, the proper question concerns the legitimate limits of overlap.

In the public perception, the classic overlap case is the "four air forces." We will continue to take flak on this, but I see no practical way to eliminate the niche aviation capabilities of any of the services, as attractive as this may seem to airpower purists. However, within the framework of the Air Force's roles and missions proposal, we can certainly draw much clearer lines of demarcation. Army and Marine aviation should be configured for the Close Battle. This means helicopters, naturally, but it also should mean that the Army takes a greater interest in VSTOL aircraft like the Harrier and its follow-on, and hybrid aircraft like the CV-22. On the other hand, both these services should transition out of the airlift business and Deep Battle systems like ATACMS and the F/A-18.

Theater air and missile defense is both the most pressing and the most painful overlap case. The issue is urgent because of the coming proliferation of cruise and ballistic missiles; it is

painful because this is the category of combat in which we have the most *dis*integrated approach at present.

Nobody else having even the dimmest notion of how to construct air defenses does it the way we do. The lashup will be well understood by readers of *AFJI,* but—to review it in brief—the Air Force operates interceptors, and the Army operates surface-to-air missile (SAM) defense systems. These two combat elements are wired together in a shaky confederation under the OPCON of the "area air defense commander," usually the air force component commander. How air defense got fragmented in this way is a long, sad story. Luckily, it hasn't cost us casualties—yet—because the system has never been stressed in combat. (It *has* cost us lots of money.)

There really is only one fight up there, and we must deal with it in an integrated, systematic way. That means the Air Force and Navy should develop and operate both the interceptor and the SAM elements. System command and control has to be built in such a way that when both the Air Force and Navy are present in a theater of operations, whoever has responsibility for the High Battle commands the entire system.

Of course, "leakers" should be dealt with close-in by anybody coming under air attack. Therefore, short-range air defense systems should be widely distributed in accordance with the fundamental principle that everybody is responsible for self- defense. *Everybody* includes the Air Force, which has had great difficulty getting funding for point defense of air bases. Every study we do shows that air base defense has an enormous effect on theater war outcomes if even a modicum of capability is assumed for the threat. But every time we try to spend Air Force dollars to get beyond the bare-bones point defenses we presently field only in Korea, the money is taken by the budgeteers, and we are told that this is an Army role. Next war, we should let our accountants fight their accountants.

The Way Ahead

Change always starts with disagreement. But this argument about roles and missions has been around a long time and has not yet produced real change. Accordingly, we ought to be

skeptical that much progress will be made in the current round.

On the other hand, the Key West agreement is not the Ten Commandments, there being no direct evidence of divine intervention. It would have taken exactly that kind of miracle for the conferees to have gotten it right the first time. There is every reason to believe we can improve the design, if we somehow get past the narrow interests of our individual "trade unions." The demands of combat effectiveness, of economy, and of jointness require that we specialize and rely on each other—that we *trust each other.*

This will be hard to do. But nothing worth doing is ever easy.

Glossary

AAA	antiaircraft artillery
AB	air base
ABCCC	airborne battlefield command and control center
AC	accounting
ACC	Air Combat Command air component commander
AC/GEN	aircraft generation
ACS	assistant chief of staff
AD	air division
ADCS	assistant deputy chief of staff
ADP	automated data processing
AF	Air Force
AFA	Air Force Association
AFAS	area fire armor system
AFB	Air Force base
AFCC	Air Force Communications Command
AFCEA	Armed Forces Communications and Electronics Association
AFCOMS	Air Force Commissary Service
AFDW	Air Force District of Washington
AFIA	Air Force Intelligence Agency
AFIC	Air Force Intelligence Command
AFISA	Air Force Information Systems Architecture
AFISC	Air Force Inspection and Safety Center
AFLC	Air Force Logistics Command
AFMC	Air Force Materiel Command
AFMPC	Air Force Military Personnel Center
AFOTEC	Air Force Operational Test and Evaluation Center
AFRES	Air Force Reserve
AFSAC	Air Force Special Activities Center
AFSC	Air Force Systems Command
AFSOC	US Air Forces, Special Operations Command

AFSPACE	Air Force Space Command
AMC	Air Mobility Command
AMRAAM	advanced medium-range air-to-air missile
ANG	Air National Guard
AOR	area of responsibility
ARCENT	US Army Forces, Central Command
AREFW	air refueling wing
ASAF	assistant secretary of the Air Force
ASAT	antisatellite
ASD	assistant secretary of defense
Asst	assistant
ATACMS	Army tactical missile system
ATC	Air Training Command
ATF	advanced tactical fighter
ATO	air tasking order
AU	Air University
AWACS	airborne warning and control system
BDA	battle damage assessment
C^3I	command, control, communications, and intelligence
C^4	command, control, communications, and computers
C^4I	command, control, communications, computers, and intelligence
CAP	combat air patrol
CAS	close air support
CC	commander
CE	civil engineer
CENTAF	US Air Forces, Central Command
CENTCOM	US Central Command
CEO	chief executive officer
CH SCI	chief scientist
CHAP	chaplain
CINC	commander in chief
CINCNORAD	commander in chief, NORAD

CINCPACAF	commander in chief, PACAF
CMSAF	chief master sergeant of the Air Force
CNN	Cable News Network
CNO	chief of naval operations
COMM	communications
CONUS	continental United States
COS	combat operations staff
CSAF	chief of staff, Air Force
CSG	combat support group
CV	vice-commander
DCS	deputy chief of staff
DDir	deputy director
Dep	deputy
Dir	director
Div	division
DO	deputy commander for operations
DOD	Department of Defense
DP	personnel
DRU	direct reporting unit
ECM	electronic countermeasures
ENV	environment
ESC	Electronic Security Command
EUCOM	European Command
FAA	Federal Aviation Administration
FAC	forward air controller
FM	financial management
FOA	field operating agency
FTD	Foreign Technology Division
FYDP	Five Year Defense Plan
G	gravity
GNP	gross national product
GP	group

Hist	history
HQ	headquarters
ICBM	intercontinental ballistic missile
IN	intelligence
INST	installations
JA	judge advocate
JAG	judge advocate general
JCS	Joint Chiefs of Staff
JDAM	joint direct attack munition
JSOW	joint standoff weapon
JSTARS	joint surveillance target attack radar system
KIA	killed in action
KTO	Kuwaiti theater of operations
LANTIRN	low-altitude navigation and targeting infrared for night
LCC	land component commander
LE	logistics and engineering
LG	logistics
LL	legislative liaison
MA	deputy commander for maintenance
MAC	Military Airlift Command
MAJCOM	major command
MAN	manpower
MARCENT	US Marine Forces, Central Command
MET	management engineering team
MIA	missing in action
MILSTAR	military strategic and tactical relay satellite
MO	manpower
MW/MWR	morale, welfare, and recreation
MX	Peacekeeper missile
NAF	numbered air force

NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NAVCENT	US Naval Forces, Central Command
NCO	noncommissioned officer
NEACP	national emergency airborne command post
NORAD	North American Aerospace Defense Command
NLS	National Launch System
O&M	operations and maintenance
O/E	officer to enlisted
OPCON	operational control
Ops	operations
OSI	Office of Special Investigations
OT&E	operational test and evaluation
P	provisional
PACAF	Pacific Air Forces
PACOM	Pacific Command
PE	program executive
PR	requirements and programs
PT	physical training
QA	quality assurance
R&D	research and development
R&M	reliability and maintainability
RAF	Royal Air Force
RAPCON	radar approach control
Recce	reconnaissance
REQ	requirements
RES	resources
RES ADV	reserve advisor
RM	deputy commander for resources
ROTC	Reserve Officer Training Corps
SA	studies and analysis
SAB	Scientific Advisory Board

SAC	Strategic Air Command
SAF	Secretary of the Air Force
SAM	surface-to-air missile
SC	communications/computer
SDI	Strategic Defense Initiative
SE	safety
SEA	senior enlisted advisor
SECAF	secretary of the Air Force
SG	surgeon general
SIOP	single integrated operational plan
SOA	separate operating agency
SOCCENT	Special Operations Command, Central
SOCOM	Special Operations Command
SOUTHAF	US Air Forces, Southern Command
SOUTHCOM	US Southern Command
SP	security police
SQ	squadron
SRAM	short range attack missile
SSB	selective separation bonus
STAN EVAL	standardization and evaluation
START	Strategic Arms Reduction Talks
STRATCOM	Strategic Command
TAC	Tactical Air Command
TACAIR	tactical air
TACON	tactical control
TFW	tactical fighter wing
TLAM	Tomahawk land attack missile
TQM	total quality management
TRANSCOM	Transportation Command
TSSAM	triservice standoff attack missile
USAF	United States Air Force
USAFA	United States Air Force Academy
USAFE	United States Air Force Europe
USMC	United States Marine Corps
USN	United States Navy

VSI	voluntary separation incentive
VSTOL	vertical short takeoff and landing
WIA	wounded in action
WX	weather
XO	plans and operations
XOW	senior weather officer

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