

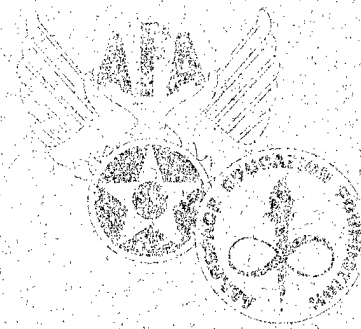
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Executive Director
AFA/AEF

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Chief, Legislative
Research, AFA

The Aerospace Education Foundation, the non-profit affiliate of the Air Force Association, was established in 1956 to formulate and administer the Association's educational outreach programs. Supported through tax-deductible contributions (all donations to AEF are used solely for programs and scholarships), the Foundation sponsors scholarships, technical symposia, educator workshops and contests designed to promote aerospace education and help meet the need for scientific and technological expertise. The Aerospace Education Foundation is a tax-exempt 501 (c)(3) corporation. Tax identification #52-6043929.

About AFA and AEF ...

Air Force Association

The Air Force Association (AFA) is an independent veterans' organization whose objective is to promote greater understanding of aerospace and national defense issues. Among the ways AFA disseminates information are publication of AIR FORCE Magazine, sponsorship of a series of national symposia, and through educational outreach programs of its affiliate, the Aerospace Education Foundation. AFA is a grassroots organization. Total membership is nearly 200,000 of whom more than 38,000 are Life Members. There are 328 AFA chapters in the United States and 23 overseas. The Association has 226 Industrial Associates, and its chapters have established ties locally with more than 2,400 businesses in the Community Partner program. The Air Force Association was incorporated in the District of Columbia on February 6, 1946.

The Aerospace Education Foundation

On May 1, 1956, the Air Force Association established the Aerospace Education Foundation (AEF). The Foundation was established as a nonprofit organization in order to formulate and administer AFA's educational outreach programs. AEF is supported through tax-deductible contributions. Over the past thirty-six years, the Foundation has made progress in educating AFA's members and the public about the critical role aerospace development plays in the modern world. By doing so, the Foundation promotes a greater understanding of technological advancements and aerospace education. AEF's scholarship programs also encourage higher education in the technological career fields. The Foundation sponsors symposia, roundtables, workshops, contests, and many other programs in order to highlight the full range of educational interest of AFA and to help meet the growing need for scientific and technological expertise.

General Merrill A. McPeak

1

"Reducing the Cost of Doing Business"

Well, good afternoon. One of the highlights of the fall season is coming to Los Angeles. This is one of the AFA's premier events and it's an honor to be here with the Air Force's friends and supporters on the West Coast.

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 costs 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're 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 annual deficit exceeds \$300 billion. In other words, we're printing debt at the rate of about a billion dollars a day.

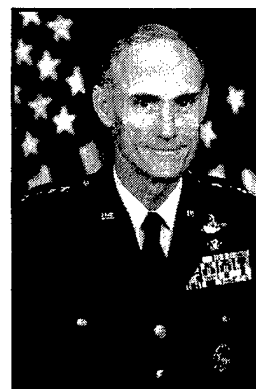
We can all understand why that kind of deficit, coupled with the collapse of the Soviet empire, results in a defense budget that is reaching historic post-World War II lows.

The Air Force budget is, of course, down in both absolute and real 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, if we believe the planning numbers we've been given in Washington. We also can't, in good faith, support more cuts in force structure over and above those already called for in the Bottom-Up Review. We've already gone down as far as we can and still do what the Air Force is asked to do -- what the President will rely on us to do if we're 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 Air Force Base in Texas redesignating the [Air Force] Intelligence Command into the Air Intelligence Agency, reporting to the Air Staff. That means we've cut our major operating commands from 13 to eight -- a 40 percent reduction. We've cut more than a thousand 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, for the most part, 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. Many programs have been terminated outright: Anti-Satellite, mobile ICBMs, Tacit Rainbow, Short-Range Attack Missile, and so forth. Other programs have undergone a radical drawdown or restructure, among them: the B-2, the 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 Defense Planning Guidance.

Reforming the acquisition process could also go a long way toward reducing our cost of doing business. This was the theme of my remarks at last month's AFA National Convention in Washington. 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'll fly formation in any broader national 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 & Maintenance account as a source for cost savings. We're talking about core tasks here: flying airplanes, maintaining missiles, and monitoring the satellite constellations. 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's nowhere else to look. By way of illustration: the Air Force will fly more than a million fewer hours in 1995 than 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, or NEACP. We don't have many of these E-4Bs, only four, in fact. It costs \$25,889 an hour to fly the NEACP. Almost 76 percent of this, almost \$20,000 an hour, 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 business-like 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's not to say we don't know what we're going to be charged. We know, for example, that the Defense Logistics Agency charges \$29 every time we put something into or take 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 much more timely manner and with much greater fidelity. Now, this is a long-term fix, but we need to get started on better cost accounting systems.

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, spare parts and so forth. We can address this issue in two ways. First, we have to work the problem up front by getting better design in the equipment we acquire. We've been doing this for many years. For example, due to better engineering, the flying hour cost of the C-17

is projected to be 40 percent less than the C-5B, which was itself a big improvement over the C-5A. The second option is to work the back end. That is, finding ways to make the repair process itself more efficient. For example, much of the overhead that we think about in this business is found in the surcharge that our depots assess when repairing parts or providing supplies. This surcharge includes things like transportation, depreciation, inflation factors, storage costs, item managers, software maintenance and so forth. We could spend the entire symposium trying to figure out how this surcharge works. But one thing's for sure: 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 will 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 at a much reduced cost. We've done the same thing with fuel, giving the dollars to the wing commander. In 1993 we selected three bases as part of a pilot program. In one year, Seymour Johnson [Air Force Base, N.C.] alone saved \$1.4 million in fuel costs -- and we gave back to the wing commander half of that savings. Now, that'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 the 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-1 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 one. We need to look under every rock for savings.

As I said last month, thanks for hanging in there, for staying on our wing. It's worth it because we're going to continue to build a force that's ready to fight and win, a force that is the world's most respected air and space force.

Question & Answer Session

"Reducing the Cost of
Doing Business" 5

General Merrill A. McPeak

GENERAL HATCH: *How are you working quality issues aimed at lowering costs, and what kind of guidance are you giving to the subordinate commanders?*

GENERAL MCPEAK: Well, I guess it's fair to say that in the Air Force, as long as I've been in it, we have been interested in costs. I'm sure it's true of industry also. So you might ask yourself why did I bring this subject forward at this time. The short answer to the question that was asked is we really haven't done more than we have always been doing: jaw-boning about costs and making sure people appreciate how important it is.

But I bring the subject forward at this time because the cost crunch is now so central in everything I do up there in the Pentagon. My duty day is really filled with trying to grapple with this problem of reducing the cost of doing business in the Air Force. And there are one or two things we're doing. The initiatives to put some of these dollars and responsibilities into the wing commander's budget certainly are good examples.

As far as the quality movement goes, of course we have a Quality Council. The major air commanders here in CONUS are part of it. [General] Butch Viccellio [Commander, Air Education and Training Command] here is a member of the Air Force Quality Council. So we are quite active on a very large number of issues that we are working in real time as part of the quality effort. Just recently, for instance, we had a big quality symposium during which we brought in 22 teams that had done very fine work on process problems around the world. We selected five of these to be recipients of the Chief of Staff's Quality Team Award. So that kind of thing is in process. All of that is paying big dividends in terms of our operating costs at every location.

GENERAL HATCH: *Thank you, General McPeak.*

Second question: you spoke of the steep depot surcharge. Do you believe it is possible to get an accurate fix on what these costs should be and how to level that playing field? And there is another question that also talks about competition between depot and Air Force for common work.

GENERAL MCPEAK: Well, I think it's very important that we continue the competition program. It's good for industry; it's good for us.

The surcharge is a bit of an enigma, and you have to really spend your life working on this problem, I guess, before you understand it fully. It is an administered price. The bottom line is it doesn't respond to market pressures.

But implicit in the question was that there is some mechanism in here that provides an uneven playing field between the depots and industry. I'm not convinced that's correct. We've had a number of competitions where we made a bid and industry made a bid for repair work. We've won some and we've lost some. My conviction is that we're doing our best to make that playing field as level as we can. I certainly am committed to a level playing field.

I was, as I say, just this morning at Kelly Air Force Base, at one of our depots, and was interested to read in the base newspaper the story of what has happened there. They lost 900 people there last year. They're losing 700 people this year. They're going to lose a bunch more, says this article in the base newspaper, unless they win the competition to continue to maintain the F-100 engine in the C-5. So these people in the depots understand the pressures. And this is a market-

like mechanism that is helping us work this problem.

Quite frankly, I don't think industry is totally without blame here, too. Many of the costing practices inside industry remind me of the same sort of administered pricing. That happens probably because of some government regulation that's been laid on, not because its something industry wants to do.

So this is a complex story. It's not something fighter pilots are comfortable talking about for a long time. But I will just say that, on behalf of Headquarters Air Force, we want to have competitions in which the playing field is level because that's the only way we can reduce our O&M costs -- and we must do that. So get ready and let's have a competition.

GENERAL HATCH: *Thank you, General McPeak.*

The next question focuses on the streamlining and the reorganization. You mentioned the reduction in the number of major commands, so it appears that the Air Force has really saved a great deal of money in the last few years. Have you tracked that?

GENERAL MCPEAK: It's not trackable with much precision. What is trackable is manpower, end strength. We have saved an awful lot of end strength in this restructure process. As I say, a thousand colonels.

But, no, I can't give you a dollar number for that. I will say I think the Air Force was well served by getting started on this problem some time back, because it really has given us a leg up in trying to get ahead of the tax man as he comes around and takes a big bite out of our budget. In that connection, we may have done slightly better than brand X and brand Y as far as the services go in getting ahead of the problem.

But the short answer is I can't claim any dollar savings number. I'm just glad we went through that and we're now streamlined and in pretty good shape.

GENERAL HATCH: *Thank you, General McPeak.*

A specific program question. The C-17 is an aircraft in the newspapers almost every day. Today was no exception. Could you give us your assessment of the most recent C-17 wing test?

GENERAL MCPEAK: I was going to say I flew the first one into Charleston so maybe the most significant wing test it's had was when I landed it.

(Laughter.)

It's a fine airplane, a wonderful airplane. When we get it, and get it bedded down, it will be a national treasure.

Before I answer the question directly, let me just talk about the question of global mobility as I see it. I know Walt Kross is here and will say more about this. But, believe me, we are the airlifter of choice for everybody in the world that has to go anywhere. We're used to hauling the Canadians and the Belgians and the French, Pakistanis, and so forth. But recently in Somalia, we flew in Botswana's infantry battalion. We sent five C-5s to Botswana, I think, picked up an infantry battalion with their equipment, and took them over to Somalia so they could participate as part of the peacekeeping forces.

Nobody in the world except the United States Air Force can do this kind of thing, and it gives us access and entree and international clout. If anybody wants to move serious military forces anywhere, they have to call Washington, D.C., and we have to call St. Louis to get that job done. So it gives us incredible influence. We simply must continue to have that kind of capability, and to have it, we have to modernize the airlift fleet. The C-17 is the centerpiece of that modernization. It will be a wonderful national treasure, as I said, once we get it fielded.

Now, we did have a wing break on about the 10th of September, about six weeks or so ago. The overall stress on the wing when it broke was in the range of 145 percent of the programmed maximum load. We try to take most wings we break to something like 150 percent. But remember, we'd just as soon break it at 150 percent because, if it goes much past that, you're carrying around too much structure and too much weight. So 150 percent is where we'd like it to break.

Our analysis subsequent to this latest break indicates that the point where the wing was damaged probably was subjected to about 150 percent, maybe a little more. The analysis isn't entirely done yet. It's not complete. The full report by the engineers who go out and

look at all the stress gauge readings and all the rest of it isn't final. But it looks very much as if the wing broke at about 150 percent or slightly above it. That is exactly what we would like to see happen. So I am very optimistic that the wing is in great shape and we won't have to do any additional redesign.

GENERAL HATCH: *Thank you, Chief.*

The next question has to do with base closures and realignments. There's more than one question but they share some common themes. We know that the infrastructure hasn't come down as fast as the fighting forces and the people. We know that there's more to come. If you knew in advance which bases would ultimately close, you could probably save money because you wouldn't spend money on those bases. How is the Air Force planning today for 1995 and beyond?

GENERAL MCPEAK: I want to say that I think the Air Force has been very responsible in the way it has attacked this problem. Pete Aldridge and other senior leadership we've had over the years have stepped up to this problem. We didn't stonewall it. We didn't try to put it off. We have been working away at this and closing bases.

Essentially the job I have watched the Air Force do over a 36-year period has been phenomenal. We've been closing World War II bases. If you look at the history of construction of bases for the U.S. Air Force, we entered World War II with about 29 major installations for the Army Air Corps of the United States. We built about a hundred more during World War II. So we came out of World War II with 130 major installations. We've been closing them ever since World War II. There were a couple of spurts in this as we built across the northern tier of the United States in the fifties and early sixties. Those northern-tier bases were needed to fly SAC [Strategic Air Command] bombers over the Pole. So we built a few up there. And there was some construction in association with the space business at Patrick, Vandenberg, and Falcon.

But, by and large, if you look at what's happened to us, the big picture, we've been in the process of closing World War II bases since 1946. And, if you look at the bases we

nominated for closure in the '93 round, they were places like McGuire, built in 1942, Griffiss, built in 1942, and so forth. Homestead was also a World War II base.

Now, we're down to about 80 major installations in the United States, from 130 or so. So in that period of 30-40 years we have closed down 50 bases in the United States. Believe me, that was hard to do. That's a little better than a base a year.

You can build up a lot of scar tissue trying to close down bases, as you know. But we have worked away at it, and as a consequence we're in pretty good shape. But we still have 80 bases with an Air Force of about 400,000. When we had 130 bases, there were 2.1 million men in the Army Air Corps. So we still obviously have many more bases than we need. If we needed to come down from 2.1 million to 400,000, we haven't made the kind of chop in our base structure we need.

So I'm sorry to filibuster on this subject, but as we approach the '95 round, we still have way too much infrastructure. That is true, even though we've done a very good job on this to date. I think, again, we've been much more forward-looking in this connection than perhaps the other services. They've had different problems to work but we've worked this very responsibly.

Nevertheless, I anticipate that '95 will be a tough round and that there will be a lot of base closure action in it. We are gearing up already in Washington to do the staff work associated with it.

GENERAL HATCH: *Thank you, General McPeak.*

You've spoken to us about the Year of Readiness. Can you give us any detail on your goals and objectives for the year ahead?

GENERAL MCPEAK: The key issue for me is whether we can maintain readiness standards in the neighborhood of where we are now and reduce O&M costs. That's the key issue. There are some leading indicators that say we probably cannot, that our readiness has already started to degrade from the all-time high levels we saw in the '90-'91 time frame.

So it will be tough to do. The reason that the Secretary and I said we ought to make this next year the Year of Readiness is that the

problem is central to our way of thinking about priorities. So we're going to track readiness. We're going to be as imaginative and as creative as we can be to maintain it while at the same time we face the reality: the checkbook. The balance in the checkbook is just not going to be there, so we have to cut costs.

GENERAL HATCH: *Thank you, Chief.*

The final question. I thought maybe we'd get by without a question about the uniform, Chief. The thrust of it asks whether the new uniform is part of the Air Force bottom-up review or was that a top-down directive?

GENERAL MCPEAK: Well, it was top down, so it's my fault. You're going to have to blame me for it.

The uniform is an interesting story. When we separated from the Army after World War II there was a lot of thought given to what we wanted the new Air Force uniform to look like. I've got some of the memos written by Larry Kuter [General Laurence S. Kuter former of Commander of Military Airlift Command and Commander in Chief of Pacific Air Forces] to Norstad [General Lauris Norstad, former Commander of US Air Forces in Europe] and people like that. There was a lot of speculation about what they wanted the uniform to look like. They said -- and, as I say, I've got the written evidence -- that they wanted a plain blue suit, with all the trinkets taken off it. Get all this stuff off the daggone uniform. And they wanted a British style rank, the RAF [Royal Air Force] style rank.

Many of them had served abroad, as I have, for many years. Quite frankly, we're used to our rank system with gold bars and silver bars and gold oak leaves and silver oak leaves. It's kind of confusing for the Belgian air force or the Dutch to figure out what some of these ranks are. They all have some kind of a rank system like the U.S. Navy's and like the one on the uniform I'm wearing.

So that's what these guys pointed at. Then along came the Berlin airlift, and then

along came the Korean War, and they just had to turn away from the uniform and focus on real operational issues. It has only been since this initiative that the Air Force has spent a lot of time thinking about what we want a real Air Force uniform to look like, as opposed to a blue version of the Army uniform.

We probably could have waited a long time for a consensus that we should do that to develop from the bottom up. But at the senior level in the Air Force, we decided to go ahead and kick it off. It's going to be a big success. It's going to be available in the clothing sales stores in January, maybe December. The first purchase was a big one: 50,000 sets of coats and about 75,000 sets of trousers. I predict it will be sold out immediately because this is a very comfortable uniform. People who have worn it like it a lot.

Maybe I can ask my senior enlisted advisor. Is this a bottom-up initiative, Gary [Chief Master Sergeant of the Air Force Gary Pfingston], or was this top down?

CMSAF PFINGSTON: *Sir, it was bottom up.*

GENERAL MCPEAK: Ah, that's what I like.

(Laughter.)

Okay. Anyway, it's a great uniform. Interestingly, the chief of the air staff of the RAF, Mike Graden, has written me and asked if he can have the patterns and so on. They want to change their uniform. It's very uncomfortable, he says, and they don't want to reinvent it. They think this is okay. They'll have their color cloth and their color stripes, and so on, but the RAF has adopted this uniform as their service dress uniform.

GENERAL HATCH: *General McPeak, thanks so much for being with us today. General McPeak will be available to the press. On behalf of the Air Force Association and everyone here, we're proud of you, and we appreciate what you're doing for the men and women of the Air Force and for our nation. Thank you, General McPeak.*

GENERAL MCPEAK: Thank you.

Lt General Walter Kross

9

"Global Reach for America -- The New Era"

Thank you, General Hatch.

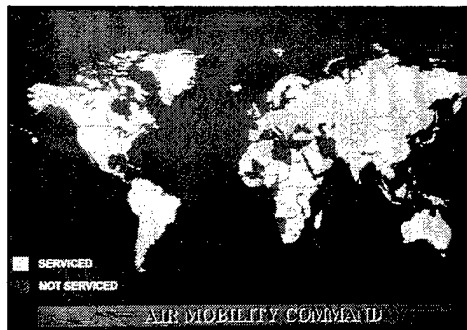
President Jim McCoy, fellow members, distinguished guests, it's great for me to be here to represent General Ron Fogleman and tell you about Air Mobility Command -- what we're doing in the world today and what we're going to do tomorrow.

I am not normally wearing a tie; I normally wear a flight suit as a Numbered Air Force commander, General Fogleman's West commander, if you will. We're out flying with the troops, a pleasurable and critical job, as we keep readiness and readiness assessment at the top of our radar screens and merge quality and quality performance into what we do every day.

There is an awful lot of emphasis in my presentation on what we are doing today, because I think it is important for you to understand the emerging missions that we are flying throughout the world.

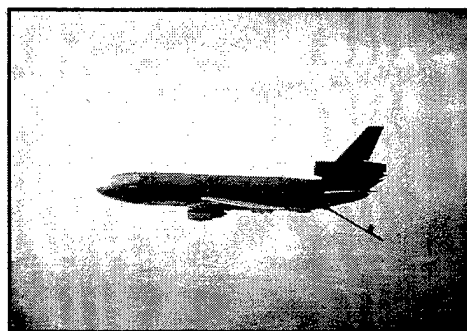
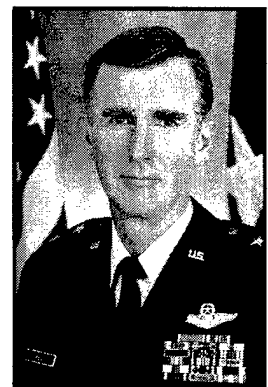
As we do this, I'll focus on three recent operations over the last couple of months, some of which you have seen in the newspapers and one you have not -- and then extrapolate that into the future and what it means to the C-17 and other things that we need. Of course, you know that the C-141 is tiring. Its 30-year noble career is upon us. We need to accelerate it out of the force and replace it with a modern core airlifter, the C-17.

Every day as we fly, we, on rough count, have 140 missions flying around the world in 39-40 countries. Some of those countries are unpronounceable -- you would need a map and a navigator to show you where the cities are that we are going into, and we are often empowering our air crews to make the decisions on the spot.



Slide 1

This is the cumulation of what you would see over the last 12 months. The light areas are the areas that we have been.



Slide 2

This airplane, the KC-10, which is just down the road at March Air Force Base and two of our other bases, really embodies what global air mobility is all about. It's not only a tanker, it's an airlifter and is our most reliable airplane.

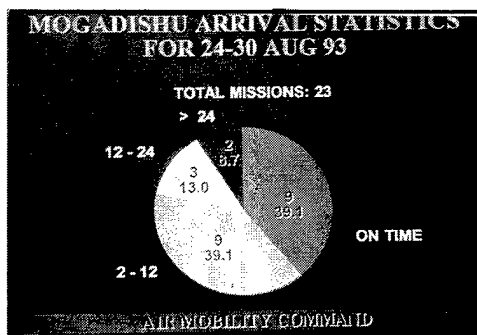
AMC MAJOR OPERATIONS				
<u>Operation</u>	<u>Supporting</u>	<u>Tons</u>	<u>Pax</u>	<u>Missions</u>
Hurricane Andrew	Florida	21,349	15,433	724
Typhoon Omar	Guam	1,998	750	59
Hurricane Iniki	Hawaii	7,800	8,579	257
Provide Hope II	CIS	1,772	1,347	65
Provide Relief	Somalia/Kenya	31,622	1,019	3,295
Restore Hope	Somalia	37,305	61,950	2,433
Continue Hope	Somalia	5,294	8,386	359
Total Airlift		107,140	87,464	7,192
AIR MOBILITY COMMAND				

Slide 3

Numbers are numbers. You recognize some of these activities over the last 14 months or so and they mean a lot. They mean an awful lot. But within the performance themselves, it's not only the quantity of what we do, but the quality of what we do -- and that's one of the things that I want to focus on today.

Air Mobility Command has merged itself with the tanker and airlift communities to create a concept called Global Air Mobility, which really is synergistic above the additive of the two.

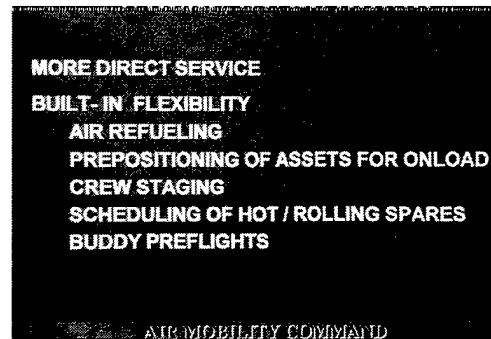
Quality is very important, and as we've changed and restructured ourselves, we have now struck upon improving the quality of what we do. And what we do is to deliver goods and people on time when you boil it down to its most essential elements.



Slide 4

This gives you a snapshot of how well we are doing moving troops and equipment into Mogadishu for the period shown. And as you can see we were only getting there on time 39.1 percent of the time. Everything else was arriving late. That's a problem for a commander, particularly somebody who is in harm's way. We had to apply our quality

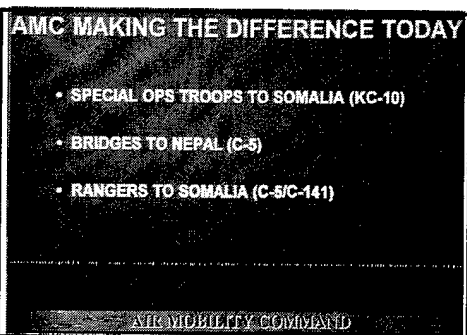
processes to ensure that airplanes arrive on time at a much higher rate. And you'll see the numbers a little bit later which manifest the results of process action teams that we have had working at Scott Air Force Base and out in the field units themselves.



Slide 5

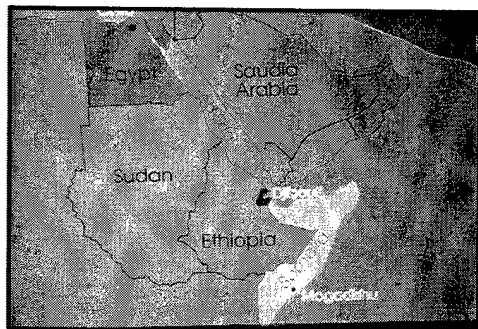
We certainly need to build in more flexibility to get the job done in a number of ways, to get us more direct into our arrival points. We're using air refueling much more than we have in the past. It used to be we would hopscotch a lot. Now we will put augmented crews on and we will air refuel our airplanes. Once you get them in the air, and you get them pointed, you can keep the reliability up by not putting the gear down and landing it.

We're also pre-positioning a lot more assets in terms of crews and support people on high visibility, very important, critical missions. We're adding more stage crews so that we have greater flexibility. We don't ever stop now because we just didn't have a crew that was available with sufficient rest. And we're also using rolling spares a lot more and buddy preflights, things we never used to do before. Consequently, we're getting the reliability of the C-5, C-141, and other airplanes into an envelope that is very satisfying for us.



Slide 6

I'd like to take you through three humanitarian updates here and show you the kinds of things that we're doing with the KC-10 and other airplanes as well. The KC-10 operation, carrying special forces troops in a shuttle from a forward point, is the first one. The second one, bridges to Nepal, you probably never heard about. And the third one, bringing the Rangers in to Somalia -- what we all saw on CNN after the attack over there didn't go very well.



Slide 7

Let's look at the first one. First we call it the KC-10 shuttle. Basically, we used commercial aircraft to pick up special operations forces from places within the United States and fly them to Djibouti. From Djibouti we used KC-10s to transload and carry those forces down into Somalia. We were in a threat situation where we would not allow commercial airplanes to fly down into Mogadishu.

The KC-10 was always configured to carry passengers, but really only 75 passengers -- everything beyond that we had never done before. We gave the troops at March Air Force Base, Calif., on a Saturday afternoon,

the task of figuring out how to reconfigure the airplane to carry 163 passengers and 11 pallets -- and they did it. They did it in an afternoon, figured out how to do it, and then we launched the missions primarily from Barksdale Air Force Base, La.



Slide 8

Here's a picture picking up the troops in Djibouti. Many of them had been up for 30-35 hours already. We did this with four airplanes -- three airplanes shuttling back and forth as well as a spare over the top at all times to make sure that the mission was going well.

We used a tactical approach. But basically we flew a high-altitude penetration to extremely low altitude, came in over the water, pitched right onto final approach, landing with a tail wind because the prevailing winds were running 15 to 20 knots.

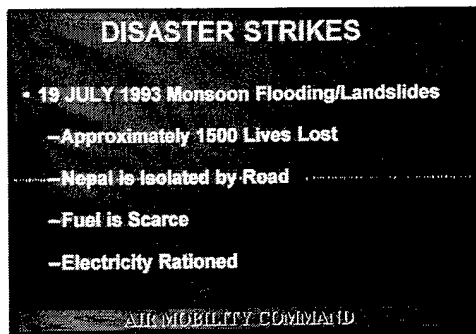
BORTIES FLOWN	38 (OF 38 TASKED)
TROOPS CARRIED	2590
CARGO WEIGHT	369,000 LBS
HOURS FLOWN	315
AVERAGE PAX LOAD	118
DAYS DEPLOYED	29

Slide 9

What were they able to achieve? Through empowerment, they were able to achieve 38 out of 38 task sorties on time. 100 percent reliability. Moving 2,600 troops and about 369,000 pounds of cargo and the other stats, as you see. That's what we call bottom line quality, merging quality with readiness.

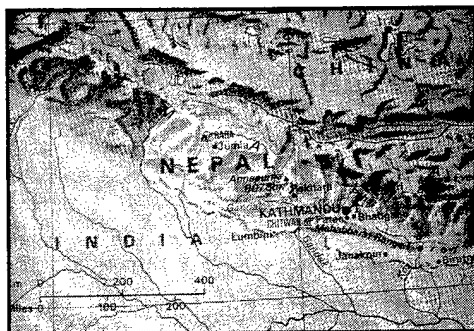
"Global Reach for America -- The New Era"

The second operation was a bridge lift to Nepal.



Slide 10

In July, a monsoon struck. It essentially wiped out the bridges, wiped out the roads around Kathmandu, and in a large part of the country, pretty much isolating and causing a lot of economic turmoil. Nepal, through the U.N., came to us.



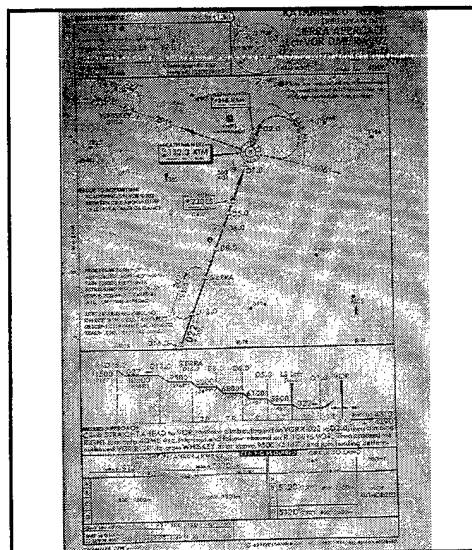
Slide 11

It's a mountainous country. It's world famous, and Kathmandu is the highest in the world.

It was an international effort. The British Embassy provided us with what we needed in terms of tasking and clearances, working with the U.S. defense attache. The Queen's Gurkhas put the bridges up; Air Mobility Command provided the airlift; the Royal Nepalese Army provided the necessary security; and the Peace Corps, our own U.S. folks over there, provided the interpreters, which were invaluable to our people on the ground that were running the operation, as well as the air crews. C-5 operation, three aircraft.

In the environment we were going into, there was no fuel available. Daylight only operations. A parking ramp which only al-

lowed one C-5 at a time. And there was simply nothing to offload the planes, cargo, those bridges -- essentially accordion bridges that fold out. We had to bring in all of that, and we tasked that out of McChord and Travis Air Force bases.



Slide 12

For the aviators, this is the Jeppesen Chart that's used to go into Kathmandu. Some of the notable things: the missed approach on it requires a 4,000 foot rate of climb, so we had to modify that somewhat, and we actually did use some procedures that circled up over the field. The safe altitude within 25 nautical miles was 24,000 feet. The emergency safe altitude within a hundred was 31,500 feet.



Slide 13

Mission planning: like I said, three airplanes. We picked up the cargo at RAF Mildenhall (U.K.), made a crew change at Cairo West, flew on in to Bombay, got gas

there, flew up, dropped the cargo, came out to New Delhi, did a crew rest, and were on our way back home.

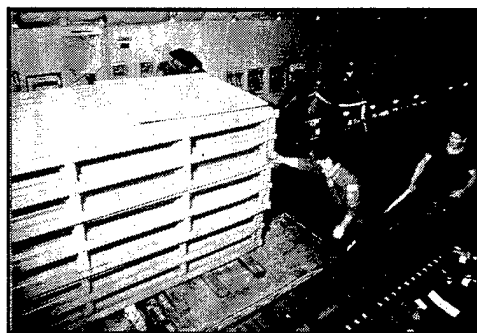
- Operation Bridge Lift
 - Mildenhall : It all Started Right
 - Cairo West : A Change of Plans and a Crew Adjustment
 - Bombay: India's Flight System Antiquated
 - Kathmandu: Careful Planning and Excellent Support From 603rd ALCS
 - New Delhi:
 - » Even in India You Need to Call Home
 - » Mission Complete With 100% Reliability
- AIR MOBILITY COMMAND

Slide 14

Everything started well at Mildenhall. We had some minor changes of plans because they weren't ready to receive us that first day, so we had to delay, rework the clearances. If you've ever flown into India, they're back at about 1950 -- maybe 1949 -- in terms of flexibility to change. So a change like that required an awful lot of re-coordination.

The Air Force folks on the ground did an excellent job. That's the 603rd ALCS-- they're out of Kadena, McChord and Travis.

In New Delhi, we found that, when you have to communicate, you still need -- it would be wonderful to have SATCOM on every plane.



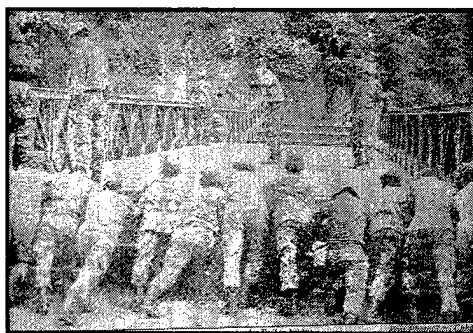
Slide 15

This is what a Bailey bridge looks like as it's being loaded at Mildenhall. We took off out of Mildenhall, or ran our mission.



Slide 16

This is the offload at Kathmandu. Every day the embassy and the embassy corps throughout the city would turn out. This was a major event. This was the offload itself.



Slide 17

This is what the Gurkhas looked like in a photograph from the local newspapers there as they were setting up the bridges.

We were not the only one bringing in bridges. They also contracted a Bailey bridge to be brought in on the AN-124 Condor. It took 13 hours to offload the Condor. We offloaded the identical load in two hours. That was not lost on the local folks there. The work ethic of our very experienced NCO corps working without officer leadership, getting the job done, was something that they constantly remarked about.

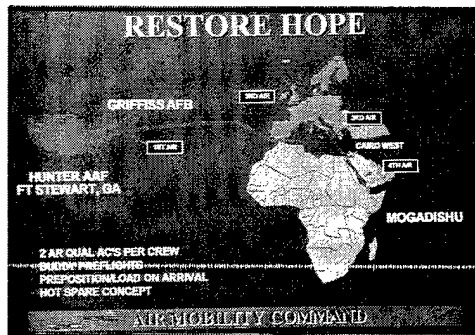


The last operation I want to talk to you about is the C-5 operation moving the Rangers in after the attacks in Mogadishu. It was very important that we move troops and their equipment in very quickly, on time and reliably.

If you missed the approach into Mogadishu airport, you would go right over Aideed's territory, so it's the kind of thing that folks had to avoid. So if we didn't get it right coming in from low altitude, turning a large C-5 on approach and getting it right the first time, we were putting ourselves and our crews in serious harm's way. So we were using faxes, we were using SATCOMs to get information back and forth so that we could improve each time as we went.



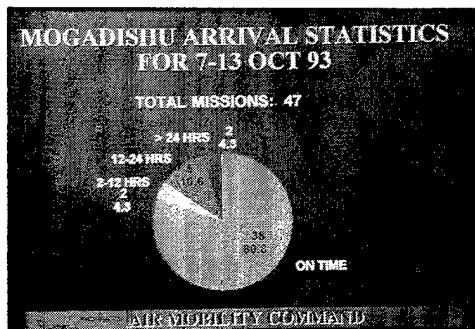
C-5s were taking off out of CONUS, of course. We did something that was absolutely extraordinary. We had never tested it before. We just simply went ahead and did it. We put four pilots on the crew. A normal crew duty day is 16 hours; with three pilots it's 24 hours; that's the max. We set up for 32 to 33 hour crew duty days. The most air refueling we ever do on a normal mission is two; we doubled it. We did quadruple air refuelings off the East Coast, off the Iberian peninsula, in the Mediterranean and in the Red Sea using our KC-135 and KC-10 assets to carry that out -- that flexibility, that synergism that I talked to you earlier about.



Slide 20

We flew direct off the East Coast, non-stop into Mogadishu and then back out to Cairo West before we changed crews.

In Mogadishu, our offloads were capped, but we were also on the ground for one to two hours not taking on any gas at all. That's why the fourth refueling was required.

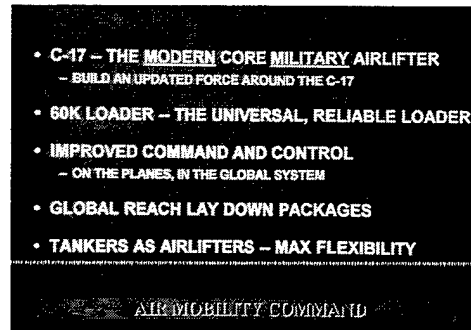


Slide 21

Remember you saw in that August period 39 percent on time. Here you can see a very dramatic improvement over that, over 80 percent. This is what bottom line quality and performance is all about in today's Air Force, working with the same technology that we have today.

Two days into this operation General Aideed called for a cease fire. He's not a fool.

The implication for the future, out of those operations and the other operations that we're conducting with global air mobility, is that we need global responsiveness. To go anywhere in the world, often into the most austere, forward conditions. We need to have long-range, reliable lift for on-time delivery. We need to keep our eye on that ball at all times.



Slide 22

That translates into a military airlifter that is reliable, that can get into forward locations when we absolutely have to do that. We don't need a billion of them; we just need enough to be able to do that and maintain our air drop commitments for strategic air drop as well.

Around that, we have to modernize the global air mobility force as we move into the next century. That means refurbishments to C-5s, and truly replacing the lost ton mileage from the aging and retiring C-141.

We also have to have a universal reliable loader that can load any airplane that lands on any ramp. That is the 60K loader. The mean time between failure on the loaders and forklifts that we use today is 10 hours. The mean time between failure that we're shooting for in the 60K loader, which is undergoing operational testing right now at Dover Air Force Base, is a hundred hours. The Brits are operating a 60K loader that they've had in service for 18 months in the desert in Saudi Arabia and it has yet to break. So we can do it.

We need improved command and control -- we need it on the planes and we need it in the en route system, and we also need it in the system that we lay down. That's what global reach lay down packages are. We have operational today packages that we can put in many different flavors out off main street from our en route system and lay down global reach support for tanker en routes, for airlift en routes and combinations of hubs and spokes and anything else.

And tankers as airlifters is a very important thing. We're doing an awful lot. We're buying 150 roller sets to use the KC-135 in an express mode to provide quality. And we're already

**U.S. Air Force:
Today & Tomorrow**

whacking days off that kind of performance as we test it in Tanker Express West and now Tanker Express East.

The C-17 is the airplane we've got to have as our backbone airlifter. We also need to replace the older K-loaders. As for the KC-135R, that airplane has the longest range of any airplane in the United States Air Force. We set a record, flew it from Kadena, in Okinawa, to McGuire non-stop, non-refueled. That kind of capability is something that we need to tap into, and we are.

Our operation is multifaceted, but we have skinnied down over the last year or so. We have divested ourselves at Air Mobility Command of many things that are not global

reach. We have today a Total Force context -- I need to tell you that, of the first 18 missions that flew those Rangers in, nine of them were Guard and Reserve crews. They are responsive right now, and they fly almost half of our missions and do it with great distinction. The force that we have now is a lean, mean, global moving machine, and that's the kind of Air Mobility Command that we need to carry into the 21st Century.

Our motto is "The Air Mobility Team . . . Responsive Global Reach for America -- Every Day!" It's one that we try to live with every day in terms of responsiveness.

Thank you. I'm ready to answer any questions.

Question & Answer Session

"Global Reach for
America -- The New
Era"

17

Lt General Walter Kross

GENERAL HATCH: *Thank you, General Kross. We can certainly see that global reach in action.*

The first question asks, "Would you give us an update on the C-141 and the examination of the fleet in terms of possible modifications for the future?"

LT GENERAL KROSS: Yes. The biggest challenge that we have now is the weep hole problem in the inner wing portions of the aircraft. We have many aircraft that are on the ground undergoing testing. We've had some real breakthroughs in terms of actually finding the cracks. The Air Force Material Command is doing an outstanding job in getting these airplanes back into the air. They had field teams at numerous bases that are working very, very hard to accomplish this.

Right now, over and above the aircraft that we have for local training, we only have a few dozen available for world wide tasking. This is a problem that we will work off over the next six to nine months.

GENERAL HATCH: *Thank you, General Kross.*

Your briefing talked about the efficiency of crew staging. We know that with that world wide mission, it's tough on air crews. How are you managing your crew ratio, time away from home, and all of those challenges?

LT GENERAL KROSS: That's an excellent point. The threshold of pain in the area of TDY [temporary duty] days off station for air crews is about 125 days a year. Right now the C-141s and the C-5s are running about 140 days a year. So we do pay a penalty when we enrich our stage to carry out critical operations. That's why we don't stage our crews for everything. We do it just for high priority missions. The regular channel missions we tend not to stage and we just work those with

a keeper airplane and crew.

The effort and support that we've gotten from the air staff and from General McPeak in terms of working our crew ratio has been rock solid. He is moving us in a direction that will help get that number down around a steady 125 days a year.

GENERAL HATCH: *Thank you, Walt.*

The next question is about the Civilian Reserve Air Fleet, CRAF. Would you bring us up to date on CRAF? Is that still a viable concept for the future?

LT GENERAL KROSS: Absolutely. The CRAF, in stage one, two, and three, accounts for one-third of our capability. One-third. We also do everything we can to push missions during peacetime to the CRAF. That's business to keep the base vibrant and to keep carriers incentivized so that they remain each year as part of the new CRAF contract.

For many of the missions I described here, the military airplane represents the "tip of the sword." We went to the CRAF to buy commercial missions to cover the normal routine service, the channels from which we had to take these military airplanes.

GENERAL HATCH: *Thank you, General Kross.*

There are two questions about the C-130 fleet. The first question talks about the Air Mobility Command giving up the C-130s to other combat commands. The second question is, how does the C-130 fleet look for longevity? How is it holding up?

LT GENERAL KROSS: The C-130 fleet is alive and well in Air Combat Command. It provides theater reach and it is aligned with the customer that provides the warfighting CINC [Commander in Chief] the forces he needs to carry out his operations plan tasking. If you did a scan right now out of the C-130

units, you might very well find General Loh on one of those bases. He has visited those C-130 bases in the first month more than once. I would encourage you to ask him about C-130s tomorrow.

In terms of tasking, the Tanker Airlift Control Center is still right in the heart of CINCTRANS [Commander in Chief, US Transportation Command], General Fogleman's chain, to task the C-130s as needed, to carry out air mobility missions for customers.

Regarding the longevity of the C-130, we are slowly working off the older planes at the rate of eight to 16 a year. C-130Hs are coming into the force, and we are keeping this very rugged airplane alive and well. What we would like to do is really work on the avionics inside the plane: a common color radar, improved avionics, integrated GPS [Global Positioning System], two HFs [high frequency radios] in each airplane. All of those things are in the plan. All of those things are funded.

GENERAL HATCH: *Thank you, General Kross.*

The next question concerns the 60K loader, which was in your briefing. Do you have enough of those in the force, and how about your procurement in the future?

LT GENERAL KROSS: We have fully funded right now 216 of these 60K loaders. We will award the contract in February, so we haven't purchased any yet. They will come in between now and the turn of the century. But

they are very important to us. We feel that the wartime requirement is even higher, so we will continue to seek out funding to buy the total requirement.

GENERAL HATCH: *The final question for General Kross: What are the Air Force's current plans and projections for March Air Force Base?*

LT GENERAL KROSS: That's a very good question. I hope the person that asked it understands that that is a true Total Force operation down there. As we realign, March will convert into the United States Air Force's first Reserve air mobility wing, almost an air mobility center.

March is very important to us. We will have KC-135s and C-141s there in that Reserve wing.

Also, March is the only base left in southern California. We have a major customer, the First Marine Expeditionary Force down at Camp Pendleton, that must be moved out of March. That is in the mission statement and in the resourcing for what we will be doing at March. That unit is CENTCOM's [Central Command] number one contingency force, so we're going to have our eye on March for a long time.

GENERAL HATCH: *Thanks for being with us today, General Kross. We appreciate all that you do, and we're glad to have you as a guest of the Air Force Association. Thank you very much.*

The Honorable Edward L. Warner, III

19

"The Roles of Airpower in Future U.S. Defense Strategy"

I am happy to have the opportunity to come out here and talk to you today about our view of the role of airpower within the U.S. military strategy as we look out toward the end of the decade and the turn of the century.

Let me talk a little bit about the work we did in the Bottom-Up Review, and I will focus on airpower. Yesterday I had the honor of appearing before a committee of the United States Congress where one congressman was particularly concerned about issues in the Bottom-Up Review and its treatment of the Army. I'm sure I'll get an opportunity to come up and defend its treatment of the Air Force some time soon. So I welcome the chance to get closer to home where I actually might know a thing or two.

As we did the analysis -- and the "we" here is important in the work of the Bottom-Up Review. Within the first few weeks after the members of Mr. Aspin's team began to assemble in the Pentagon -- and, as we hear every day that assembly is still occurring rather gradually -- but as we first came over to begin to take the stewardship of the Department of Defense, it became clear from the outset that we needed to launch a major study to try to chart the course and develop the architecture for where American military forces should go throughout the end of the century. Now, even if Mr. Bush had been re-elected, I think that kind of a re-examination would have been necessary.

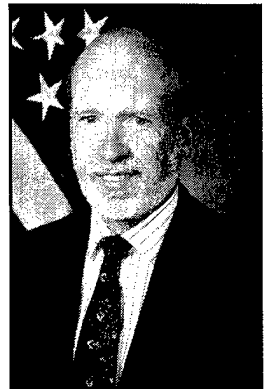
So we undertook a very fundamental review that went from an examination of the international environment, the dangers and opportunities that confront us out there in that disorderly and still very dangerous world, on to the military strategy that we need to pursue in order to protect and advance American interests within the context of that world. And

finally, from that we derived a set of conclusions about the force posture of the United States, the size, character, deployment of our military forces, about our modernization programs, about what we ought to do about the infrastructure of the Department of Defense.

That last point is a very essential one because all of us know that the world, though still dangerous, is somewhat less challenging than it was at the height of the Cold War and at the height of the Soviet threat. We also know that here at home Americans are demanding that America pay very close attention to the character and the future of American economic prosperity, American economic strength.

And so in light of those circumstances, on the issue of infrastructure, just as we downsize our military forces -- and I'll speak a bit about that -- and we become more selective about our modernization, we must also appropriately trim back the infrastructure, whether it be depots, the industrial base, or our entire set of bases and facilities. That whole undergirding of the Department of Defense that grew up during the Cold War. If we don't get an appropriate handle on that infrastructure, we will not be able to afford and sustain the ready military forces that America still needs in order to protect itself in the international environment.

Secretary Aspin is prone to talk about the new international environment in terms of four dangers. They are what he calls regional dangers, and they tend to come in two major flavors, if you will. One set of regional dangers is the dangers of coercion or aggression in key regions of the world where we have vital interests and where the United States has security commitments in order to come to the



aid of friends and allies if they are in danger.

Another dimension of regional dangers that's broken out with real ferocity here within the last couple of years is the question of internal ethnic, religious conflict. These are of the type that we see in the former Yugoslavia; the type that we see in the clan warfare of Somalia; the type we see in many parts of the former Soviet Union. With the end of the Cold War, it's clear that the lid that was on some of this kind of conflict, that the international ideological global struggle helped provide, has now been removed and age-old animosities have broken out. They pose new, serious problems for the international community, for the United States, and they have a specific aspect about the preparations of American military forces.

The second danger is the danger posed by nuclear weapons and other weapons of mass destruction, biological and chemical weapons. That's a danger that has some dimensions both old and new. The old dimension is that the old Soviet Union built up a phenomenal arsenal, tens of thousands of nuclear weapons as well as chemical and biological weapons. With the collapse of the Soviet Union, that legacy, that inheritance, has now passed into the hands of Mr. Yeltsin's government in Russia for the most part; though, as we all know, there are some parts of the nuclear arsenal that are still located outside of Russia; the most neuralgic spot in that regard is obviously Ukraine.

Because we have good relations with Russia today, and with Ukraine and Belarus and Kazakhstan, for that matter, where the other nuclear weapons are located, we are embarked on a cooperative course to assist these nations in dismantling and destroying large portions of that legacy that they have agreed to destroy in international agreements or their own unilateral commitments.

We also, however, cannot be sure what will be the future outlook of the government that rules in Moscow -- Mr. Yeltsin passed a difficult test, I mean a direct challenge to his power, one that he, in part, induced as he sought to move against a recalcitrant parliament just a few weeks ago -- but over the longer term, we cannot be confident of the success of democratic and market reform in

Russia. Given that reality, we must also sustain particularly our nuclear capabilities at a level that, should the revolution in Russia go sour and we face once again a more expansionist or aggressive imperialistic Russia, we still have the capabilities to deter any use of that mass destruction arsenal against us or against our friends and allies.

Now, in the area of the weapons of mass destruction, another challenge that is posed to us is the problem of proliferation -- the continuing effort, particularly by regional bad guys -- part of the regional dangers problem I spoke of a moment ago. Those leaders and their governments tend to be embarked on programs to acquire weapons of mass destruction: chemical, biological and even nuclear weapons. So the United States here is faced with kind of a two-track challenge. On one hand, it must act in concert with others in order to try to stem the flow of such weaponry or the technology to acquire such weaponry. We drew bitter lessons from what we have found out about the programs in Iraq. Western companies were deeply implicated in the extensive Iraqi efforts throughout much of the 1980s to acquire weapons of mass destruction.

So on one hand, we will try to concentrate our efforts to keep these weapons from flowing; but on the other hand, since some of them have already come into the hands of such governments, we must prepare our forces to operate effectively in the face of such weaponry, just as we operated in the face of ballistic missiles and of the existence of chemical weapons in the hands of the Iraqis during Desert Storm just two and a half years ago.

The other dangers that are cited by the Secretary are the dangers generated by the failure of democracy in the former Soviet Union. And this one has a different twist. We have seen an enormous enlargement of the democratic states in the world community, particularly with the fall of communism first in Eastern Europe and then throughout the Soviet Union. But the roots of democracy in these nations run very shallow. The United States is trying to forge at the defense level partnerships with the militaries of these states in order to try to reassure them about the fact that we do not wish them ill, even though we

have been the traditional enemy throughout much of their lifetimes, just as they were the traditional enemy for us throughout many of our lifetimes -- moreover, to try to work with them cooperatively in a variety of ventures, be it peacekeeping, be it the destruction of weapons and the like.

The final danger is one I already alluded to, and it really sets the stage for our entire defense effort -- and that's the danger of American economic stagnation and weakness. The United States has the world's most powerful economy, but it is an economy that has been troubled by massive deficits and slow growth. And the United States' long-term security has to rest on a prosperous economy. Therefore, our defense efforts must be appropriate to the dangers and also appropriate to the resources that the American people are willing to put into defense. And one need only look at the congressional attitudes reflecting American public attitudes to know that those resources are going to be limited. They have been declining in the absolute since the mid-1980s, and it will continue to be a tough fight to get the Congress to legislate, appropriate the monies needed for defense.

Let me turn for just a moment to some of the ways that we address these dangers with an emphasis on the contribution of the Air Force. And, by the way, the contributions of all the services are vital here, but it is clear that this is an era where airpower, the global reach and the global power provided by air and space power are just an inextricable component of American military capability -- and one that we rely on thoroughly to answer virtually any challenge.

In the area of major regional conflict and the deterrents to regional aggression, this Administration has chosen to set a very testing standard. We have said that we believe that the United States in concert with allies should be prepared and able to fight and win two nearly simultaneous major regional conflicts -- conflicts that might occur once again in the Persian Gulf region or might occur on the Korean peninsula, large-scale theater wars gauged specifically to the types of military threats that we could face throughout the end of this century.

Now, the reason we believe we ought to be prepared to deal with two such conflicts is quite simple: if the United States were able to honor its commitments in only one region, we fear that were that region challenged, were we to move to do that defense, this would provide too tempting an opportunity for regional bullies elsewhere to coerce or fall upon their neighbors. So we believe it is appropriate, that it is within America's means, to sustain military capabilities to respond nearly simultaneously -- that is in conflicts that might break out within several weeks of one another -- in a way that, if necessary, we could go and fight and win decisively.

Now, we don't do that because we seek to get into such wars. It is precisely by acquiring and demonstrating such capabilities in peace time that we maximize the chance that such wars will be avoided.

Were such wars to occur, we have found that in a generic sense there are three critical phases -- and let me just underscore the critical role of airpower in those three phases. The opening phase of such a war would be the activity, the necessary actions taken by the United States to bring power to bear very quickly in order to stop the invading army -- an invading army, let us say, from a somewhat reconstituted Iraq against Kuwait and Saudi Arabia or an invading North Korean army coming south against the Republic of Korea. The most critical part of such a war is to be able to halt the invader within the opening weeks of the conflict. If you do so, you avoid the possibility of large-scale early loss that could bring surrender by the victim country or, equally important, even if they choose to fight on, would make the overall war much more difficult, much more costly in terms of men, materiel and almost certainly in terms of casualties.

So we are putting a tremendous amount of emphasis on early arriving combat power to be able to stop the invader fast. And nothing is more important to that early stop than airpower. It is airpower that would bring to the theater virtually all the forces, air and ground forces, that are going to fight early. Sealift can't get you there in the opening weeks of the conflict from the Continental United States. So airlift, and air refueling, brings everybody

to the battle.

Heavy ground forces will go there to man pre-positioned equipment. We cannot haul by airpower large enough amounts of the heavier equipment to make it count. Airpower can bring the lighter divisions virtually in toto.

At least as important, or more important, is that airpower brings the early arriving combat power. Today we would most certainly count, and will in the future count, on long-range bombers to be at the leading edge of our response to theater warfare. B-52s, B-1s and, within the next few years, B-2s will all be leading edge systems. Moreover, we intend to equip those bombers over time with new weapons and munitions. These same weapons and munitions in many cases will also be available to fighter bombers based on land and at sea.

Fighter bombers, of course, would also be deploying from the earliest hours of such a crisis. The jobs they would have to do would be to go to the theater to establish air superiority in the rear area, to allow things to continue to flow in, probably to begin to establish local air superiority over the advancing enemy forces, to help along with the big bombers in attacking those invading forces, and almost certainly in combination to begin to launch selective attacks against critical strategic targets in the enemy rear.

The second phase that we would see after one halts the invader is a phase of several weeks in duration, one that we saw vividly played out as what became the opening stage of Desert Storm. This would be a period in which American forces continue to flow into the theater -- air, ground and naval forces. They would begin now to come by sealift in very large numbers, so we are building up our military capabilities. But at the same time, we would almost certainly launch a sustained air and missile campaign against the enemy to reduce this capacity.

Now, I need not rehearse for you the kinds of capabilities in this case. Many of those capabilities were dramatically demonstrated during the air war in the Persian Gulf -- whether it's electronic air, fighter escort, the use of AWACs, increasingly the use of J-Stars, or other airborne platforms to be able to monitor and guide attacks -- and, finally, the

ground attack capabilities themselves, ranging from the A-10s up to the precision attacks. And this time, of course, the attack was precision guided munitions against the entire war support infrastructure of the enemy as well as the pounding that one would inflict upon those enemy ground forces. The forces near the front, the forces that would seek to move in the rear, would most certainly be designed to do once again, as we did just two and a half years ago, to cut off and to begin to actually destroy the armed forces of the invader.

Finally, the third stage that we would envision would be a stage in which you would launch a combined-arms ground, air and, if necessary, marine amphibious offensive designed now to roll back that enemy from any territory he had captured and to pursue him on into his own territory as necessary in order to decisively defeat him.

Again, in the midst of that battle, a land battle with an air battle overhead, airpower would play a crucial role.

Now, we intend to proceed with a number of important enhancements that directly relate to that model of combined-arms theater campaign. We intend to proceed with enhancements to American airlift, the C-17. Now, the precise answer on the C-17, which has been undergoing defense acquisition reviews throughout the last two months, is beginning to emerge. I know it from what I read in the paper, so my information is as good as yours, but it's clear that ideas are emerging about sustaining at least the early buys of those aircraft and perhaps moving on to further buys, depending on the demonstrated capacity of the producer to do so in a manner that is acceptable and affordable to the United States.

We also, by the way, intend to dramatically improve our sealift capability, which is crucial to bringing the mass, the heavy weight of American ground power, in particular, and sustaining supplies that are necessary for theater warfare.

We intend also to move forward with a variety of advanced weapons and munitions. In particular, we are finally at the edge of fielding anti-armor capabilities of a cluster variety out of the Skeet submunition on the sensor fused weapon and carried in other

types of weapons. This will truly bring a revolutionary advance in our capability to blunt armor heavy offensives by the enemy and to do it very rapidly.

We are also developing new precision weapons where the precision is in the weapon itself rather than in the combination of the weapon and some kind of provision of the accuracy steering from the platform, whether laser or electronically optically guided.

I might say one word here. I know General Horner will be here tomorrow to talk on issues of space. There is no question that American conduct of theater war began to become heavily intertwined with our space-based capability to a new extent during the war in the Gulf, and that pattern of the integration of space-based assets with warfare is only going to increase. The Global Positioning System is as essential for successful warfare today as it is, for that matter, for the successful movement of ships and aircraft into the theater.

Satellite communications are absolutely indispensable. Theater warning is important. The systems that we put up into the sky, into space, years and years ago to warn us of ballistic missile attack by the old Soviet Union have been transformed. They continue to fulfill that job, but we look increasingly like our space-based assets, those kinds of specialized surveillance assets, will be focused on theater warfare to be able to provide warning that attacks are underway with theater ballistic missiles and to be able to cue theater ballistic missile defenses.

By the way, we intend to move forward vigorously in the area of what used to be the Strategic Defense Initiative, now called the Ballistic Missile Defense Initiative. Most of our emphasis is on deployable theater missile defenses, missile defenses on the ground run by the Army, advanced versions of Patriot as well as a new generation of higher altitude interceptors -- for the first time putting ballistic missile defense capabilities onto the Aegis-equipped ships of the Navy, both for lower tier and more distant defense.

And, finally, we are going to look more closely in the months and years ahead at an ascent-phase intercept concept that the Air Force and others are examining, where one

would seek to destroy these missiles either during their boost phase or shortly after their boost phase, not from space but from aerodynamic vehicles, from fighters, from bombers, from UAVs. These are some promising concepts. And, again, space-based warning and tip off of these kinds of attacks is very, very important.

Let me just say a few more words. There're many pieces to the mosaic of the defense program here and its relation to the Air Force. I guess a few words perhaps on that question of deterring weapons of mass destruction, deterring on one hand and preventing their effective use on the other.

In the deterrence area, this means that the United States must sustain its central strategic arsenal even as it draws it down according to the START I treaty. And if we move on to successful implementation, according to the START II agreement, that will take us to much deeper reductions out to the year 2000 and beyond.

Under this kind of a plan, what we're looking toward is still sustaining strategic nuclear retaliatory capability on board bombers, the B-52H and the B-2, and sustaining it on ICBMs, the Minuteman III, which will be by the latter part of the decade downloaded to a single re-entry vehicle if we implement the START II agreement.

We will also sustain our theater nuclear capabilities. And the possible use of these weapons in last resort in theater war is to deter the use of nuclear and possible biological or even chemical weapons by theater aggressors in the years ahead. At this point, both the Army and the Marine Corps have gotten completely out of the theater or tactical nuclear weapon business. Tactical nuclear weapons really are only those delivered by air, primarily by the Air Force or possibly by the Navy, or those that could be delivered by the Navy on sea launched cruise missiles.

The final point I'll touch on is the question of actions against possessors of ballistic missiles, not only through active defense but trying to track down those missiles and their launchers as they're used against us. We saw in the Gulf War that, if the enemy is going to operate theater ballistic missiles from fixed sites, we can relatively rapidly find those

sites, target them and destroy them. But we found the problem of trying to chase his tactical missile launchers was a very, very difficult one. That is an area where we continue to put a lot of emphasis. I don't think we'll ever have a completely satisfactory solution, but if we're going to face that threat, we must be able to draw it down considerably to a greater extent than we did before.

This will require us to use innovative, new operational concepts, concepts that try to detect the launch, backtrack into the area, rapidly bring to bear fighter aircraft with appropriate weapons. The weapon problem is not the problem; the problem is the "finding" problem. The timely location and attack is one of the enduring problems we'll have.

Well, that's not a particularly happy note to conclude the overall presentation. Let me speak a little bit about force strength, not that I think most of you wouldn't already know this.

An important part of the Bottom-Up Review, after we did our assessment on what we need for theater war, what we need for overseas presence, what we need to deal with

weapons of mass destruction and the like, and what we need to do to prepare for peace keeping and peace enforcement operations, the main parameters of Air Force force structure came out as follows:

With regard to fighter wings, the Air Force is going to field by 1999 20 fighter wings, 13 in the active and seven in the reserve.

As far as bombers are concerned, the initial Bottom-Up Review number was a number of around 180 total bombers, B-52H, B-2, B-1. The Air Force, in its programmatic decisions, I think, actually proposed a few less than that -- in the deliberations we've been in right now, right around 170.

As far as tankers and airlift aircraft, we intend to sustain largely the kinds of fleets we have today and make the improvements to the airlift fleet that General Kross spoke about and to sustain the tankers in the years ahead. Both of those are indispensable to a power projection kind of strategy that we're going to pursue.

Well, let me stop at this point. I'd be happy to respond to your questions.

Question & Answer Session

"The Roles of
Airpower in Future
U.S. Defense
Strategy"

25

The Honorable Edward L. Warner, III

GENERAL HATCH: *Thank you very much, Ted. You work in a very interesting and important area to all of us. We're pleased to have you.*

The first question: We know about the strategy report and the Bottom-Up Review, but when will the White House issue its national security strategy document? Is that in the near future?

DR. WARNER: The simple answer is, "Darned if I know." We worked hand in hand. I think they may actually at this point wait until the next cycle. I don't know this, I'm speculating, but the national security document may well come out early next year. The pattern of release for national security documents had tended to be in January, February or the latter part of the winter.

We did our strategy work for the Bottom-Up Review and we submitted that. It was a joint effort between the Joint staff -- the J-5, the plans and strategy part of the Joint staff -- and people in my office in OSD. We sent that over to the people in the NSC [National Security Council]. It was basically the document that had been circulated for further elaboration back in August. It may well be that some time in November they're going to come out with something out of that process, but at this point, they may well wait and issue it in conjunction with of the Secretary of Defense's annual report.

For that matter, the third piece of this troika of defense documents, the National Military Strategy, which is officially put out by the Chairman of the Joint Chiefs of Staff, also is basically on hold because of the transfer between General Powell [Colin Powell, former Chairman of the Joint Chiefs of Staff] and General Shali [General John Shalikashvili, the current Chairman]. It was generally be-

lieved that rather than putting a National Military Strategy out just at the point that General Powell was walking out of the building, they'd wait and give General Shali an opportunity to put his own personal stamp on it.

So all those documents could come out late this year or they may well come out in the early part of next year.

GENERAL HATCH: *Thank you, Ted.*

The second question regards the Bottom-Up Review. The printed publication just came out, and in the rear section the cost numbers were given. Compared to the numbers that the Administration put in the budget for defense for the next five years, it appears that the Bottom-Up Review requires about \$13 billion more. What's going to happen to that \$13 billion?

DR. WARNER: We're going to eat it. It's that simple.

Let's put into context what that number was. In the five years that were covered by the '95-'99 period, which the Bottom-Up Review examined, we're going to spend in then-year dollars between \$245-\$250 billion a year. If you multiply that by five it turns out to be \$1.234 trillion. Now, within that, there was a target to come down from the Bush five-year defense plan that had been inherited. After a lot of complicated puts and takes through many aspects of the defense program and different kinds of cost calculations, the target was \$104 billion less. In the Bottom-Up Review, we came up with and identified \$91 billion. So that difference was \$13 billion. \$13 billion is a lot of money, but of \$1.23 trillion, it's about 1 percent.

When Secretary Aspin testified to the Senate Appropriations Committee, around the 13th or 14th of September, he did note that he

had sent a letter to Mr. Panetta [Leon Panetta, Director of the Office of Management and Budget] saying that over the five years of the FYDP [five year defense plan] we would absorb the \$13 billion difference at a rate of a little less than \$3 billion each year.

GENERAL HATCH: Thank you.

Next question. In your remarks you talked about the importance of space systems, and, indeed, we're out here in space systems country. How will space-based forces and space systems come out in budget share? Will the dollars be there?

DR. WARNER: You would need to talk to the people from the Air Force that have been doing those figures. They might have that kind of calculation.

Space-based systems often are in lots of areas of the world, some of which aren't very visible, so I think it would be difficult to make that calculation.

Let me talk about a couple of things that are relevant to that. During the Bottom-Up Review, we did selective, close examination of some critical modernization programs. One of those was military satellite communications, and at the center of that attention was the MILSTAR satellite program. In the end, when all was said and done, it was decided to proceed with the MILSTAR program. We decided to launch the first two satellites, which are largely built, here in the 1990s, and to launch the next generation of four MILSTAR satellites around the turn of the century. They are basically the same design as the older ones, though with lots of capability and literally ballast put into them in order to make them continue to be flyable at their current configuration. We also decided then to move on to an advanced extra high frequency satellite that would be launched probably somewhere around 2004-2005 and beyond. The new advanced EHF [extra-high frequency] satellite would provide much of the same capability, virtually as good a capability as the earlier MILSTAR but it would be much less heavy. So much less heavy that it could be launched on a medium launch vehicle.

Within the last few weeks in our budgetary considerations now on the '95 to '99 program this fall, we'd been looking with similar intensity at the Follow-on Early

Warning System, or FEWS. The decision on that is not yet made, but there have been a lot of intense examinations. The Defense Support Program, or DSP, is essential for warning of strategic attack and for theater missile warning. We must sustain that system and we must follow it with a new next generation system. But precisely what the decision is going to be, whether to continue with the current FEWS architecture and engineering and manufacturing development effort due to kick off within the next year or two, or whether one might instead do a different kind of design on that system, is still one being closely examined.

GENERAL HATCH: Thank you, Dr. Warner.

The next question regards ballistic missile defense, which you discussed. Will the Department of Defense support a boost phase interceptor program?

DR. WARNER: Well, we have not continued the support of the Brilliant Pebbles concept. It is in technology development but there is no substantial effort trying to bring it forward as an element for either theater or national missile defense.

This is a program that, in the Bottom-Up Review, we said we would spend \$18 billion on over the five years, which is \$3.6 billion per year. We put most of the emphasis on theater defense in the way I've just described.

There has been increased interest and focus on the importance of trying to get missiles again in boost phase. There're a couple of reasons that one is attracted to this. One is they're a nice bright target during the time when the rocket motor is burning, and the second one concerns the dispensing of multiple munitions off the front end of such weapons. If you wait for terminal defenses, you then have multiple targets. Now, these aren't the same MIRVs [Multiple Independently Targeted Reentry Vehicles] we knew of yesterday in terms of high accuracy. I guess eventually they could be that accurate, but, for the shorter-range missiles, they're just to provide a pattern of munitions and to complicate the terminal defense effort.

Given those attractions, I think there is new interest in boost or what sometimes is called, to be more inclusive, ascent phase

intercept. So whether you get it while it's still burning in boost or get it shortly after the burn is over, it's still on the way to its apogee. In either case, we are going to push our efforts. It was specifically noted in the Bottom-Up Review that there would be the exploration of various concepts for that type of intercept from aircraft or from UAVs [Unmanned Aerial Vehicles].

GENERAL HATCH: *A final question for Dr. Warner.*

You discussed a two-point program to counter the proliferation of weapons of mass destruction. This questioner notes that we have now discovered that the Soviet Union had some 45,000 nuclear weapons, well above what we thought they had. How will that affect our policy and plans to counter proliferation?

DR. WARNER: Well, first I should state that in my past incarnations, I spent much of my lifetime as an in-depth student of Soviet military affairs. I don't think we know at all conclusively whether Mr. [Viktor] Mikhailov's [the head of Russia's Ministry of Atomic Energy] estimate that they built and still sustain up to 45,000 weapons is true. Even if it is true, the general estimates that we had from the intelligence and non-intelligence community was 30-33,000 warheads, so we knew they had many tens of thousands.

I think if they have 45,000 what they've done is the all-too-familiar Soviet practice of never throwing anything away. What it would mean is that they kept all of the older generation weapons, never re-worked them and just put them somewhere into storage. If that's the case -- or, listen, if they only have 30,000 --

we've got a big problem. The world community has a big problem. The Russians have a big problem.

Because that country is in such revolutionary circumstances, the real fear one has is that the centralized process of control of the storage of these weapons might at some point break down, particularly if the political order breaks down and some sort of civil violence occurs.

If the older weapons are among those that are still hanging around in the stockpile, in the highly guarded storage sites, you would have an additional problem if they fell into unauthorized hands. These are the weapons that are less likely to have various kinds of permissive action devices that make them difficult to use.

So the bad news is, first, we're not sure how valid that assertion is. Mikhailov is not the most reliable guy in town. But, secondly, we knew we had a big problem anyway. If he's right, and they're older weapons, it just means that, if there ever is a loss of control, the weapons that might be available to who knows whom would be of a type that might be more readily usable.

GENERAL HATCH: *Thank you very much, Dr. Warner, for being with us today. We're pleased to have a man with your talent in the position that you hold today. You're very generous with your time. Dr. Warner has spoken to Air Force Association audiences on many occasions and we're certainly glad to have him here today. Thanks for coming.*

DR. WARNER: Thank you.

General Henry Viccellio, Jr.

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"New Directions in Education and Training"

Thank you. I appreciate that introduction.

President McCoy, ladies and gentlemen, it's good to be with you here today and have an opportunity to talk a little bit by way of follow-up to my earlier comments in February down in Orlando when, as you may recall, those of you that were there, I talked a bit about the vision we had for a new command in the training and education business for our Air Force, some lessons we thought we had uncovered and begun to formulate through our Year of Training effort throughout 1992, and some ideas which were, as I put it at the time, just taxiing out of the chocks.

Well, as of 1 July the new command exists. Those ideas in great measure have become reality now and are up and flying toward the target, if you will.

I wanted to take a few minutes today to share with you some aspects of that reorganization, what it has done to us and for us and with us: for new directions, principal changes from a philosophical point of view about how we want to approach our training and education of our people across the force, both officer and enlisted, and then finish up with perhaps a word or two about the future, some areas in which we'll need your help and can use your help and are depending upon your help as we decide how to train and educate our people and apply technology as we enter the 21st Century.

First of all let me start off by talking about the reorganization. You know, we talk about AETC, a new command, Air Education and Training Command. We like to emphasize that what we did was stood down ATC [Air Training Command] and we stood down Air University and we formed this new command. In reality, you can look at it another way, as the merging of those two, as we bring training

and education programs together more closely. I'll talk a little bit about the "why" of that here in just a moment.

But it has given us sort of a new shape and a new focus. It's a big outfit. I recently had our first commander's conference at Randolph [Air Force Base] just three weeks ago. When I looked at the room full of people that represented our field level commanders, our wing and installation and training center commanders, it really brought home the point that this is big business when you look at the architecture that now exists.

We went from about nine bases up to 17 bases. We have 10 more large training organizations that are tenant, at bases that are operated by another command. We went from around 50,000 people up to nearly 68,000 people in our command. And when you add our students on a daily basis, on any given day there are very close to 90,000 people learning and training and educating on an AETC base or with an AETC organization.

A challenge from a logistics point of view: we moved from our basic six ATC types of training aircraft up to 30 different types, ranging from the C-5 on one end of the spectrum, perhaps, to the Pave Low special operations night specialty kind of helicopter on the other -- a wide variety of hardware that we're attempting to operate and employ effectively in the training mode.

An intermediate level of headquarters is something new to us, when you compare it to the old ATC formulation, Numbered Air Forces, one at Randolph, 19th Air Force, which has responsibility for all the flying training that we do in our command. On the other hand, 2nd Air Force, now headquartered at Keesler, has responsibility for all our technical training and our basic military training



which, as you know, takes place at Lackland, a single source for us.

And then we have Air University, no longer a major command in its own right, but still in charge not only from the point of view of policy formulation, but from the point of view of execution of our education programs.

And now all our pre-commissioning sources outside the Air Force Academy and all of our education programs are under the purview, management and control and operation of this single entity. So in this one new command, AETC, we now have sort of a broad responsibility for the continuum of both initial and continuation skill training and education for all the people in our Air Force. And I think it opens some doors, some opportunity, for us as we get smaller to do a better job than we have in the past, which is our main goal.

Before moving on to new directions, let me just share for a minute that as we reorganize and it creates a command that in its entirety is indeed larger than the two parts that were there before, either of them, I have to point out that we're building down just like the rest of the Air Force.

This year, I had the sad occasion to preside over the closure of three very historic installations in our Air Force -- Chanute, Williams and Mather -- as we closed them down and began making preparations to close down Lowry this coming year. That wasn't easy. It was a sad occasion made more difficult by the memories and the thoughts of the many people that have gone through the training programs that existed for years, in Chanute's case since 1917, at those three installations.

On the other hand, it enabled us to relocate some 40 percent of our resident technical training into four remaining centers that are stronger than ever. We moved training around so that now it's in family groupings, and I think we have it postured to allow us to do a better job in the decades ahead than we ever had in the past, both from the effectiveness point of view and certainly from an efficiency point of view, which, as the chief pointed out a little while ago, is all important.

Well, with that reorganization backdrop as a foundation, let me move for a minute toward some new directions we're taking.

Most of these came from the observations that came to us as we took a zero-based look at our education and training programs in the Year of Training throughout 1992.

The first principal direction, and perhaps the biggest, is that we are attempting to bring all initial skills training that are practical into a single management entity or under a single management umbrella -- and that's the AETC -- and move toward producing a mission-ready product for our customers, the operational warfighting commands. There are six of them for our Air Force.

You know, one of the things we discovered, quite frankly, as we looked at ourselves in 1992 and what we had become over the years in this business, was the fact that our initial skills training -- the training you receive between the time you, if you're an enlisted person, walk in the main gate at Lackland and begin your boot camp until you're ready for that first operational assignment -- had sort of evolved into becoming everybody's business. ATC was busy doing it; Air University was doing some; some was done in the operational commands; some in the functional commands; some through the "functional fiefdoms" -- everyone had a slice of the training pie.

Now, all of these people certainly had a similar goal -- a quality product -- but because the pie was sliced up so much there was no central direction or theme as to how we were doing our business. So one of our central themes through this reorganization and other initiatives is to take what's practical from that hodgepodge of approaches and put it under a single management entity so that we can do it in a more standardized way.

Now, at the same time we're doing this, we're focusing on what kind of a product we want to produce. I guess I can best illustrate what we found that was wrong by using my own personal vignette. As a wing commander at Langley and MacDill a few years ago -- and this is shared by a lot of other commanders -- I found the training business or the training command was, for a lot of reasons, some of which were well beyond their own control, turning out products, officer and enlisted products alike, that were a far cry from being ready for the job when they were assigned to their first operational unit.

Again, my own experience: I remember the F-15 pilots that came out of the training pipeline to me needed 10, 20, 30, maybe as many as 40, additional sorties before I felt comfortable putting them on someone's wing, even in a benign combat environment. And our enlisted situation was even worse. For a large variety of reasons, the predominant one being that we had no operational hardware in our training bases, the folks that came to me supposedly en route to being ready to work on and operate F-15s had never seen an F-15. They'd never seen a piece of test equipment related to an F-15. They had no hands-on experience at all on F-15s and not much book learning on them either.

So to fill those gaps, we created what's known as field training detachments (FTDs) -- and on top of that, consolidated aircraft maintenance training flights at all our operational wings. I had them at my wing. And out of my hide, we basically gave the application type skills to all these airmen coming in through the training pipeline. It was a lousy way of doing business because my job, as was the job of every other operational commander at the time, was to be ready to go to war. And I was spending perhaps as much as a quarter or a third of my time and resources doing initial skills training.

So we've taken a lot of steps to turn that picture around. Whereas a young airman coming out of Lackland would go through a succession of training steps involving initial skills development at one of our training centers, and then perhaps later at one of our FTDs at some base, and then later on at a training unit within his own first operational assignment, now we're taking advantage of the drawdown and forming a training capability within AETC with up-to-date equipment, the same kind of equipment the folks are going to find in the field, so that we can turn them out with hands-on experience on the equipment they're going to operate in their first assignment.

For example, let's take aircraft maintenance. At Sheppard Air Force Base, the traditional approach, as maybe some of you NCOs in the audience will remember, is you go and you get some mock up training and then you might get to go out on the flight line

and work on an F-89 or maybe an F-102. It was one of the most modern airplanes we had at Sheppard for years and years. But today we have 14 F-16s. We have eight F-15s, two C-141s, three KC-135s, and 40 other modern operational aircraft for our people to learn on.

Using this, taking different philosophies toward our training, we will be able to produce an airman who can move into his or her first operational assignment and, without needing a load of additional training, be ready to go to work, albeit at the entry level, with hands-on experience -- an exciting change for us. It will make a big difference in the way our products are able to be used in the field.

A second major direction is to try to standardize how we do this. We found in the Year of Training, as we looked at ourselves, that over the years a hodgepodge of approaches had occurred that produced some career fields that got good initial tech training and skill development. But, unfortunately, we found other AFSCs [Air Force Specialty Codes] that came through the training pipeline and got about half as much as everyone knew, and had identified, was required.

And, finally, we found all too many AFSCs where we were in the business of putting someone through boot camp and then sending him or her out, sort of issuing them to the Air Force, if you will, with no further training -- just hoping, quite frankly, that there was an NCO or officer out there in the field who cared enough to take this new person under his or her wing and teach him a little bit about the job, introduce him to the skills he needed and let him know what kind of standards that we, in the Air Force, expected of him in terms of personal and professional behavior, the kinds of things you need to learn in initial training.

So, again, that's a lousy way of doing business. It didn't serve us very well in our view, so we are making the investment and taking the time to establish our new entry level -- three level, as we call them -- courses for every single specialty in our Air Force. These will be in place by early next year, and we'll be training everyone on sort of a level playing field -- making sure they enter the Air Force with the skills and the attitude, and to start on the kind of character, we need in all

our young airmen. A big step forward for us.

That leads me to the third major change in direction, and that has to do with continuation training -- the kind of training that goes on downstream in a career. Our Year of Training scrub showed us beyond a shadow of a doubt that we had evolved over the years into a sort of philosophy where we gave some initial training to folks, but then we left it up to the on-the-job-training environment to help this person through a subsequent 10, 20, sometimes 30 years of skill development, of promotions, of learning how to be a supervisor, whenever that occurs -- and it occurs sometime in everyone's career -- and we just hoped that kind of worked.

Well, the reality of OJT programs is that they are sort of subservient to local priorities, local commanders. Some of them are good but some of them are not so good.

So we knew that we could, probably through a small investment, make a much better initial supervisor if we picked the right point during that career flow to bring our people back into the formal training environment, sort of a mini-sabbatical, if you will, and expose them to, first of all, a technical update. You know, what's new in dental hygiene; what's new in jet engine repair; what is new in carpentry or the crew chief business; what kind of new technologies are coming along in your career field; what kind of new equipment are we about to field; what are the philosophies of doing your job that we have for your career field?

And then, because that person, at probably the six- to ten-year point, which is when we'll do this, is about to take that step into becoming a supervisor, we'll start to fold in a little bit of leadership and management -- getting them ready to take that step, where now for the first time we need them to be responsible for others' performance as well as their own. A big step forward, I think.

This portion of what we're doing with the year of training is probably the one that's going to take us the longest because we're building these -- we call them craftsmen courses -- or seven level courses. We're building over 200 of them from the ground up, and it's going to take some investment in people, time and money. But I'm glad to say that this

part of our program is well-funded. That funding, although it's not large, has survived three major budget cuts in the last year and a half, and we're on track and off and running. So we're excited about that.

That leads me to the fourth major change in direction, and that has to do with the way we tie our training and education programs together. That's all important. I think I mentioned in February that from one point of view you could say that education teaches someone how to think and training teaches them how to do. Making sure that we cover both sides of that and do it in a synchronized or well-tied-together manner is very important to our people, so we're attempting to do that better than we have in the past.

Now, Air University has always produced good education programs. And Air Training Command, with some exceptions, has traditionally produced some good training programs. They had similar goals, but they were goals that were separate. As we found in looking at this very hard in 1992, our programs were somewhat passing in the night. We had airmen, for example, who rushed off into a lot of educational opportunities and activities early in their career, leaving their skill development to come along a little bit slowly. So soon we had a mid-level journeyman after a year or two or three, or perhaps four, of work with a wall full of diplomas ready to be the chief master sergeant of the Air Force, but not quite there yet in terms of skill capabilities.

On the other hand, we had a lot of folks who were the master craftsmen moving fast along in skill progression, quickly in their careers relative to their peers, reaching a point at which it was time to become a supervisor. And yet, because the education side of the picture had not been pursued with much vigor or attention, they were not quite ready in that regard.

There was a disconnect either way you wanted to look at it. So now we've built a more structured career flow through an enlisted person's career, where things will happen to them in residence at the right time, preparing them for the next step. It ties skill progression, it ties professional military education, it ties promotions all together into one continuum that has a little more logic to it, a little more

timeliness to it. And from the point of view of our training programs, on the one hand, and our education programs, on their other, there is a lot more synchronization. We think it will produce NCOs for us throughout the spectrum of a typical career with a lot more strength and a lot more capability than we've had in the past.

Four major directions -- each in its own right a big change for us. These are the things we are convinced will produce a better force, both on the enlisted and on the officer side.

Now let me talk a little bit about the future and where we're headed, and specifically talk from the point of view of technology and its applications.

First of all, let me talk about our aircraft. The T-3, the Firefly, which is going to be our flight screener. We call it the EFS, the Enhanced Flight Screener program. The first few aircraft have now been constructed. They are being constructed at Hondo, Texas, and we will equip both our squadron at the Air Force Academy in Colorado and the squadron at Hondo that does our screening programs with this aircraft over the next year and a half.

I've flown the aircraft. It is a tremendous improvement over the T-41, which was a nice small, slow aircraft, but we weren't able to do much with it that really physically or emotionally stressed the prospective pilot candidate. We're confident that this new aircraft, which is fully acrobatic -- it can do spins and overhead patterns -- will give us the ability to observe the candidate in an environment which will allow us to spot those who would probably have problems downstream in primary or basic or advanced training. A big step forward for us.

Then the T-1 Jayhawk. The heart of our new ability to move from a one pilot for all seasons kind of philosophy into specialized UPT. We have now seen two classes, almost three classes now, come out of the T-1, and the results are phenomenal. We're training our prospective mobility pilots, tanker and airlift pilots, in the T-1, and we have yet to have a wash out. It is a phenomenal trainer. It is producing great pilots who are doing just as well when they get into the airlift and tanker combat crew training squadrons that follow. And we are really excited about the prospects

of this.

Now, in turn, being able to take our tanker and our airlift pilots through that track, we're now realizing for all practical purposes that we have another new aircraft in our hands, and that's the T-38. Although we've been flying it for over 30 years, now we're able to use it more like the aircraft it was designed for -- and that is, for combat applications for our bomber and fighter pilots. So we're taking the T-38 syllabus and making substantial changes to it, putting in more low level, more formation, much more tactical maneuvering, and starting to bring in attitudes, skills, events, philosophies that fighter pilots and bomber pilots in the past had to wait for until they got to combat crew training. By bringing them into the undergraduate pilot training environment and beginning operational flying experience much earlier, we hope that we'll produce a better product out of our combat crew training -- mission ready people -- in this case mission ready pilots for our operational customers.

Fundamental changes. Fundamental changes in equipment. Fundamental changes in philosophies.

Now, moving into another area that excites us -- simulators. I'm sure there're a lot of folks out here, as in my case, who can remember back a few years painfully sitting there for hour after hour in a Link procedural trainer, which had limited value.

But technology is really helping us take giant steps away from that approach of just limiting the simulator to the training of switch positions and perhaps some procedural activities. The new unit training devices that we have on contract, upgraded simulators that take databases for various parts of information and combine them as we have out at Kirtland in our special ops training simulator, start to approach a point, and we're seeing this, where you can move beyond just procedural familiarity training and start to train in proficiency. Task proficiency.

Now, there will be applications where this is more true than in others, but we see the day not very far off where we'll be able to do things like proficiency checks in simulators, saving our valuable actual flying time to further develop our operational skills.

So a big step forward for us in that regard,

and the potential is enormous as we move into more and more realistic and advanced applications of what's out there today in our flight simulator business.

It's just as exciting when you move out of the simulator and move into the classroom, where we have computer-aided instruction, computer training systems with tremendous potential, although we have some problems there. You're all familiar with the standard kind of approach in that regard. You know, we either have platform instruction -- and believe it or not, we still have some courses in our command in flying training where an instructor stands on a platform 100 percent of the time giving viewgraph instruction to the students.

But on the other side of the spectrum, we've got a wide variety of things in our command. We have the Navy's new T-45 program, which enjoys a bottom-up built, computer-based instruction and academic program which has very interactive capabilities. Unfortunately, we've got a real hodgepodge in between there. I'll go to one base and I'll see that, for our 135 program, we don't have any computer applications as yet. And I'll go to another one where we have two or three different ones with different contractors on the same aircraft on the same base.

So what we need is to figure out how to standardize this. I don't want to standardize it in a way that inhibits the application of very rapidly evolving technology, because it's out there with tremendous potential. But we've got to get away from this particular program being produced and delivered by Contractor A and this other one on the same base, perhaps, by Contractor B.

For example, I visited one of our bases where we were paying three levels of contractors. We were paying one outfit to build a training program and operate it for us. They, in turn, had subcontracted it to the airplane manufacturer who knew where all the wires went and which way was up on the switches. And they, in turn, had subcontracted it to IBM to build the software for the program. Looking at it one way, I think perhaps we've got that reversed. Maybe we ought to have one big contract with the software builders for the whole command and let them go to the

individual airplane manufacturers for the specifics they need to build the program at hand.

I don't know where we'll head in this regard, but we're just getting our hands around where we are today, what we need to focus on. But the capability out there, the potential, is enormous.

You know there are potential applications, and we've seen these developed at Brooks and elsewhere, for teaching such things as cognitive skills. Going beyond procedures and following tech data, you can teach technicians how to think beyond the tech data, understand the philosophy of the testing and evaluation and repair activity in which they are being trained, and move toward a high level of competence at about three times the speed of the old standard training approaches.

The realism of these simulators and the interactive nature of them, I'm convinced, will take us very rapidly into this realm that's popularly called virtual reality. You know, we can imagine, not only in a flight simulator, someone really feeling like they're there -- and I've been there, I can tell you, in a C-5 refueling trainer. You get in there for 10 minutes at 800,000 pounds and you're sweating, I don't care who you are. But we could have a fire fighter right in the middle of what he or she is sure is a real fire. We could have a technician trying to repair a piece of avionics gear in a very realistic shop environment without having to build one from the ground up. Tremendous applications -- and we're going to be moving in that direction.

So lot's of potential here -- new equipment, new technologies -- and we need to aggressively pursue them to move into the 21st Century in a 21st Century manner and get people with viewgraphs off the platform.

Well, that's the run down -- new organization, some new directions and some visions for the future. But it's exciting and we think it's important. You know, this morning the chief talked about being efficient as well as effective in our Air Force, and the importance of that, the imperative of that in today's environment.

Earlier on, we talked about getting smaller. I don't know if the 21st Century Air Force will

be 60 percent or 50 percent the size of all those measures of merit of the Cold War Air Force, but it wouldn't surprise me if that's where we find ourselves. If we're going to be half the size we used to be and still meet America's defense needs, I guess it's not too much of a one liner to say our people have to be twice as good as they ever have been.

We talk about the importance of technology in our Air Force, and while it's no doubt that B-2s are great, it's my observation that we could go out and buy all the additional B-2s that money could buy -- which unfortunately we're finding is not many -- we could produce tens of thousands of laser-guided bombs, but the real factor that's going to make the difference for us in either the global reach or the global power applications of our next-century Air Force is our people. We've got to take these steps -- and for us they're exciting steps -- and make the investment. I'm glad to see that investment is standing tall and holding firm through successive raids on the budget, so that our people in the Air Force in the next century will be the kind we need. And we're confident we can make them that way.

Before opening it up for questions, let me say one additional word. And that is that I sure appreciate being here with the Air Force

Association. You all are great people and this is a great organization. You make a big difference for us. Public awareness of Air Force needs is important to us.

Our recruiters are beginning to struggle out there across the country and around the world. I visit them frequently, and the days of qualified applicants, high school graduates walking in the door saying, "Can you take me?" are over. There's a lot of uncertainty out there. People don't know that we have 30,000 jobs to offer this year. And those that do know are just a little uncertain because of all the things they read in the headlines about whether it's right to embark on an Air Force career today. But you all help to dispel those rumors and get the word out that we do need good people. And those that come in today, I can assure you, are going to be with us for as long as they'd like to stay and perform up to standards.

So I appreciate what you do in the community whence you come. I appreciate what you're doing in terms of legislative support for those things that we know are necessary for a strong Air Force. Great to be with you.

I'm ready for questions. Thank you.

General Henry Viccellio, Jr.

GENERAL HATCH: *Thank you, General Viccellio, for a very comprehensive look at AETC today. We appreciate it.*

A number of questions on JPATS. Would you just give us your perspective on how we're doing and what lies ahead?

GENERAL VICCELLIO: You bet. As everyone knows, JPATS is necessary. We've had a program or a concept or a vision for a long time, and we've had a program for a long time that addresses our imperative to replace the aging T-37 in our primary flying training business, as well as the Navy T-34, with a new primary trainer. The T-34 is not quite as old, but it's aging as well.

Since the new Administration has come in, Mr. Aspin has reaffirmed his direction that the two services will come together and build this airplane. I'm convinced we're going to do it.

There have been a lot of changes to the program. There have been some challenges to the program. There've been some modifications to schedule and modifications to budget. And, of course, a lot of the many contractors who are interested in participating in this competition next year continually come to me saying, "What's going on?" "What does this mean?" "What should I do?" "Why don't you look at this?" "Why don't you think this is important?" et cetera, et cetera. For obvious reasons, that's part of the game, you might say.

But my perspective is that the program is holding together pretty well. I say that as I stand back and look at what has happened to a lot of other programs in the current environment, and in spite of a new Administration, which has come aboard with some very different ideas about acquisition than the former Administration; in spite of some very

aggressive budget reductions; in spite of the fact that we have now opened cockpit opportunities in our Air Force on a much grander scale than before to women; in spite of the fact that we and the Navy now have agreed to move very aggressively toward a joint approach to primary flying training; and in spite of the fact that this new Administration, as expressed recently by Mr. Deutch and our new Secretary as well, may use JPATS as a prototype for new streamlined acquisition procedures.

There are some challenges to it. One issue being considered right now concerns the anthropometric scales of the pilots. It's basically a suggestion, a strong one, to us by the Senate that we modify the aircraft so that we can offer equal percentage opportunity to male and female candidates. We've made some adjustments in that regard, not as much as they asked for, but as much as we feel we can make without major modification to the airplane or a program slow down, with the associated costs. The outcome of those considerations is yet to be determined, but I think we made a strong case back to those who suggested equal 95 percentile opportunity for both genders.

I think the effect of the recent slippage in the R&D money may be to have as much as a six-month slip years from now when we begin to produce numbers of airplanes. I don't think it will affect our current schedule at all to down select to a single source and award this contract in December of next year.

We're looking forward to the fly-off phase of this contract and, boy, we've got some great competitors. I've flown all but one aircraft now. I don't mind saying everything I've flown can do the job. It's going to be exciting to pick the one that can do it best.

GENERAL HATCH: *Thank you, General Viccellio.*

A second question: How do you see our outyear numbers for UPT [undergraduate pilot training]? Are we on a steady plane?

GENERAL VICCELLIO: No, we're not on a steady plane. We're in a very deep bathtub right now. As we look ahead to the size of the Air Force, and particularly the size of our pilot force, we probably need somewhere around 900 active duty UPT graduates a year in the steady state. Right now we're producing and will produce for the next three years only 500 a year. That's driven by some very, very difficult circumstances brought upon us by the rapidity of our force structure reductions.

Basically, we have reduced our force structure our operational cockpits into which we put new pilots, very rapidly. When we do that, we have to keep the folks who by law and by policy need to continue to fly -- the young captains who are out there in the closing units -- in the remaining units. That temporarily reduces, somewhat, our ability to absorb the normal number of UPTs per year into our operational force. So, temporarily, we've been forced to -- and this is about a four or five year bathtub -- come down to training rates around 500. At the same time, as you all know, we've had to resort to such things as putting some pilot graduates in the bank for a couple of years before they come on operational duty. That's something I think we're going to move out of within the next year and a half.

We're still programmed to come back up to around the 900 we'd need beginning about in 1998. Hopefully, we'll be able to sustain that thereafter. We're maintaining the equipment we need to do that. We're maintaining the base structure we need to do that. We're just temporarily parking airplanes, and we have a slower pace than we would normally have.

GENERAL HATCH: *Thank you for that response. I think you answered the next two questions. You said banked pilots would be returning to the cockpit in one and a half years.*

GENERAL VICCELLIO: Let me say another word or two about that.

The problem is still out there. We still

have difficulty absorbing in a normal fashion the UPT graduates at the rate that we're producing them today. We've decided to adopt a good idea from General Fogleman in AMC. Because of the nature of where we can put pilots today, most of our banked pilots are going to be tanker pilots or airlifters in the future. Since most of our banked pilots are going to be bound for that part of the Air Force, instead of putting them in the bank, we'd like to make them third pilots in the tanker business. We're going to start that to the tune of about 50 to 80 graduates this year, fiscal 1994, and continue to do that for about three years.

What that does is take the pilot graduates who otherwise would have gone to the bank for two years or so, and sat somewhere in a supply job or a maintenance job or an engineering job, or perhaps gone to AFA [Air Force Academy] and gotten a degree, and puts them into the mobility world right up front. They will spend less time in the right seat than a full up copilot, but they will spend some time there. They will fly in the navigator's seat, which is timely because AMC right now is suffering from a shortage of navigators on the KC-135. We'll give them some navigator training, we'll give them some pilot training, we'll give them some academic training, and they'll go into this environment and stay there for the two years that they would have been in the bank, learning a lot more about their eventual assignment than they would somewhere in a supply warehouse perhaps.

GENERAL HATCH: *Thank you, General Viccellio.*

You mentioned joint training with the Navy. You mentioned four base closures in AETC. Are your consolidations complete, and are you well matched up with projected training bases and training resources?

GENERAL VICCELLIO: I would say that, if the Bottom-Up Review is the last significant force structure reduction over the next few years, and if we were the only service around, the answer would be yes. You know, we closed two large training centers, and those were big ones at Lowry and Chanute. We also closed two flying bases at Willy [Williams AFB] and Mather, moving our navigator training down to Randolph in the

process. As we look at it, that pretty properly sizes us as a single service.

However, there are lots of other things going on. As a result of Chairman [of the Joint Chiefs of Staff General Colin] Powell's Roles and Missions Report and the analysis that went into that, those of us in all the services in the training business got together. We recognized that if we're going to try to become more efficient and divest ourselves of unneeded infrastructure, we could probably make some darn good decisions collectively that we would never make if we just looked at our own business by ourselves, independently.

For example, let's look at something other than the pilot training business, like jet engine repair. All four services teach people to fix jet engines. Two or three of them teach people to fix the same jet engine. But right now they do that in independent schools at independent bases with independent overheads. There is a much more efficient way to go about that.

So we have developed a process to look at a number of skill training programs in which we train basically the same way and the same kind of skills. We're going to end up training together. We're going to do some of it on Air Force bases, we're going to do some of it on Navy bases, and we're going to do some of it on Army bases. But in the end result, I think we will save on infrastructure costs tremendously.

With respect to pilot training, since we're moving toward a common aircraft, we're going to be moving toward a common primary training program. A single syllabus will be taught at both the Navy primary squadrons and the Air Force primary squadrons. By the time JPATS comes along later in this century, we'll be in a posture where those squadrons are totally joint. Mixed students, mixed IPs [instructor pilots], and rotating commanders. So we could have a primary flying training squadron at NAS [Naval Air Station] Whiting, in the future, commanded by an Air Force lieutenant colonel. Or, perhaps at Reese or Laughlin Air Force Base, we could have a Navy commander in charge of a joint primary training squadron.

We're excited about training together. I think, quite frankly, there is another benefit you don't read about much. Based principally

on my experience on the Joint Staff, in my view, whatever animosities there have been between the services in the past came from a lack of understanding of one another. I'm convinced that if we train more together, we'll learn more about each other, and we'll operate more effectively in a joint warfare situation in the future.

GENERAL HATCH: *Thank you, General Viccellio.*

There are three or four questions here focused on continuing education programs for both officer and enlisted people in the Air Force. Support and dollar funding for those programs have always been high points in the Air Force. Will that continue?

GENERAL VICCELLIO: Let's talk about continuing education for the enlisted force first. I think that's going to increase, if anything. The principal mechanism we use for that is the Community College of the Air Force [CCAF]. Right now we're the only service that has that. It's an accredited institution which recognizes and gives credit for the educational training programs through which we put our young, new airmen. It also gives them college credit toward a 64-hour associate degree in applied sciences with specialties in their particular career field. Now, most people need to augment that with some college study off duty to reach that 64 hours.

In the past, we've stopped there. But over the last year and a half, we've moved aggressively to give that associate degree more real value. Now we have eight universities across the country that will recognize that associate degree, no matter where it was obtained and where the individual was stationed when he or she got the degree, toward nearly one full year off of a four-year bachelor's degree. That's real value and that's the value we like.

Just yesterday, we signed an agreement with the FAA [Federal Aviation Administration] that will allow folks with associate CCAF degrees in the right fields, like aircraft mechanics, to avoid the course work necessary for FAA certification in those areas. The same is happening at Louis and Clark University. It's going to give our associate degree in nursing one year's value toward a three-year bachelor's degree in nursing. So we're beginning to expand the real, tangible value of our

associate degree.

I briefed this just yesterday in Washington to my Navy and Marine and Army counterparts, and they're very excited. It would not surprise me at all if, within a year or so, you'll see a new sign at Maxwell. Where it used to say "Community College of the Air Force," it will say "Community College of the Armed Forces."

For officers, continuing education is a big part of our capability. We've had AFIT [Air Force Institute of Technology] for years. As you can imagine, because of the budget constraints we're under today, a lot of people are asking, "How can we achieve what we need in post graduate education requirements at lower cost?" AFIT is expensive, whether you're talking about the civilian institution or the in-resident part of AFIT.

So we're looking at that from two perspectives. We're looking at it first from the perspective of the requirement. How do we figure out how many master's degrees and how many PhDs we need for our civilian employees? On the one hand, that requirement is going up. The requirement for advanced degrees for our officers, on the other hand, happens to be going down because our force is coming down. So do we need the same kind of institution? Should we manage it differently? We're looking at a range of options. We've got to look at the option of contracting it out. We don't like that, quite frankly, because we see a lot of value of having an in-resident course where, as our students work on their research, their dissertations, and doctoral work, they can work on Air Force problems, and they can do that work in Air Force labs right there at Wright-Patterson [Air Force Base]. That's a tremendous value from our perspective. So before we move away from that and go to a 100 percent contract operation, we would have to think very carefully. We're

doing so.

On the other hand, there are other options. We discovered that there's a big difference in the way the Navy post graduate school works and the way ours works. Basically, we have given almost all DOD students who come to AFIT a free ride. They come and we teach them because we've got the structure and we don't charge tuition. The Navy does. Now, we don't charge our uniformed Air Force students tuition for obvious reasons. But perhaps we ought to take a little more business-like look at the services we're providing to people from other branches of the federal government. So we'll probably take that step in the near future.

We may also look into the possibility of forming AFIT and some other local area universities into a consortium of universities. Together, as a group, they could really attract some research activities, of which we would get a part -- that would pay off to us. We have tremendous research potential there because we have so many students doing engineering post graduate work. There is money in "them there hills," I'll guarantee you, particularly if you become really well recognized.

Another option is to downsize some to reflect the 50 percent or more Air Force downsizing.

Putting all that together, we think the potential is there to reduce the cost to the Air Force budget of the AFIT program we have today. Just like the Chief said this morning, we have to figure out how to reduce the cost of our Air Force. This is a good example.

GENERAL HATCH: *General Viccellio, we're very pleased to have you with us today. You've really given us some excellent insight into where AETC is headed. There are a lot of new initiatives, and we're proud of your leadership. Thanks for being with us today.*

General Charles A. Horner

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"Access to Space -- 1993 and Beyond"

Thank you, Monroe.

Dr. Widnall, ladies and gentlemen, normally when I go around and talk, I talk about the importance of the Follow-on Early Warning System because that's probably the key program for space in supporting the warfighter. I will not talk about it today, but just because I'm not, I don't want you to think it's not near and dear and first and foremost in my heart.

Today I'd like to talk about something else. It's something I talked about last year at this forum. I'm not going to go into the agonizing details of "how horrible our access to space is" like I did last year. In fact, this year I'm going to give you a bad news story and hopefully a good news ending. I'm going to talk about access to space. (Slide 1)

ACCESS TO SPACE

FY93 Launch Story

Moral of the Story

Launch Credibility + Space Cooperation
= Space Leadership

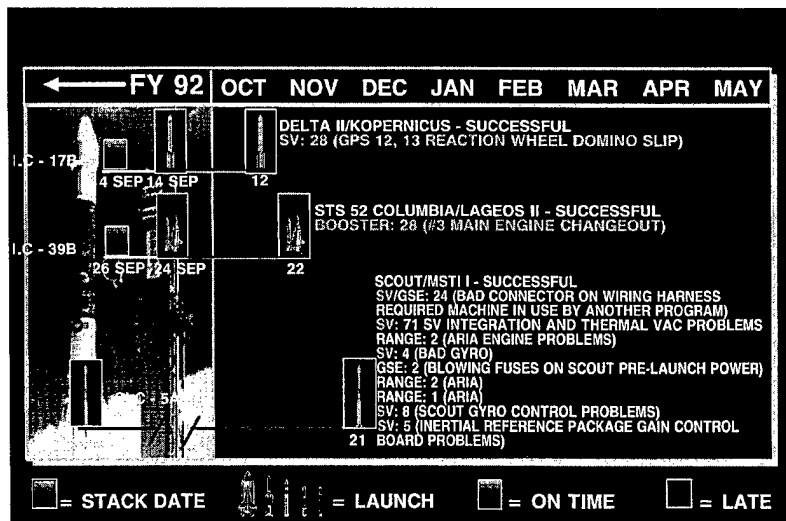
Slide 1

What I'm going to do is sort of give you an annual report. Sort of a Price Waterhouse briefing, so to speak.

When I got to Space Command I found an amazing thing -- or I found a lot of amazing things. One of them was that takeoff time was not important. The trouble is, I had just come from the aircraft culture, 30-40 years in the aircraft culture. When you didn't make your takeoff time, you had to explain to somebody.

And the reason you did that was not to go around punishing people, but in order to identify those processes that were dysfunctional toward getting the mission done -- because it all leads to the time on target, bomb on target, and you need to have discipline and order in what you're doing.

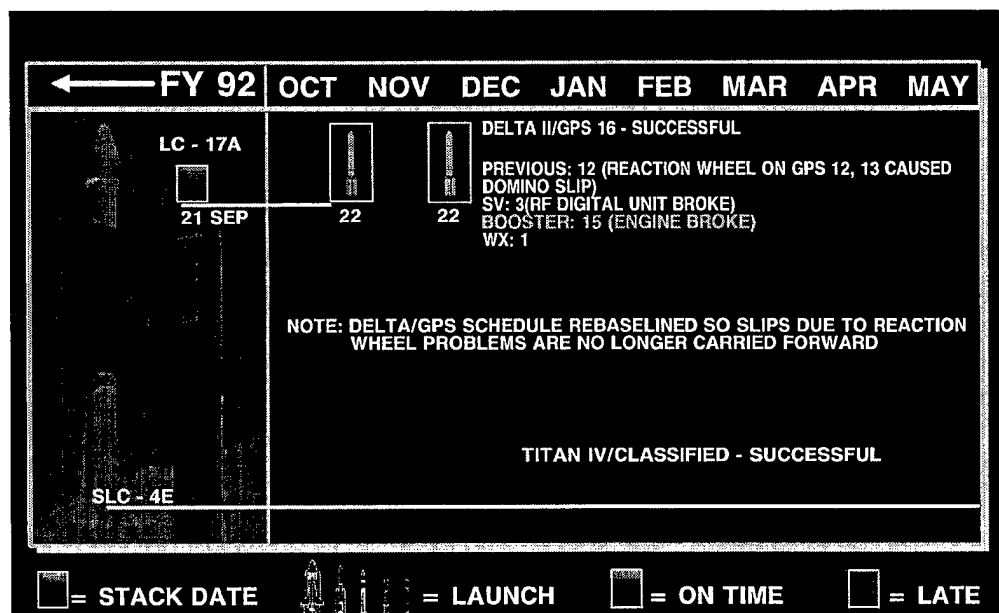
So what I've got here is I'm going to go through our launches in the fiscal year of '93. (Slide 2) For example, the way to read these charts is, everything to the left is something that got started in '92 that probably should have taken off. For example, that first one is a Delta rocket with the German COM satellite in it, Kopernicus. It was successful, meaning it got into space. Now, if you were a fighter wing, and you said, "Okay, our first sortie was successful," the wing commander would throw you out of the room. I mean, it didn't crash on takeoff or the pilot wasn't killed en route to somewhere in the range. But in space we still count our successes. We still cheer when we get a successful launch.



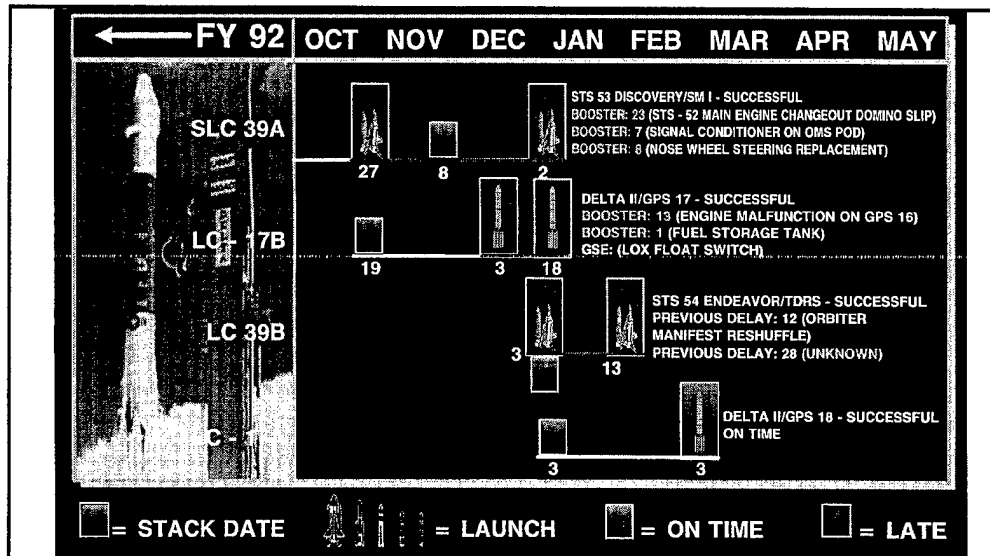
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The next one is Challenger, and it ran about a month late. You'll notice on all the Challengers, with the exception of one, I believe, that they tended to take off late because of engine problems, boosters we call it. Then the next one down here was quite a bit late. It was about six months late. It's an example -- I think a good example -- of the problems that you have when you do an R&D launch. Its payload was MSTI I, which is an SDIO payload, and it had over a hundred days problem, three months plus, with the payload. You can go through there and read it -- I'm not going to read it for you. But I think that is not unreasonable when you have high technology, when you're out there on the pad trying to make things happen -- and I think it's

But this one got off and it was successful. The reason I don't have the dates on there is because they are classified. But I think that's great. That's one of three on the year, and that's the successful one.



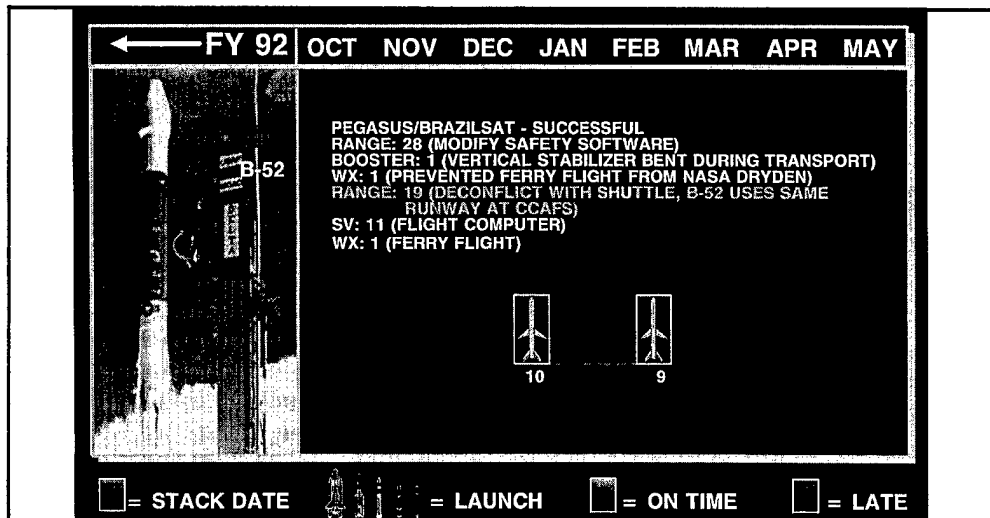
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Slide 4

(Slide 4) Space shuttle. Again, booster problems. Then another GPS launch. And it was late 14 days, two weeks because of engine problems and a problem on the range. And that's my fault when it's a problem on the range.

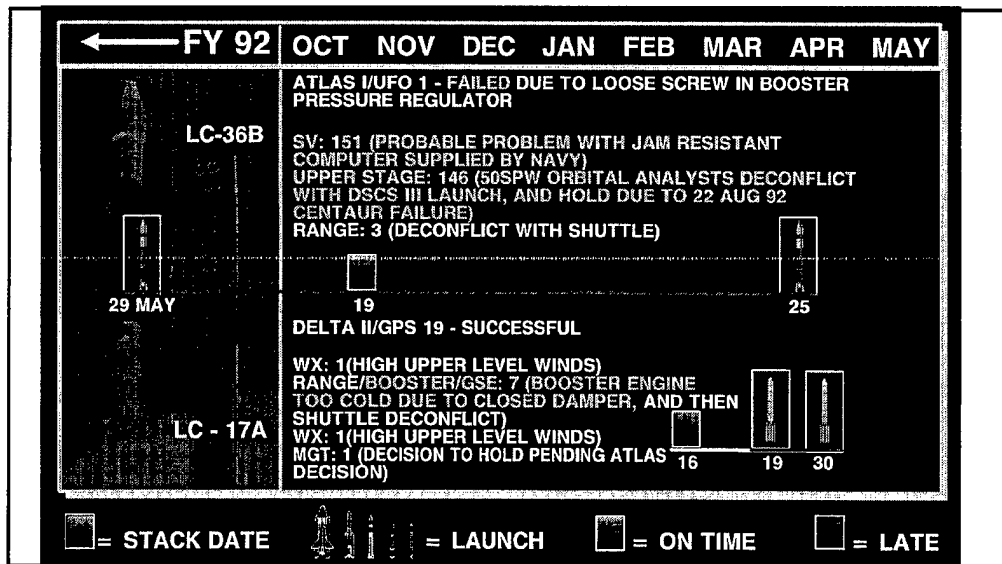
Then space shuttle again. And then you see the first green. You notice how this GPS launch Delta rocket here is on time. That's an on-time takeoff. So in the February-March time frame, we were able to get one on time. I think the Delta GPS, the second one down, is a good example of the domino effect again.



Slide 5

(Slide 5) Now, here's one that is very simple. It's a Pegasus, and it's carrying an environmental satellite for Brazil. It launches off a B-52, but it still has to launch within the range complex to use all the safety and telemetry aspects of the range. And again, its major delay was 19 days for range. So you can see, even though you have something, and you say well, we'll avoid all those range problems, you're not going to. And, of course, the bottom line there is we must bring discipline to the entire system, not just any one system. So it shows the interrelationship. But it got off fairly well.

**U.S. Air Force:
Today & Tomorrow**



Slide 6

(Slide 6) This one was Atlas UFO I -- 151 days for the satellite, 146 days for the upper stage, and then when it got off, it couldn't get enough pressure and it was unsuccessful. Now, you can get mad at the Atlas people if you want to or you can get mad at the satellite people. That would be fine, but it's not going to fix any problems.

And again, to me, the problem with this one is this: when we have an airplane and it doesn't fly for 90 days, we call it a hanger queen. Before we'll let anybody fly that airplane, we take a test pilot out and he flies it to make sure that the wing isn't going to come

off or the engine isn't going to flame up. The problem is, when you have these delays, then you lose track of what's going on. Things get done to the vehicle, things change, people are working on them and not keeping records. It's becoming like changing a tire on a car moving 60 miles an hour -- everything is changing all the time.

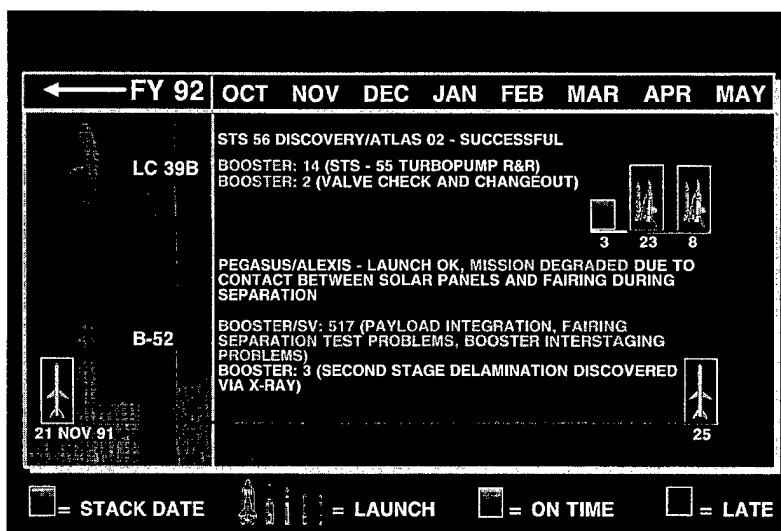
But anytime something is that late, over 300 days, I just don't know how you grab control and keep control.

The next one was a GPS again, and you can see it was fairly much on time.

(Slide 7) The space shuttle, quite frankly, is coming into its own as a pretty reliable system. We can see that they made their takeoff time.

Now, the next one is interesting because it was Pegasus with another kind of R&D launch on it. What happened there was they had some problems with the system. It ran into the fairing and tore off one of the solar panels.

But I think the problem there is that, when we went to examine what went on in this one, we had a lot of trouble because they weren't keeping any records. If an aircraft flies, you go to the forms, and if the forms have been taken out and sent up to wing maintenance, you can go up there and find them -- but you have an audit trail. In our space launch business, when we have problems, there is work by individuals, all very competent, all very

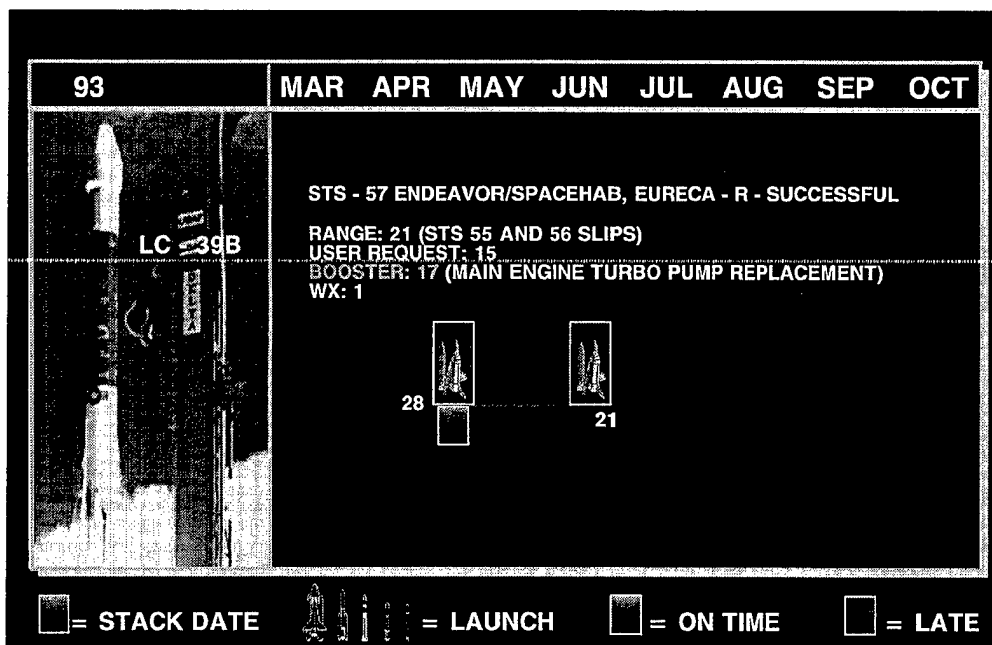


Slide 7

45

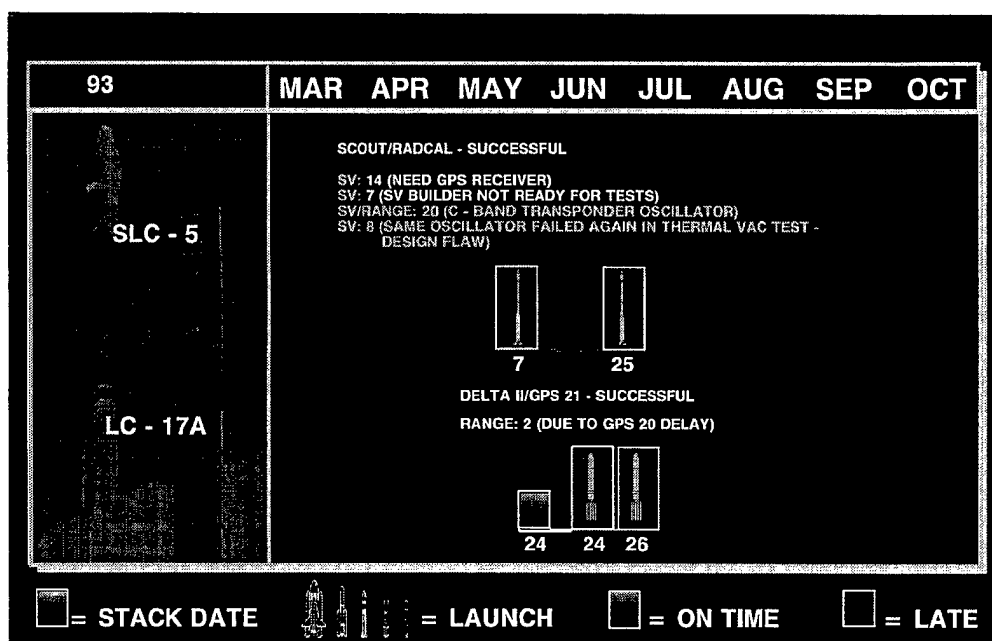


So I think as a matter of principle we need to look at where we can optimize and downsize, because I think it's going to stimulate the business. It certainly is going to make the military reach out and grab more and more space opportunities. So it's a plug for, where possible and where appropriate, downsizing.



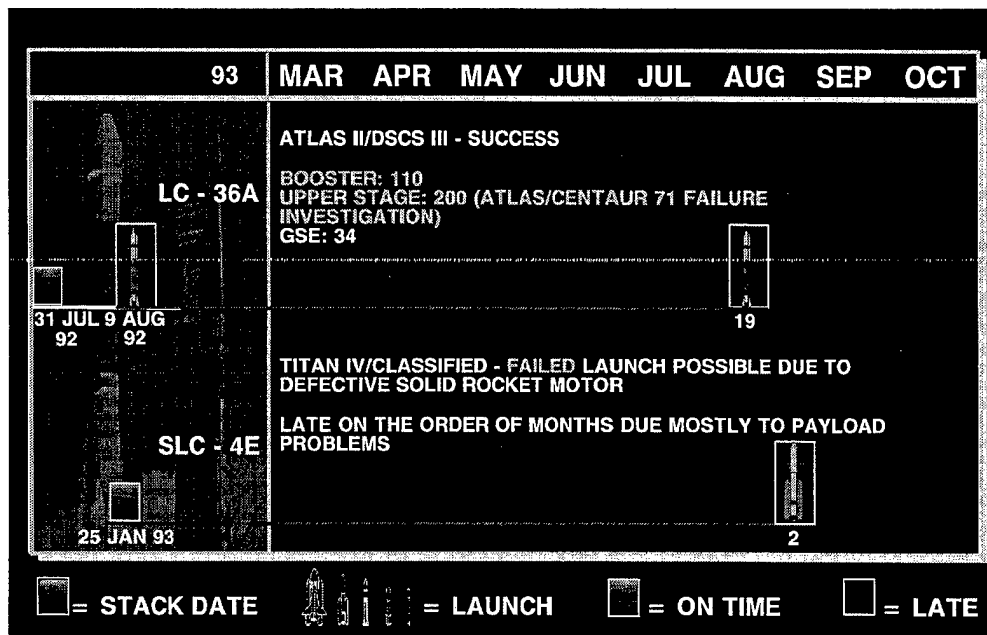
Slide 9

(Slide 9) This is the space shuttle. The range there was probably a slip. I don't know, my records are not that good.



Slide 10

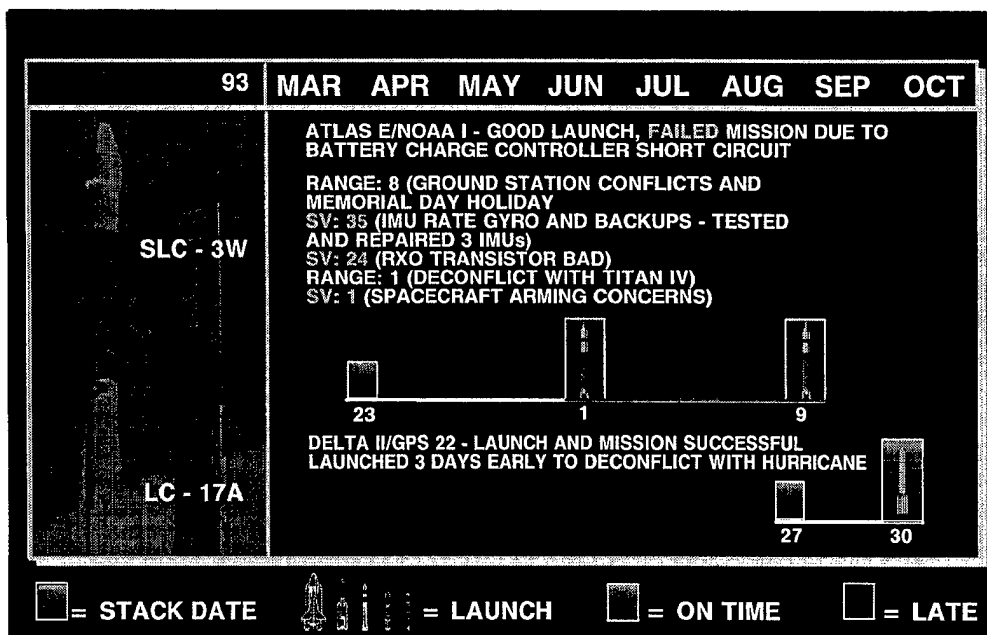
(Slide 10) Another very simple payload, Radcal. Still, it had three weeks delay. And then another GPS, which, again, was two days late. Next.



Slide 11

(Slide 11) This one has to do with the DSCS III on an Atlas. It went well. Now, remember, we did lose a UHF satellite because of an upper stage problem.

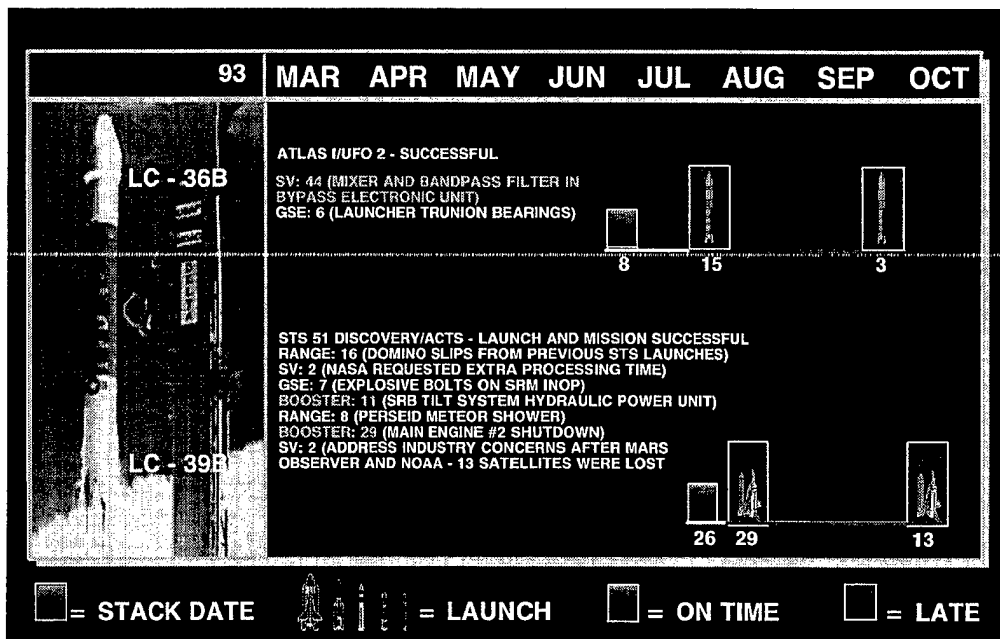
The next one was the Titan that failed off Vandenberg, and it had been late for a long time. Again, I wonder to what extent that one is also exacerbated by the fact that we couldn't make the takeoff time. But I don't think that was the reason for the failure.



Slide 12

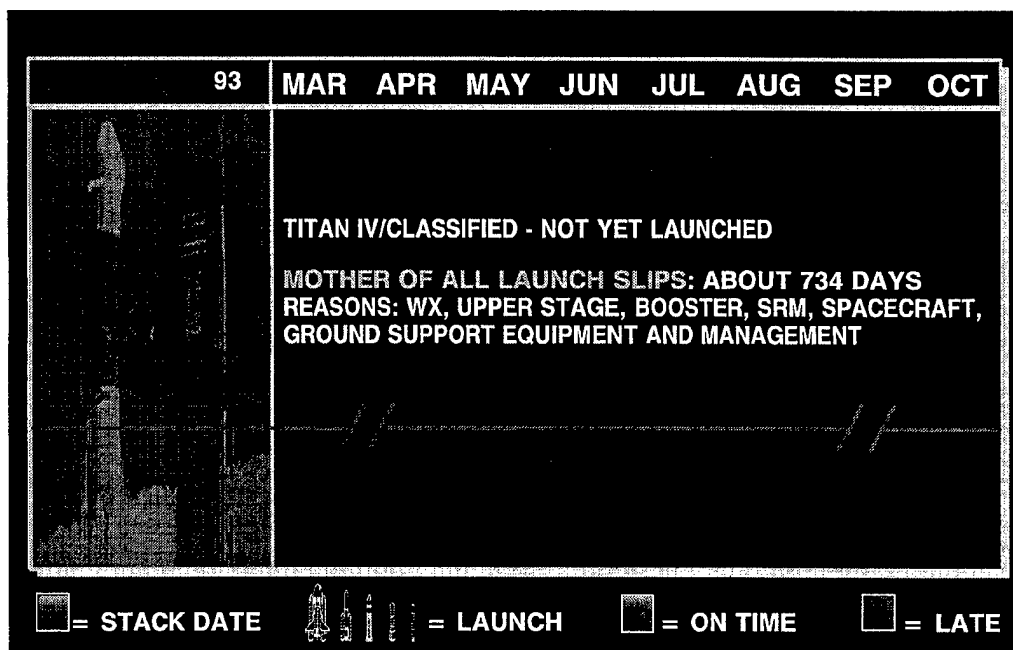
(Slide 12) Here is the one where the satellite -- this was a NOAA satellite that failed in space. It appears not to be a lift problem -- a pure satellite problem.

And then the next one down, there's another on time takeoff for GPS. Next.



Slide 13

(Slide 13) Navy follow-on satellite, late because of primary space vehicle. And then another space shuttle.



Slide 14

(Slide 14) This was one that raised all the eyebrows last year. We call it the mother of all launch slips -- 734 days and counting, with tremendous cost associated with that.

FALLOUT - ALL LAUNCHES

DELAY SOURCE	# DAYS	%
PREVIOUS DELAYS	65	3.3
WEATHER	6	.3
UPPER STAGE	346	17.8
RANGE	178	9.2
BOOSTER	823	42.3
SPACECRAFT	456	23.5
GSE	69	3.6
MANAGEMENT	1	.1
TOTAL	1944	

Slide 15

(Slide 15) Now, it's interesting, I asked the guys to give me a report card on how well they're doing. They said they were doing well. They're 1/10th of one percent of the problem. Now, I'll say the weather -- I understand the weather. And previous delays, that's like higher headquarters, there's not much you can do about it once that happens. But then you look at upper stage, range, booster, spacecraft, and GSE -- that is really the kind of stuff that throws rockets off the ground. And you've got to say that's all management, because those are all influenceable. We stand condemned by our own operations. Next slide.

THE REASONS

We Don't Have Complete
Information About Launches

Slide 16

(Slide 16) The reasons you know, I'm not going to harangue you. This is one of the reasons. We can't really bring discipline to the system because we don't have a good audit trail. Within individual programs it will vary, the quality of the data. A lot of it is that people say they're not having a problem. When they

get to a launch date and they can't make it, they just make a new launch date. And then when they launch on that date, they say, "Well, we got off on time."

So I think what we have to do, first of all, is to recognize that it is important that we launch successfully and on time, because it influences the whole operation, not just our one program. And we need to collect the data and analyze the data and agonize over the data. That will allow us to improve our operations.

THE REASONS

Boosters Are Old and Complex
With No Standard Configuration

Slide 17

(Slide 17) I think everybody agrees with that and that's probably the bottom line of this briefing. Next.

THE REASONS

Individual Parts Suppliers Are Not
Engaged, Not on the Space Team

Slide 18

(Slide 18) This is interesting. When you get into the sub-elements, this is one of the sub-element findings: people produce things for launching satellites or being on satellites and they don't necessarily know that's what they're doing. They're producing a screw or a power supply or a diad, and they don't know that they're part of the space team. It could easily go on an M-1 tank or something.

THE REASONS

We Configure Boosters and
Payloads on the Pad

Slide 19

I think, as we do team building in the space business, we're going to have improvements because of the commitment of the individuals. People do want success. That's why they all cheer when it gets airborne on time. (Slide 19) This is obviously a thing that grew from having to move off the space shuttle. It was a decision that was taken with full knowledge, but I don't think we appreciated the impact of this. And we should seek those things that will lead us to having satellites delivered to the pad ready to launch and interface with the booster. And obviously the competitors tend to do that.

THE REASONS

Space Launch Culture:
Launch Is King
Satellites Are a Mere
Consequence

Slide 20

THE REASONS

Spacecraft Culture:
Satellites Are King
Launches Are a Mere
Consequence

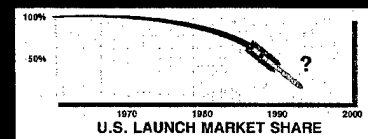
Slide 21

(Slide 20-21) I've got two slides here and you just pick which one you want to be. You have to say whether you're a booster person or a satellite person. Now, I happen to be a space person, so I'm on both teams. The first time I found out that there were two people responsible for the safe and efficient operations of the launch of the satellite, it blew my mind. I said, "Who's in charge of that launch?" And they said, "Well, so and so is in charge of the booster, and so and so is in charge of payload." I said, "Well, who is in charge?" "Well, they both are." I'm going to tell you something: if you go to war with more than one person in command, you're going to lose. If you have more than one in charge, then no one is in charge -- and that's the problem. Next slide.

THE VERY REAL DANGER

ANOTHER EXPORTED INDUSTRY LIKE:

-  AUTO MANUFACTURING
-  CONSUMER ELECTRONICS
-  SHIPBUILDING
-  STEEL



Slide 22

(Slide 22) Well, of course, this is what we face. It's being widely recognized -- and we're starting on the good side of this briefing.

FACING UP TO THE PROBLEMS

OFFICE OF SCIENCE AND TECHNOLOGY POLICY



WHITE HOUSE

- IDENTIFY LAUNCH CUSTOMER NEEDS
- SET NATIONAL LAUNCH CAPABILITY REQUIREMENTS
- CREATE INVESTMENT STRATEGY
- NOMINATE A LEAD AGENCY

Slide 23

(Slide 23) Over in the White House, the science and technology people have recognized it. They're calling for these kinds of things.

FACING UP TO THE PROBLEMS



INDUSTRY

SPACE LAUNCH ADVOCACY GROUP

- REGAIN COMMERCIAL MARKET SHARE
- PROVIDE LOW-COST ACCESS TO SPACE
- NEW GENERATION SPACE LAUNCH CAPABILITY
- SPEAK WITH ONE VOICE FROM INDUSTRY

Slide 24

(Slide 24) Obviously, there has to be gravitation within industry, and that can't be decided by outside influences other than the marketplace. And we are seeing that. I was very pleased to work with a group here, a space launch advocacy group, that is attempting to bring industry as a whole together on this issue and then let them sort out who does what, when and where. But we need one voice.

FACING UP TO THE PROBLEMS



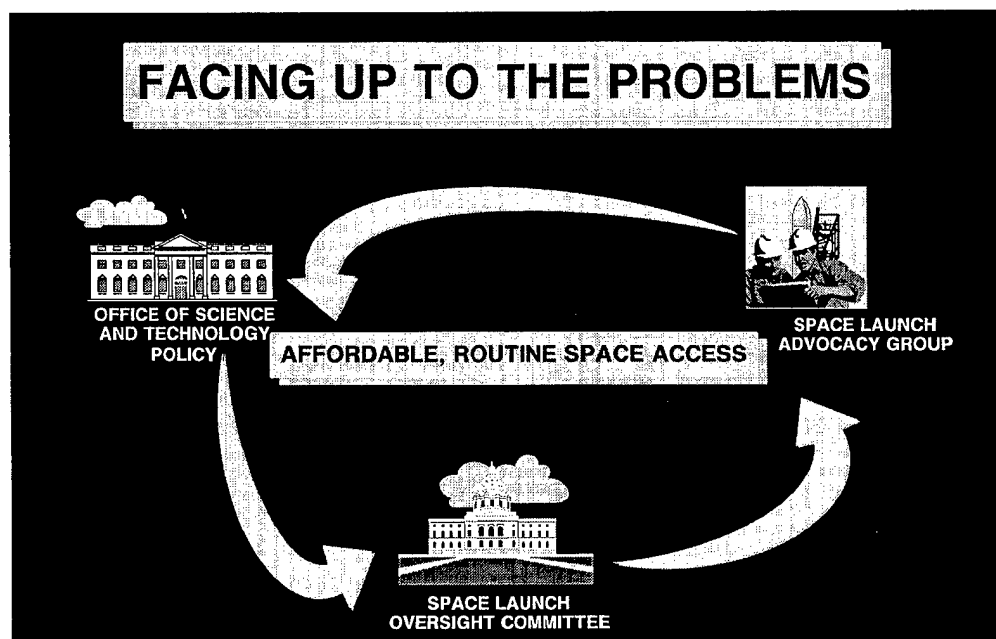
SPACE LAUNCH OVERSIGHT COMMITTEE

- SIMPLE, ROBUST, FORGIVING SYSTEM
- CULTURAL CHANGES REQUIRED
- CUT DOWN LAUNCH PERSONNEL REQUIREMENTS
- DON'T BUILD PAYLOADS ON THE PAD
- WE SHOULD VIEW A LAUNCH AS THE MEANS NOT THE END
- EMPOWER A SPACE LAUNCH CZAR

CONGRESS

Slide 25

(Slide 25) And then, what was very interesting to me was a disparate group of about 20 staffers, who also recognized we have this problem -- and they're working it -- to include the Pete Aldridge idea of a space czar.



Slide 26

(Slide 26) So that's the good news. The good news is that, one year from the last time I gave this kind of briefing, we've come a long way on the national front.

The problem is how we get that leadership cemented in place. I think we've lost a lot of ground just because of the friction of changeover in the Administration. But I think there is a

more widespread appreciation certainly. Dan Goldin [NASA administrator] called the other day and said, "I need to know what your hard core requirements are because we need to speak as one on this."

So the problems we've had in the past have been overtaken by the enormity of the problems we have today, and I look forward to solving this problem in the next few years.
That's it.

**"Access to Space --
1993 and Beyond"**

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General Charles A. Horner

GENERAL HATCH: *Thank you, Chuck. We have a number number of questions. The first one states that many of the launch delays you described for the shuttle and others pertained to booster problems. Have you identified specific booster problems that need to be corrected?*

GENERAL HORNER: I have not. But until we get the kind of data collection and the kind of commitment we need toward on-time takeoff, these problems are going to linger. What you need is someone in charge who is beating on the desk saying, "Guys, get a grip." Obviously the shuttle is a NASA program, not my program. So within the space shuttle program I can't comment. But overall we need to run launch operations like we do our aviation or most any business where you must produce on time.

GENERAL HATCH: *A question from a different corner: going back to your experience in Desert Shield and Desert Storm, can you describe the efforts to provide combat commanders and fighting forces with real time intelligence from space assets?*

GENERAL HORNER: I think we're really making progress. In the sixties and seventies and mid-eighties, we saw this tremendous expansion of the R&D envelope and extraordinary advances, from going to the moon to tremendous progress in all the disciplines where space supports warfighters.

If I was going to characterize where we are now with regard to that development effort, we've leveled off. What we're learning to do is exploit what's already there. We're taking advantage of what is available but not being utilized.

We started an outfit called the Space Warfare Center. It has 13 or 14 separate programs. We've heard about some of them in

which information from space is fed through a series of conduits directly into the cockpit. Pilots can then launch missiles at targets even when the radar is not painting the launching airplane and even if the launching airplane cannot receive the radar signal because it's behind a ridge line.

We see where we've taken the "search" out of search and rescue. I think back to some of the most desperate moments during Desert Storm where we'd have a pilot on the ground and we'd be out looking for him. In some cases, you'd spend six and eight hours trying to locate a guy so you could decide whether you wanted to rescue him or leave him to his fate. Now we know exactly where they are and we can make those kinds of decisions.

The list just goes on and on. We're looking very hard at what it takes to put information that was derived in space into the cockpit, and we're looking at how to exploit all the aspects of that information.

GENERAL HATCH: *Thank you, Chuck. There are a number of questions in the stack about FEWS [Follow-on Early Warning System] and DSP [Defense Support Program]. Could you give us your perspective on the issues surrounding those programs?*

GENERAL HORNER: As you know, there have been a lot of studies and a lot of controversy in the press about DSP and FEWS. The consensus of all the studies that I know about is that that the Defense Support Program served us well in the past and does the strategic mission very well. It is physically impossible, however, for DSP to meet the theater warfare need, the need we discovered in Desert Storm. We have means of making the DSP better, but all of them are bandaid solutions.

So the FEWS program becomes vital if you're thinking in terms of theater warfare,

and supporting soldiers, sailors, airmen and Marines that are in combat.

Then the problem we had was money. How do you get the cost of FEWS down? I'm pleased to say that, as a result of the Bottom-up Review and other pressures like that, the people involved in the early warning system programs have made FEWS probably one of the most, if not the most, attractive options from an economic standpoint.

The question now is how we take this known technology and these economies and bring them to bear. We've had excellent support in the Congress and I think that the program will continue.

GENERAL HATCH: *Thank you, General Horner.*

Related to boost systems, what is the future of single-stage-to-orbit systems, and what would be the Air Force role in those systems?

GENERAL HORNER: The launch problem has generated a lot of very healthy questioning and examination. In the past we've thrown money at studies, and I think people are pretty well studied out.

Where do we get the solution? Well, to me it's a leadership problem. I believe the money can be made available, if not strictly through the Department of Defense or strictly through NASA. As evidenced by the efforts of some in Congress, people are ready to work the problem.

Then within the problem you get the solution. People can have very honest disagreements on the solution because there are pros and cons. I think fundamentally it comes down to three choices. Do you improve what we have? We've done that to a great extent. Do you build a new expendable? Or do you build a reusable?

Single-stage-to-orbit has been a very successful and very intriguing program. There are several corporations, as a result of that effort, or the thinking that went into it, that have come up with some really novel, good ideas.

The pros and cons center on cost. If you can get a single-stage-to-orbit -- a "reusable vehicle" is a better term -- you can probably drive your cost down to about \$300 a pound to low earth orbit. If you go to expendables,

probably the lowest you can get is a factor of three greater than that, maybe \$1,000 a pound. But that's much, much better than the numbers we're working with now. So development of either one of those would be a vast improvement compared to where we are today.

I think the problem people have with the reusable is that many of them got burned with regard to cost estimates on the space shuttle. They're concerned about cost estimates on the reusable. And some things are not known, for example, the durability of the coatings for reentry on a reusable, and how well the engines will hold up. I think all those are legitimate concerns, but it certainly shouldn't keep us from looking into it.

With regard to the expendable, I think there is a lot of experience from, for example, the European Space Agency, to indicate that you can get these operations to work, with their low manpower-intensive, reliability, and on-time takeoff record.

So I'm not going to take sides on the solution. I think my job is to outline the requirements.

GENERAL HATCH: *Thank you, General Horner.*

The next question concerns GPS [Global Positioning System] and speaks to the potential involvement of the Commerce Department in that program. What impact would that have on DOD?

GENERAL HORNER: Morley Safer of *60 Minutes* came out and interviewed me. Everybody was nervous as a long tailed cat in a room full of rocking chairs. What he wanted to do was create a controversy between the civilian users of GPS and the military users of GPS. I couldn't satisfy his need for controversy because I see no divergence. I see no problem. Our government has made a policy decision to provide GPS information to anyone that wants to use it.

There is the ability to distort that signal, particularly in time of war. People say, "Well, you'll never be allowed to distort the signal in time of war." I discount that because of my experience in Desert Storm. When men and women are dying on the battlefield, this nation is not going to have a problem with saying to this commercial, civilian user of GPS, "Next

week don't make any low approaches in fog."

(Laughter.)

With regard to fishing, you're going to find your position within a kilometer or so.

So I don't see the dangers that everybody else does about commercial or civilian use of GPS. I think it's there and it ought to be used and ought to be exploited.

On the other hand, I think right now we're in good shape with regard to having selective availability and being able to distort the signal in time of war, primarily to keep the enemy from using it for precision munitions delivery. There are some aspects of GPS that both sides are going to enjoy, like the navigation side of it. We can't stop that. I don't think that's a critical aspect.

GENERAL HATCH: *Thank you, General Horner.*

GENERAL HORNER: Incidentally, when they couldn't get what they wanted from me, they called Schwarzkopf, who works for CBS, and they said, "We want you to come up here and play the frustrated general about GPS." And he said, "What is it?"

(Laughter.)

Then he called me and I told him and he declined. So the program was supposed to come on last week and it didn't come on.

GENERAL HATCH: *Two more questions.*

This question asks about the use of retired ICBMs for space launch. Could you give us your views on that potential?

GENERAL HORNER: That's a national policy thing. I think we all share the same

views. You would like to see as much advance in our basic research and technology demonstrations as possible, and certainly used ICBMs provide the capability to do that. On the other hand, the space launch industry in this nation is at a crucial crossroads. We have to do that very carefully so we continue to have a viable space industry, and we also must take advantage of the savings for things like universities whenever possible.

GENERAL HATCH: *Thank you, General Horner.*

The final question has to do with NASA/DOD joint programs and the ability to save money through common use of systems. How well are we working with NASA these days?

GENERAL HORNER: I think one of the problems we've had in improving space-lift is divergent views on the requirement. Certainly NASA has an orientation that is different from, say, DOD. I think those divergent views are diminishing rapidly. Certainly I've seen it over the past year working with Dan Goldin. In fact, we've talked at length about making sure that none of our agencies get into dysfunctional conflict on honestly held positions. I'm not accusing anyone, but sometimes you have different interests, so you don't work together. Then when you go to your Congress to talk about, say, national spacelift, and they get all these stories, they kill the whole program. So we need to be careful.

GENERAL HATCH: *Thank you very much for being with us today, General Horner. We appreciate all that you do.*

General Robert L. Rutherford

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"Pacific Perspective"

Thank you very much, General Hatch. I am extremely pleased to be here, and I want to say how nice it is to have AFA to sponsor events like this so that we can get together and talk about some of the very, very significant issues that face us.

Madam Secretary, ladies and gentlemen, it seems to me that one of the things that I need to explain to you is why we've got our forces in the Pacific. If you'll bear with me for a second, I'll talk about that issue and talk about PACAF today and tomorrow.

Obviously, when you start talking about tomorrow, it's difficult to be precise. As a matter of fact, when I left Europe in early 1989, we were beginning to talk about the fall of the Berlin Wall and the demise of the Soviet Union. But I know of very few people who would have predicted that over the next four years we would have forces deployed to areas throughout the world on various missions in places like El Salvador, Panama, the Philippines, Liberia, Kuwait, Iraq, Somalia, Bangladesh, Zaire, Russia, Angola, Cambodia, Bosnia, Macedonia, Haiti, Los Angeles, Hawaii and Guam.

Now, clearly much is changing. One of the most pressing questions, I think, the American people are trying to address is, "How much defense is enough?" Some would answer that by saying, "How much can we afford?" I would say we need to ask, "What is it we want to do with those forces?"

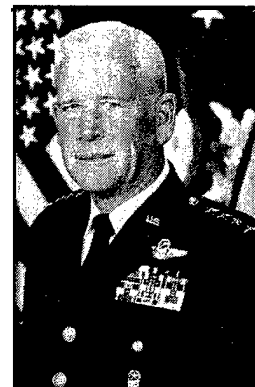
In answering that question, I believe it's instructive to review our national interests, because they really haven't changed as long as I have worn a uniform. We still seek survival as a free and independent nation. We'd like to see a healthy and growing economy. We'd like to have a productive, cooperative relationship with our friends and allies. We'd

like to have a continued development of a stable and secure world that shares our democratic ideals.

Now, what has changed, I believe, is the way we view those interests. Today the American people do not perceive a direct threat to the national security. As a result, many would say, let's withdraw from the international scene as we strive to work out our economic problems at home. But the choice between national security and economic security is a false one, I believe. We are a trading nation -- always have been and always will be. And trade between nations can only flourish and grow in areas void of tension and conflict. In fact, we are the number one trader in the world. Over the past five years, over 75 percent of the growth in our economy has come through trade. In the past 20 years, exports have grown from 10 percent of our GNP to over 20 percent of our GNP. I think beyond a doubt our national security and our well-being are tied to our ability to trade in the world market.

But, before you begin to think I'm an economist in disguise here, let me assure you I have not given up on the profession of arms. I do believe, however, that we need to recognize that national security is now viewed in a different light. National security has always had an economic, a diplomatic and a political dimension, as well as the traditional military concerns. It is the focus, the way we view these elements, that is changing.

I think we also need to recognize that national strategy is shifting from a global to a regional issue, because that's where our interests lie, and that's where the problems will occur. Nowhere more than in the Asian Pacific region is that trend prevalent. The region is immense, encompassing over half



the world's surface and over two-thirds of the world's population -- over 40 countries speaking over a thousand languages and dialects. It is an area of the world where religious and ethnic animosities have spawned centuries of conflict. And for that reason it is home of seven of the world's 10 largest armies.

This is an area of the world that brought us printing before the Gutenberg bible, and that brought us gunpowder before the longbow in Europe. The scientific knowledge of this area astounded Marco Polo, and it sparked the Italian Renaissance.

This is also the area of the world that is our number one trading partner, accounting for 36 percent of all U.S. trade. And that's not only imports. More than 30 percent of our exports are sold there -- three times what we do with Latin America and 50 percent more than we do with Europe. At the current rate, we will do twice as much trade with Asian-Pacific nations by the year 2000 as we do with Europe.

Now, while the U.S. economy grew by a meager 2.1 percent last year, and Germany squeaked ahead at 1.4 percent, the Asian economies surged ahead at 7 percent. Today there are over 800 firms that have business connections in Singapore, and that number is growing.

This is an area of the world that has over 2 billion consumers. This is an area of the world where we have national interests.

Now, should we abandon those interests as we struggle with our economy at home? I think not.

Some would say that the economic miracle in Asia was made possible because of the U.S. security umbrella of the area. I would agree, but I would also point out that it is in our own self-interest that we seek peace and stability in the region -- peace and stability that permit nations to grow in a manner that is supportive of our national interests.

This is a region characterized by open markets and flourishing democracies that support our interests. It is not a region characterized by closed markets and hostile regimes and conflicts. But it could be. Peace and stability in this region are not assured. The history of the region is characterized by ethnic and religious and territorial conflict.

I don't have time to go into the details today, but I would point out that, in my lifetime, we have fought three wars in that region. Those three wars have cost over 250,000 American lives. And there are hot spots out there today. I don't want to give away any secrets now, but if you look at the recent newspaper articles you'll see what I've seen.

In no particular order, there's a border dispute between India and Pakistan, which has spawned three wars in this century. There is the continuing dispute between China and Vietnam over territorial claims. There is a fragile peace in Cambodia. There's the upcoming reversion of Hong Kong to China. There's a hostility between China and Taiwan, which has defied solution for over 40 years. The inability of Japan and Russia to resolve the dispute over the Northern Territories. Tamil rebels fighting for independence in Sri Lanka. And, perhaps most disturbing right now is the development in North Korea.

While some of these hot spots have more potential to turn into full blown conflict than others, any one of them could spread over into the region.

But why, you might ask, should the U.S. be the primary guarantor of security in the region? First, this is a region which has no NATO. Stop for a minute with me and let's be frank. As I travel around the region, I talk to senior leaders and ask them, "What are your concerns?" "What are you troubled with?" "Where do you see your security threat?" And, frankly, they point in all directions. Name me two nations in the region that have a close relationship. I'll give you the first two: Australia and New Zealand. You give me the next two. I think you get my point. The people in the region just do not trust their neighbors.

The second reason we have become a guarantor of security in the region, I think, aside from the fact that we are probably the only nation that's big enough to do the job, is that we are the only one that's trusted with the role. You know, despite our warts, we are still the most trusted nation in the Pacific region.

In the final analysis, I believe, we have U.S. forces deployed in the region because it's in our interest to have them there -- and the nations of the region want us there. But what does it cost? you might ask. Less than 20

percent of the U.S. active duty force is committed to the Pacific Command, and only a quarter of that is forward-deployed. In terms of the Air Force strength, we have 44,000 out of a grand total of about 650,000 if you look at military and civilian strength, or about 4 percent of the Air Force strength is committed to the Pacific.

You also need to consider that we have a very generous burden sharing agreement with Japan and Korea. In fact, it has become cheaper to station troops in Japan than it has in the U.S.

Now, if at this point you have a picture of a region with tremendous potential, an area where we have vital interests, an area which is troubled by centuries of ethnic, religious and territorial conflict, an area where only the U.S. can play the stabilizing role, then I can return to my real persona and talk to you about what the U.S. Air Force is doing in the area.

On a day-to-day basis, PACAF is deployed throughout the area. We are there to show the flag, to demonstrate in a very visible way that the United States is committed to the security of the region. We are there to build on longstanding relationships with our allies. We train with them, we exercise with them. I might point out that those we train with, we exercise with, and equip, history would show we do not fight.

We are also working to build new relationships. And while we're there, we're there to maintain the bases and the war readiness equipment that will be vital to our success in the region, should it ever come to conflict.

If it does come to conflict, let me assure you that PACAF is ready to fight. Our personnel in Korea recognize that if a conflict begins tomorrow, they're going to be the first in the fray -- they're going to have to hold the fort until the cavalry arrives. A little bit more about that later.

This past year, PACAF was involved in 59 exercises throughout the region. We exercised with the air forces of Russia, Indonesia, Malaysia, Thailand, Singapore, South Korea, Japan and Australia. Yes, I did say Russia. [Lt. Gen.] Joe Ralston, [the commander], and his troops from 11th Air Force, along with the Air National Guard, conducted a rescue exercise with Russian forces in Northern Siberia this

past spring. And we will repeat that in Alaska this coming spring.

And while exercises have kept us busy, we have worked hard to expand the relationships in the area by conducting exchange visits and discussions with other countries in the area. Those include India, Mongolia, Bangladesh and the Philippines, among others.

And for the first time in a long, long time, we have the air forces of Southeast Asia talking about a multilateral exercise. It is our hope that, through this exercise program, we'll increase stability by allaying some of the concerns and fears that the nations in the region have. I don't think that's too bad for a force of 44,000, about 400 aircraft, three and a half fighter wings. We're doing a pretty good job, I believe.

I know it's customary in these forums to talk about hardware, what it is we need to do the job. In recent years, the Air Force has done a pretty good job, I think, of improving our capability. However, we can't afford to rest on our laurels. Our ability to influence world events, it seems to me, depends on our ability to airlift forces to an area of conflict.

In the Pacific, we talk about a tyranny of distance. From here [Los Angeles] to Hawaii is four and a half hours. From Hawaii to Guam is nine hours. Eleven hours to Tokyo; 12 hours to Seoul; 14 to Singapore; 15 to Bangkok. It is faster from Hawaii to London than it is to New Delhi at 17 hours. And it's 19 hours of flying time from Hawaii to Diego Garcia. Now, if you want to talk about sailing time, it takes from here to Seoul about two weeks to sail it. I think that's an immense amount of time when you start talking about modern weapons and their capability for intense conflict.

In the Pacific, airlift is not nice to have -- it is absolutely essential. As I look at our airlift fleet now, I am reminded of an old Texas phrase that goes, "Ridden hard and put to bed wet." And our C-141s have been ridden hard and put to bed wet too many times. I think it's time we get on with replacing our 141 fleet, and the C-17 appears to be the answer at this stage of the game.

During the recent decade, we had the luxury of flying the best fighters in the world. It's hard to believe that I flew the F-15 13

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years ago at Kadena [Air Base, Japan] -- and it had been operational for three years at that time. In the ensuing years, I have become more mature, but the F-15 has gotten older.

Now, we still hold a qualitative edge, there's no doubt about that, but as I look around my area of responsibility, I see every air force that you could call an air force equipped with F-15s, F-16s, F-18s, MiG-27s, MiG-29s and Mirage 2000s.

Now, when we talk about an F-15 replacement, we seem to forget that the F-22 is not just around the corner. As a matter of fact, it's more than a decade away in terms of that first squadron -- and that's if the program stays on track. The first lieutenant in that first F-22 squadron is presently in middle school. I know money is tight, but I think it's time we get on with the F-22 program and field it.

All the combat forces in the world aren't worth much unless you can see the battlefield and communicate with those you need to communicate with. And, without a doubt, we need to seek improvements in our secure communications, and programs like J-STARS,

so we can bring that power to bear.

Of course, the real issue, I think, in global reach and global power -- and I can assure you it's that in the Pacific -- is our people. Our people are absolutely the best that I have seen in my 33 years of service. They are of the highest quality. They are dedicated. They're all volunteers. They're there in the Air Force because they want to be.

I believe our Air Force is better than it's ever been. We have a vision of an Air Force that's the most respected in the world. I think it is. The nations in the Pacific region think it is, and we plan to keep it that way.

We plan to remain engaged in the Pacific because our nation learned a long time ago that we can't live alone, that our well-being is dependent upon the well-being of the world community. That's why we're in the Pacific, to maintain balance, to maintain stability, to permit democracies in the region to grow and prosper for their good and ours.

Thanks for your time and attention.

General Robert L. Rutherford

GENERAL HATCH: *Thank you, Skip. That certainly is a good run down. There is so much happening out there. When you mention figures, like the size of the economy, the number of people, and the distances in the Pacific, it's mind boggling.*

You mentioned territorial conflict. A number of questions about the two Koreas. Could you give us your update on the current relations between North and South and your thinking on the issue of nuclear weapons in the North?

GENERAL RUTHERFORD: Sure. I would have been disappointed had that not been the first question.

North Korea has one million men under arms and another six million in reserve. Forty percent of that force is located right up on the DMZ [Demilitarized Zone] and about 75 percent of it is located within 60 miles of the DMZ. Seoul, with 14 million people, is within the range of about 2,000 guns from North Korea. We've never signed a peace agreement between North and South Korea; we have a cease fire agreement.

Add into that a situation where you have North Korea isolated the way they are isolated today. Russia is now dealing with South Korea. China still has some contacts with North Korea. However, there have been recent border disputes which gave rise to gunfire, as a matter of fact.

Kim Il Sung, the Supreme Leader, who is in his eighties right now, said some time ago that he would bring North and South together, reunified within his lifetime. We don't know a lot about Kim Jong Il, his son. There are some who say that he's going to have difficulty maintaining power when his father passes away.

You have a situation where the North

Koreans are having extreme difficulty just feeding their people today. In one of my briefings recently, an intelligence officer brought in a small bowl only partly filled with rice and he said, "That's the daily ration for the North Korean today." They are having trouble getting oil to run their machines. The situation can only grow worse over time.

Now the international community is putting pressure on North Korea in terms of the nuclear issue. North Korea is not responding to the IAEA [International Atomic Energy Agency] the way we would like to see them respond. Right now there are no active discussions going on between North and South and very little discussion going on between the U.S. and the North.

I would say one of two things are going to happen in Korea: it's either going to implode or explode in the future. How far and when remains to be seen. It's a very troubled area and one that we need to watch carefully.

GENERAL HATCH: *Thank you, General Rutherford.*

This next question is about exercises. We all know that after we lost Clark [Air Force Base, Philippines], training ranges were difficult to reach. How are those training issues working out?

GENERAL RUTHERFORD: They're doing great. Up in Alaska we brought Cope Thunder on line. We held Cope Thunder exercises last year and again this year. It is an excellent training area, a lot of space. We do not yet have the instrumentation in Alaska that we had at Clark. We have a program to instrument those ranges up there. If everything goes as planned, it will be fully instrumented and up and operating, very similar to Red Flag by '95.

What we have lost as we've moved to

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Alaska is that close association we had with Southeast Asian and South Asian countries. It was very easy for them to move into Clark and exercise with us. It is much more difficult for them to go to Alaska. So we have worked with those countries. I was up in August at Cope Thunder and watched the Singaporeans. They were up there at the time doing a superb job. But it's not as easy to get the Malaysians, the Thais and the Indonesians up to Alaska. So if we've lost anything, it's the nearness to those countries and our ability to exercise with them.

GENERAL HATCH: *Thank you.*

The next question is about Singapore. You mentioned Singapore in your remarks. Could you comment on our current presence there and the benefits of that presence?

GENERAL RUTHERFORD:

Singapore offered, when it appeared that we were going to be leaving Clark, for us to come in with a small detachment of personnel and conduct training exercises with their people. We presently have 85 people in Singapore. They maintain a small detachment, which allows us to rotate fighter deployments into Singapore. We do that six times a year for one month at a time. We fly dissimilar air combat training missions with the Singapore Air Force, and it's a very, very good relationship.

GENERAL HATCH: *Thank you.*

A specific question: Would you assess the future of Andersen Air Force Base in Guam?

GENERAL RUTHERFORD: As you know, recently the BRAC [Base Realignment and Closure Commission] decided to close Agana on the island of Guam and move the Navy operations up to Andersen. Today, between the Air Force and the Navy, we probably have about 3,500 personnel on the island of Guam. It is important that we maintain a military presence, maintain Andersen Air Force Base on Guam. As I mentioned to you earlier, it is nine hours from Hickam [Air Force Base, Hawaii] to Guam. If you want to have influence in that part of the world, then you need a place to be able to operate from, and the last U.S. Territory in that area is, of course, Guam.

GENERAL HATCH: *Thank you, General Rutherford.*

A question on Japan and its FSX fighter effort. How is that program proceeding?

GENERAL RUTHERFORD: I think it's moving slower than the Japanese might have liked a few years ago, but it is progressing. I think we need to recognize that the FSX does not represent a major challenge as far as exports are concerned. The Japanese are prohibited from selling arms produced in Japan outside of the country. They are using it as a technology demonstrator, and they will produce a fine airplane -- there's no doubt in my mind. But it's not going to be out there competing with our equipment, as I said.

GENERAL HATCH: *Thank you.*

The next question is an organizational one about composite wings. You've got the greatest history of a composite wing in Kadena [Air Base, Japan]. How does it work?

GENERAL RUTHERFORD: It works great. I will tell you we also have another one. Elmendorf in Alaska comes pretty close. We've got C-130s located there. We've got AWACS [Airborne Warning and Control System] there. We've got F-15Es located at Elmendorf. We've got F-15Cs at Elmendorf. So it's as close to a composite wing as Kadena.

I think the reorganization has allowed us to streamline our operation, but it has also brought the forces a lot closer together. We've got airlifters talking to AWACS people now about how to ingress and egress an area. We're working much, much better together. At the same time, I would tell you that Kadena and Elmendorf are big, big operations. They are management challenges. Those wing commanders out there are busy. When I was the wing commander at Kadena, I had a complete air division staff above me that worried about maintaining the base. I also had a full complement of colonels, as well as the three colonels I had working for me in operations and logistics and as a vice commander. Today, in addition, there is another wing on the other side of the base taking care of the KC-135 operations. Today all that is handled by one small wing staff. In the case of Kadena, it's five colonels and a wing commander, a brigadier general. So we're getting our money's worth out of them.

GENERAL HATCH: *Thank you, Skip.*

A final question talks about the great

distances that you discussed and the wide area you cover. You have a lot of joint operations with the Navy in that area, as well as with the Army in Korea. How are we doing in joint operations in training?

GENERAL RUTHERFORD: You're getting to the point where you do not exercise unless you exercise jointly. We're that close in the Pacific region right now. It's absolutely essential that, as we draw down the force, we capitalize on everybody's strength. No longer can we have one service going in alone. The Navy would tell you that, even though tradi-

tionally the Pacific has been the domain of the Navy, they need an Air Force out there, and they need it bad. I think we're working very well together in the Pacific. Don't misunderstand me, I think we can work better together, but I think we're taking the right steps to have a truly joint operation out there.

GENERAL HATCH: *Thank you very much for being with us today, General Rutherford. You've got a big set of responsibilities in the Pacific and we're proud of what you do. Thanks for being with AFA today.*

"Readiness in the Balance"

I would be remiss to all our great people in Air Combat Command if I didn't take this opportunity to brag about them a little bit -- and brag about our Combat Command's role in Vice President Gore's reinventing government work. In the National Performance Review, and in his public appearances, the Vice President has been citing our command as "one of Washington's most promising reinvention stories." To us in the command, that's no big surprise. We've been at it a long, long time. We're a big organization, a quarter of a million people strong and spread from ocean to ocean on 45 big bases. We manage big, but we operate very small.

Today, Air Combat Command has 562 squadrons -- not just operational squadrons, but all squadrons. In every one of them, you'll find dedicated people measuring their performance and their products with output- and outcome-oriented measures, competing together against tough Air Combat Command standards -- 166 outcome-oriented standards among them.

They are showing us smarter, faster and less expensive ways to do hundreds and thousands of things. This year alone, we will save \$60 million by allowing our people to repair parts in-house that we would otherwise have thrown away as an expendable items or [would] have had to send back to a depot. This initiative -- which we called Gold Flag -- helped our people cut through the layers of bureaucracy and put their best ideas to work, and it's working. We have seen as many as four out of five of those ideas approved at the base level and implemented at our wings at these brainstorming sessions.

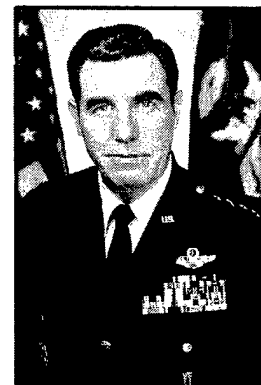
They have found ways to use PCs and inexpensive electronics to run diagnostic tests on the circuit boards that make up the guts of

our high-tech equipment. At Davis-Monthan [Air Force Base, Ariz.], our maintainers are now using in-house diagnostics to repair a \$2,100 item of test equipment for the A-10 for \$15.

At Moody [Air Force Base, Ga.], maintainers did a little research and learned that they could have their "unfixable" F-16 UHF antennas repaired if they sent them back to the original manufacturer. It cost them a little more than \$300 a piece to repair one of these, and they've repaired 16 of them in the last six months. It would have cost them more than \$34,000 -- \$2,100 a piece -- if they had had to buy replacements. That's a seven-to-one return on their investment.

People at different wings are talking to each other now, sharing ideas and expertise in solving common problems. Our B-1 wings at McConnell [Air Force Base, Kan.] and Ellsworth [Air Force Base, S.D.] worked together to find a way to fix an \$8,000 navigation light cheaply on the B-1 that we would have been forced to replace in the past. So thanks to these people and others like them around the command, we saved \$11 million doing just this little sort of thing in the last fiscal quarter alone. That's the mark of a quality organization. By decentralizing, pushing responsibility, authority and accountability together down to the squadron level, and building ownership, we've created an organization where ownership and empowerment are facts of life.

I ask you to visit any of our 35 wings in Air Combat Command, and you will find people benchmarking -- comparing their products to the best in the business. In fact, we benchmarked in our mail delivery with Federal Express. We benchmarked in our pharmacies against Wal-Mart and other large commercial



pharmaceutical firms. In flying, of course, we benchmark ourselves against our counterparts across the command and in other parts of the Air Force.

We support our people with intensive training -- intensive job skills training as well as quality improvement training. We're improving training in every one of our specialties, not just those in the critical combat skills, to ensure that all of us are ready to participate in empowerment and ownership. We call it "training to trust."

Now, we tie all these things together with leadership that is committed to building trust and teamwork, and that keeps everyone focused on continuous measurable improvement. So yes, I am proud of our Air Combat Command and our bright and motivated young people, and I'm not ashamed to tell anyone who will listen. What makes this even more remarkable is that ACC people are doing all these things despite a 50 percent reduction in our combat Air Force.

You may have seen stories claiming that we're drawing down 30 percent or 40 percent. The fact is, we are drawing down our combat air forces 50 percent since 1988. We have closed, or are in the process of closing, in our command alone, 13 bases. We've already closed six of them. Five years ago, we had 38 fighter wing equivalents. By the time the drawdown is finished in just a few short years, we will have 20. Five years ago, we had 372 operational bombers. By the time the drawdown is through, we'll have less than half of that.

I've tried to find measures to measure our tooth-to-tail ratio or our efficiency like any smart business would do. When we were in the early stages of cutting back the force structure, we had a little more than 3,800 active operational aircraft -- fighters, bombers, airlifters, tankers and the like -- and slightly fewer than 840,000 military and civilian people in the Department of the Air Force. Simple arithmetic will show that back in 1988, that gave us a ratio of 220 people to every aircraft in the operational inventory. By next year, our active Air Force will be down to 2,231 operational aircraft and 620,290 people. That will give us a ratio of 278 people per aircraft, increasing our tail-to-teeth ratio by 26 percent.

I use that number sometimes; and people rationalize, and some will argue that, even with a reduced operating force, overhead and indirect [costs] cannot be reduced by the same percent. Not so. You in the private sector do it very well.

An excellent example is General Electric. We do big business with General Electric Engines at Evendale, [Ohio,] and Lynn, [Mass.]. And, like us, they have been forced to downsize significantly -- from 39,000 people in 1988 to 22,000 in 1994, a 44 percent reduction which is equivalent to what we have done. And their sales have gone from \$7.7 billion in 1991 down to \$5.7 billion in 1994. But look what's happened to their tooth-to-tail ratio. In 1988, G.E. had \$6.4 million in sales which simple arithmetic will tell you comes out to sales of \$166,000 per employee. In 1994, they will generate \$259,000 per employee -- an increase in the tooth-to-tail ratio by 56 percent. So it can be done. Augustine's Law doesn't always apply. It says when production goes up, overhead goes up, and when production goes down, overhead still goes up. When production goes down, overhead must also come down. How did G.E. do it? By downsizing, closing facilities, process improvements, manufacturing technology improvements and embracing more technologies. So indirect operating costs can and must be cut more significantly while the operating base is reduced, if we profess to be an efficient and streamlined Air Force.

The rationale behind our drawdown is sound. Five years ago, we were still worried about a potential World War III. Today we have a completely different world with a much less intimidating threat. Frankly, in our attempts to meet the budgets levied on us, we cut the teeth of our Air Force, our combat capability, down severely while cutting the tail, the support and infrastructure that supports it, too little. As a result of that, it is now out of balance.

It's no secret why this has happened. We've started with the easy part, and that's cutting our overseas bases, which is easy, and cutting our stateside bases that only have operational forces and military folks on them. That's easy because it doesn't involve displacing a large number of civilians. By

contrast, many of our support bases are major regional civilian employers, and it's much tougher to go after that part of the Air Force. So we've made all the relatively easy cuts. It's time now to tackle the tough ones. We need to get down to the business of bringing the tooth-to-tail ratio back into balance.

Now, General Hatch asked me to talk about some aspects of my job today that kind of keep me awake at night. I don't lose sleep over much of anything, but there are two areas that are challenging for me. The first is finding the right match between the force structure that the budget has forced us to live with and the strategy that I am required to fulfill as the commander of Air Combat Command. My preliminary analysis shows that the task that we've been given -- providing trained and combat-ready forces to prosecute two major regional contingencies nearly simultaneously, and win them quickly, decisively, with few casualties (those are the precise words in the defense planning guidance) -- will be difficult, given the force structure that I have.

A great deal will depend on the size and circumstances of these two conflicts, and what we mean by the words "nearly simultaneous" will be a key factor. From the work our war planners have done so far, it appears that this will be a tough proposition.

If, for example, we were to go first to fight one war in the Pacific with the forces the Bottom-Up Review describes as needed for one regional contingency, and then something started somewhere else, possibly in the Middle East, we would have to swing forces from one conflict to the other. We know we'll need to move the precision fighters, the stealth fighters, and a whole flock of bombers from one operation to the other right away. If we do that, can we still win quickly, decisively, with few casualties in the first fight? If we do that, can we get to the second conflict fast enough and with enough firepower before our allies are overwhelmed? We need to study these situations, ask these tough questions.

I am doing that now, and from my preliminary analysis, what I am finding out is there is great value and leverage and importance to precision-guided weapons on the aircraft that can employ them, such as the F-111, the F-15E and the F-117, and it's

showing the tremendous value of bombers -- lots of them -- because they have great leverage to swing from one theater to another. I say we need 180 bombers with their great range, firepower and immediacy. That means upgrading them with precision capability on the B-1 and providing the weapons system we call JDAM [joint direct attack munition] to all of our bombers and our precision fighters. How we handle it all boils down, in my view, to the size of these conflicts and the simultaneity of them.

And we have to tighten the parameters around which we declare that we can do this very difficult mission. That's what we're doing.

That's one concern. The other is maintaining operational readiness in order to have my forces -- active, Guard and Reserve -- ready to prosecute a major regional contingency in the face of continued downward pressure on the defense budget, even as we speak today, on operations and maintenance.

A layman looking at Air Combat Command today would be very impressed. The average mission capable rate for our fighter wings, for example, is steady at around 85 percent -- exceeding our standard in nearly every case. But what a layman would not see is how hard those fighter wings struggle to maintain that rate. Let me tell you about a few of the problems they face.

Today our wings can barely keep an adequate supply of F-100 engines on hand. These are the engines that power a large number of our F-15s and F-16s. That's because there's a backlog of about 1,000 reparable modules at the depot. That backlog stems from two things: First, we're buying insufficient spares, and second, for some reason, when my wings pay a dollar for repairs, they only get 65-cents-worth in return. Now, maybe somebody here can explain this phenomenon to me. I think the problem has something to do with the stories we've seen in the press about the services having too much inventory. That may be the case for some of our ordinary commodities, but I know it is not the case for our F-100 engine modules or any other parts of our high-tech aircraft in the Air Force.

Last week, I visited the 33rd Wing at Eglin [Air Force Base, Fla.], an F-15 wing. I can tell you, right now, because of this backlog, if you were to go down to Eglin and count the number of engines on aircraft, you would find seven bays that don't have engines. But you won't find any engine cavities in those that are operationally flying. That's because my people are cross-cannibalizing their aircraft. They're taking engines off the planes that are going into phase maintenance, and they are continuing to fly and maintain the mission capable standards that we have set for them. But this causes a lot of extra work for our young men and women out on the flight line. They are compensating for the fact that we don't have enough engines at our bases because of the 65 percent restriction.

If we don't resolve this problem now, in two years -- the normal lead time for engines and engine modules -- we will be beyond the point of being able to compensate. Those seven holes will grow into large numbers of highly visible, non-flying aircraft everywhere.

A smaller but critical readiness situation looms with our Gulf War hero, the F-117. The mission-capable rate for the F-117 is below the ACC standard right now. Again, this fleet will continue to deteriorate in terms of readiness because we're not funding the logistics support adequately to maintain it at the high standards we have set for it.

Lastly, when the Gulf War kicked off, we took parts, and in some cases whole aircraft, from one of the three squadrons that comprised a wing to ensure that the other two squadrons could meet the short-notice requirements to deploy. That left the wing with one squadron on station at perhaps 50 to 60 percent of its operational capability, not 100 percent. With the reduced force structure I have today, all three of those squadrons need to be at 100 percent in terms of spares, parts and crews in order to do what they are challenged to do. The spares and repair kits need to be fully stocked and ready to go to war. They are today for the most part and I am not complaining about that, but like anything else, we can't put this on autopilot.

We have been able to work around our challenges today. But this problem will grow worse if we don't address it now. If left

untended, if we put it on autopilot, in a few years the words hollow force may ring out. Those are the two subjects, the two challenges, that I spend a lot of time thinking about these days. We're working on both of them, and I believe we can handle both of them adequately if we keep adequate budgets and we understand what our challenges are in meeting two major regional contingencies.

I've got a few more minutes, so before I relinquish the podium, I've been thinking a lot about this JAST program -- the Joint Advanced Strike Technology program -- because I am a customer for the product for JAST. We need to define this program and its goals and what tangible products it will produce. If we don't define tangible products for it to produce, based on my experience, it has the potential to become a perpetual unfocused technology hobby shop that perpetually explores ideas and technical thoughts but produces little of value at the end of the day. JAST needs to deliver products to customers. To do that, we need to decide what JAST is up front.

Is it an advanced technology demonstrator program like our initial stealth flying testbed or X airframe that pushes the technology envelope and enables us to proceed in building a new set of technologies for the future that we can enable later? Or should it take existing technology, like the technology we developed through our \$40 billion investment in research and development for the F-22 and the B-2, and find other applications for them -- in other words, advanced operational prototypes or advanced technology demonstrators? That's what we need to decide.

I believe, if possible, it should do both, but concentrate on the latter first. We need to continue to develop advanced technology demonstrators to ensure we can build the fighters of the future, but we should take the technologies our past \$40 billion investments that the F-22 and B-2 brought us and apply them in other applications beyond 20 B-2s and 450 F-22s.

If we were to concentrate our efforts on building advanced operational prototypes from what we already learned from the F-22 and B-2 technologies, we could have them flying as

prototypes by the end of the decade. This would allow us to use the major subsystems developed in these prototypes to produce three new products or variants in the end: an F-16 replacement for the Air Force, an A-6 and an F-18 replacement for the Navy, and -- I believe by deleting the sensitive technologies we could develop a third variant -- an export fighter to compete with the Mirage and MIGs when the export fighter market turns over in around 2010. At the same time, in the JAST program, we need to use the advanced technology demonstrators, those leading edge technology demonstrators, to make the major leap into the next generation of aircraft -- not just fighters that lie beyond the operational prototypes.

In any event, whatever course it takes, I believe JAST should produce simple, streamlined specifications for those three aircraft: the F-16 replacement, F-18 replacement and an export fighter. And I also think it could become the defining program for the new aerospace industry. We have yet to put together in any program all of the concepts that everyone is talking about these days. No one in aerospace has created yet a lean enterprise, with lean overhead and lean manufacturing. There is no equivalent of the Saturn car company in aerospace.

JAST can be the catalyst for tying together lean manufacturing and lean overhead and the lean enterprise. It can be the catalyst for establishing the incentives for investing in dual-use technologies that can be applied to our national infrastructure problems like energy, transportation, information processing and telecommunications. I believe contractors should get incentives for proposing in the JAST proposal technologies that have a dual-use application.

It can be the catalyst for demonstrating how the acquisition reform initiatives coming out of the Pentagon and Congress should be applied in the real world of business. To do that, I think we need to approach JAST as a separate effort. It needs to be fenced off from the existing culture of the company so that all of these processes can be embraced and promoted without encumbering them with traditions and the dinosaur cultures of the past. That's just a little bit of free advice that

I wanted to take this opportunity to talk about because I am one of the customers for JAST.

Before I take the John the Baptist analogy too far and find someone calling for my head on a platter, let me sum up what I had to say this morning. As it stands today, our Air Force has a great combat air arm. Air Combat Command has made quality a part of our leadership commitment, our operating style and our culture. It's how we behave. Today that decision is paying us double dividends in increased productivity, motivation and cost savings throughout our command.

My concerns are not with where we stand today; we are doing a great job today, but with where we could allow ourselves to be tomorrow. We have drawn down the combat side of the Air Force about as far as it can go. So far, we have not yet made matching cuts to the tail side of our Air Force. We will find that we may not have enough airpower to meet the demands placed on us in this two major regional contingency scenario if we don't keep at this problem.

If we profess to be a quality Air Force, and we are, we must force ourselves to do what makes sense in terms of our combat mission. There may be a potential mismatch between the strategy that we are committed to support and fulfill and the forces our budget will buy, particularly under the most stressing scenario -- which I described, one in which we must fight and win quickly in two major regional contingencies. I am not concerned about readiness today. It is very, very good. Again, my concerns are not so much in terms of where we stand now, but in the potential for emerging trends to hobble us in the future if we don't stay the course and fight for our operations and maintenance budgets.

And, finally, we must commit ourselves to doing the right things with the JAST program. If we can handle it properly, we can use it to lead the way and define the new aerospace industry and new American aerospace enterprise. Above all, JAST needs to be focused on delivering tangible products, both advanced operational prototypes with the technology that is currently available and advanced technology demonstrators to press the leading edge of all aerospace technologies.

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Two years ago, we in the Air Force did a very brave thing. We reorganized. We took that very difficult step on our own initiative. We built a new Air Force on our own understanding of the future, the changes we could see coming, and our expert judgment on how to adapt airpower to them. I believe because of the foresight and courage of our leaders then we have a dynamic and viable Air Force today. We don't have to start from scratch to build the kind of Air Force our nation needs in the 21st century.

Today, we're known as the heroes of the Gulf War and the prototype of quality in action. This reputation did not come easily, and if we lose it, we will not regain it quickly. We all worked hard to bring our Air Force through this turbulent period of transition, and we must stay the course to see the process through.

The choices are clear, and they are ours, and it is time for us to make them.

Thank you.

Question & Answer Session

"Readiness in the
Balance"

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General John M. Loh

GENERAL HATCH: *Thank you very much, General Loh.*

The first question is a people question. We continue to withdraw from overseas, and at the same time we have many involvements, even today. That has a big impact on the crews and the people involved. Do you have the right numbers?

GENERAL LOH: I track that very carefully. I keep track of air crew days TDY on a rolling 12-month basis for all of our systems in the Command. I'm not as concerned about that as some of the voices you might hear in Washington. We are being stressed very hard. In fact, there are about six of our systems, including AWACS, U-2, RC-135 and, coming up, F-15E and F-117, where our crews are gone over 120 days a year or approaching 120 days a year, which I consider to be the maximum that we should have our people gone out of any 360 days. That's a third of the year.

On the other hand, I like them to be gone about 60 days a year to practice deployment, to practice getting up and going, so they can deploy and fight on arrival. So we're having problems in about five or six of those systems, and we have to manage those closely. In other systems, we're at about the right point.

We're busy. The training we're getting on those deployments is good. Our people in Southwest Asia, in Turkey and southern Iraq enforcing the U.N. resolutions, and the folks doing the work in Bosnia from our C-130 fleet are just doing marvelous work. They're motivated. They're doing fine. Except for those few systems where we have to deal with it carefully, we're in pretty good shape today.

I would caution, however, that if commitments continue to increase and our forces continue to draw down, we reach a

crossover where motivation and morale can be problems.

GENERAL HATCH: *Thank you, General Loh.*

I think you have in part answered this second question about training, streamlining the deployment process, and working with Air Mobility Command, to cut down the time it takes to deploy.

GENERAL LOH: Well, let me make one point there, if I can, Monroe. I want to do more short-term deployments overseas in the future than in the past, and we're doing that. We have a large joint exercise budget out of JCS to do that, and I've been fighting to keep it very high because, as we draw down from overseas, people will begin to forget us. We need to make constant visits, project our power periodically so that we maintain friends, maintain common tactics, and assure that we can continue to interoperate. We can plug into a seamless command and control system in these various regions around the world. We need to keep doing that even more frequently now than in the past, when we had forces in place that could do it on a daily basis.

So I am pushing for more of those short-term deployments in order to do that. Being able to plug in and be standardized, with interoperable tactics and command and control, is another reason we should continue to encourage our security partners and allies to buy our equipment. That's why the export fighter business ought to be of some interest to us. It's much better if we operate with allies flying our equipment than if we're flying two different sets of hardware and software.

GENERAL HATCH: *Thank you, sir.*

The next question refers to your comments about precision weapon carriers, particularly the F-15Es and F-111s. What's

the future of the F-111 fleet for the Air Force?

GENERAL LOH: Well, that's a question that's on the table right now. We've always intended to replace it at some time in the future. We want to keep the F-111. It becomes an affordability question because the system is more costly to operate and maintain than other fighters.

But the preliminary analysis that I discussed during my talk shows that the F-111 and other fighters and fighter bombers that have a precision capability, as well as the bombers like the B-1 and the B-2, provide enormous leverage with respect to the ability to fight and win two MRCs [major regional conflicts]. The precision weapons carriers like, particularly, the F-111, are missed greatly if they are not available in just one MRC, and their absence really limits what you can do in trying to do two.

So we're trying to do all that we can to maintain the F-111s in our force for the future, at least over the next few years. But we have to match our budget with equipment, and that's where the F-111 question becomes central.

GENERAL HATCH: *Another question along the same lines. You mentioned the Joint Direct Attack Munition, the JDAM program, on bombers and the GATS/GAM [GPS-Aided Tracking System/GPS-Aided Munition] program on the B-2. How are those programs progressing?*

GENERAL LOH: I think they're both progressing very well. They're both very strongly supported as a high priority in the Pentagon. The JDAM program is absolutely essential if we're going to be efficient at attacking and killing targets in the future. All of our analysis shows the value of precision guided munitions.

This is a very cost-effective program because we can take advantage of that great GPS satellite system that all of you out here at Space Systems Center and the space contractors on the West Coast have put up. We're finding more and more applications for GPS all the time. This is a tremendous one. We've already had an operational utility evaluation of a JDAM light weapon and the CEPs [Circular Error Probable, the area in

which half the bombs would be expected to impact] were better than I expected, using operational ways to get the data together and provide it to the cockpit. So it's a tremendous system.

JDAM has enormous potential for being able to attack targets precisely from any altitude and in any weather condition. It overcomes a major limitation we had in the Gulf War where we had to attack from high altitude to avoid the AAA [anti-aircraft artillery], but there was a cloud deck between targets and aircraft. JDAM avoids that. So I urge you to continue to support JDAM very strongly.

We want to put a conventional capability on the B-2 earlier than the turn of the century. That's why we're pursuing a capability to do that in a JDAM-like system. If something happens from 1996 until 2001, a gap when we wouldn't otherwise have precision capability on the B-2, we could use that weapons system to do something important with the B-2.

GENERAL HATCH: *Thank you, General Loh. The next question concerns tactical reconnaissance. There are a number of issues and aircraft systems involved. What's the future of tactical reconnaissance in the Air Force?*

GENERAL LOH: Well, we're sitting down and looking at that whole mission area. There are a lot of ways to do what you call tactical or theater level reconnaissance. We do a lot of it with space-based assets, and that's taking a lot of pressure off of what we formerly had to do with manned penetrating aircraft. We can do a lot of it with our strategic reconnaissance assets, our U-2s and our RC-135s.

But to be responsive, we still need to do some of that with both manned and unmanned penetrating aircraft. We have had troubles, as you know, with the program that we had defined for that, called ATARS [Advanced Tactical Airborne Reconnaissance System]. We've had a number of significant contractual and management problems with that program, so it's not coming into the force when we want it to. Consequently, we're sitting down to redefine that.

In the meantime, we're trying to retain some of those reconnaissance assets, both in the Air Force and in the Navy, as well as our

one RF-4C squadron at Reno, Nevada.

GENERAL HATCH: Thank you, General Loh.

The next question: how will Air Combat Command incorporate the Air Force theater missile defense mission?

GENERAL LOH: That's another mission area that we are spending a lot of time on these days. I think I've spoken to Air Force Association audiences before about our integrated approach to theater air defense. We need to make the defense part a total system. First, we must try to attack those theater ballistic missiles before they launch, even before they come out of their shelters, even at the production facility. So we ought to maximize our opportunities for doing that.

Then we ought to try to get them during boost phase, which is a very difficult technical task, I recognize. Then those that are remaining, we need to catch at the tail end of their flight through systems that are under development, like the upgrades to the Patriot and the THAAD [Theater High Altitude Area Defense] program.

So the whole mission of theater ballistic missile defense needs to be looked at from an integrated, holistic approach. We're doing that now. We, the Air Force, have a large part of that. The Army has a part of that mission, and we need to work together on this mission. We're doing that. Out of that you will see an architecture for theater missile defense that will include both pre-launch attack, counterforce, boost phase intercept, and also active defenses.

GENERAL HATCH: Thank you, General Loh.

The next question asks, "Will all B-1s be retained in the bomber number figures you gave for the future?"

GENERAL LOH: I want another question.

(Laughter.)

GENERAL HATCH: I have another one.

GENERAL LOH: We want to keep all B-1 bombers. The outcome of the Bottom-Up Review shows that we want to keep up to 184 operational bombers. Particularly for this stressing scenario of two major regional contingencies, I have said that the bombers

have enormous leverage because they can swing from one theater to another rapidly. They provide enormous firepower, a sense of immediacy, and they can deter. In fact, they can deter that second MRC as we all go off to the first MRC, because no aggressor wants to face a flock of bombers attacking him within a few hours of taking action. So the bombers have enormous flexibility and capability.

At the present time, we're going to buy 20 B-2 bombers. We're going to try and keep about 70 or 80 or so of our B-52s, and I want to keep all of our B-1s if possible and upgrade them with a conventional weapons capability. Our analysis shows that they have a tremendous capability with that upgrade.

GENERAL HATCH: Thank you, Mike.

Another program-related question. Is there any chance the Air Force may look for additional F-15Es in future budgets?

GENERAL LOH: Well, you can't be a kid in a candy store any more. You've got to pay for what you get. We know what our budgets are going to be.

We would like more F-15Es, but you have to buy them. They don't come free. If you buy F-15Es, what don't you buy? The point is that at the present time, under the current budget, we can't afford to buy F-15Es right now. Others are buying F-15s, so that window will stay open for a few years, we believe, and we reserve the right to revisit that decision some time in the future.

GENERAL HATCH: Thank you, General Loh.

A final question concerns the new U.S. Atlantic Command. Air Combat Command will play a key role with that CINC [Commander in Chief]. How is your relationship in that organizational line-up going to work?

GENERAL LOH: The Atlantic Command has been given added responsibilities to be the joint force integrator of combat packages that are then sent to overseas theaters under the operational control of the overseas commander.

That is a smart thing to do because virtually all of our forces will be home-based in the future. There won't be very many in-place forces overseas. In order for these overseas commanders to have an adequate amount of firepower for either an exercise or a real world

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contingency, it is useful to form the forces up for maximum effectiveness from among all the services jointly. Training them together before they go so they don't meet up for the first time in some location that they've never been to before is very important.

So the concept is smart. We are strong supporters of it in terms of the principles and the theory. There are a lot of questions yet to be answered. We're just getting into this. But we are the air component for that command;

the Army Forces Command is the land component; Atlantic Fleet is the Naval component. We're working together to come up with the training programs to put together these force packages and make them available to overseas commanders. It's a good idea but there's a lot of work to do yet.

GENERAL HATCH: *General Loh, thanks for being with us today. We appreciate what you do and we appreciate your leadership. Thanks again.*

The Honorable Sheila E. Widnall

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"Sharpening America's Competitive Edge: The Air Force Role"

Thank you very much. I really looked forward to joining you all today. Across the board I hear that this has been a spirited group.

The future Air Force will be tied closer than ever to the future of the aerospace industry and to the economy as a whole. As Secretary [of Defense Les] Aspin put it, "In the short run our defense depends on strong, effective military forces -- and we've got that. But in the long run our ability to remain a super-power depends on our economic might."

Last week, Dr. William Perry [the Deputy Secretary of Defense] asked me to fill in for him at a speech on industrial base issues that he was going to give to the Aerospace Industries Association in Washington. He had been asked to represent Secretary Aspin down at Fort Bragg and Fort Campbell when the Rangers returned from Somalia. I viewed this opportunity not as a change in my own plans and a need to reschedule my day but as yet another example of the kind of collaboration that is taking place in Washington.

I think Secretary Aspin and Deputy Secretary Bill Perry and Undersecretary for Acquisition John Deutch have set a real tone of collaboration. We in all the services have been very much involved in all the important decisions that affect us. The leadership in OSD wants constant feedback from us and we have an opportunity, as I say, to be represented in policy making for the really important decisions that face us.

And nowhere is this more important than in the issues of the industrial base, which, of course, includes the issue of reform of the acquisition system, a healthy economy, a defense industry that's out there competing and winning in the global arena. What is the Air Force's role in this?

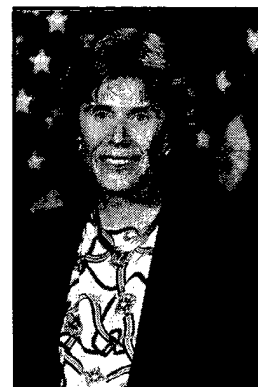
First, it is to tear down the barriers to

doing business with industry. Second, to increase cooperation among the defense, civil and commercial technology sectors. Third, as long as the warfighters' needs are not compromised, to promote dual use of military and commercial aerospace capabilities. Finally, the Air Force has the obligation to shape itself and its business around workforce, cultural and demographic realities. I'll expand on each of these issues today.

First, making it easier to do business. The place to start is up front in the acquisition process. As the budget and defense business base shrink, it is critical that contractors know what military requirements and procurements are on the horizon so they can do some realistic strategic planning.

There is some good news in this arena. I am pleased to announce that the Air Force has compiled its first ever Long Range Acquisition Estimate (LRAE). We are releasing it for the first time today. It is a forecast for businesses interested in Air Force contracts, and it covers our planned procurements over \$100,000 for FY '94 and beyond.

The project started out initially as an industry survey by the Air Force Small Business team, but it grew to encompass the needs of all contractors, large and small. Our suppliers told us that they needed better and more timely information to better support the Air Force mission. The LRAE is part of our response. This planning tool lists the programs, amounts and projected dates for all of our RFPs above \$100,000, the award dates, the points of contact and the other information that firms need to begin formulating marketing strategies. These 2,000 acquisition estimates are available, by the way, on an electronic bulletin board service. Details are available from the Air Force Small Business Office at



the Pentagon.

Besides enabling industry to better anticipate the market, the Air Force wants to help tear down the barriers and undue burdens in defense procurement. Military specifications are, of course, a prime example. Contractors don't need instructions on how to solder or assemble components. They need performance requirements: what a product should do, not how to build it. That's why a key defense contracting initiative today is to define basic capabilities, not to detail how to obtain them.

The inefficiencies of too stringent military requirements are increasingly clear. Some firms have had to set up companies within companies to handle unique defense production requirements. Some have had to mothball defense-related production equipment rather than use it for commercial purposes. As we cut back on the number of systems and the amount of equipment we buy, this structure means that the percentage of our budget that goes to overhead just keeps increasing. No company can afford two separate manufacturing bases these days. Neither can the Air Force or the other services. The recent emphasis on commonality in commercial and defense contracting and production is an idea whose time has come.

Some acquisition reforms DoD can make happen; some will take congressional help. Congress, by the way, is proposing some of its own reforms, so we're all on the same wavelength.

As the services and industry downsize and take down defense-dedicated excess capacity, the industrial capacity that survives will be leaner and more efficient across all the functions required to develop and produce tomorrow's modern airframes, boosters and spacecraft. These leading-edge industrial capabilities will be crucial in the success of companies trying to diversify. That said, I would never underestimate the difficulty of such a massive cultural change in meeting this challenge. As Norm Augustine [CEO, Martin Marietta Corp.,] has observed, efforts to diversify the dedicated defense sector are unblemished with success -- although I do think we see several successful companies that are quietly sneaking out of the tent.

The main burden of dealing with this problem of conversion is in industry's hands. The market must determine the best way to reshape the industry. However, there are ways that DOD can support the commercial base while meeting defense needs. For instance, the technologies that DOD is most interested in -- like software, computers, semi-conductors, telecommunications -- are driven by commercial and not defense developments. Look at small computer buys. Automation on the open market meets most military needs to display, assimilate or pass information, whether within the Pentagon or within a theater of military operations.

Besides the technology realm, there are lots of opportunities at the operational level for dual use of military, civil and commercial capabilities. Space systems make the point. They provide weather, navigation, warning, communications and the like. During Desert Shield and Desert Storm, for example, about one quarter of all communications used by the warfighters came through commercial satellites. Civil earth remote sensing capabilities helped coalition forces analyze terrain. Dual use is more than a peacetime proposition. The military may not need to own all of the space systems it uses -- as long as the national security and warfighters' needs are not compromised. And as this audience knows well, military satellites can serve multiple needs.

In the launch arena, the community is working towards a consensus on how best to satisfy commercial, civil and military needs. The issue includes the extent to which DoD could use commercial services versus military launch capabilities. Between industry and DoD, we need to come up with an affordable approach to modernize U.S. launch capabilities.

The Air Force has a lead role, since we provide and operate launch capabilities and facilities for the Defense Department. We stand ready to cooperate with the commercial and civil sectors to solve our launch challenges. As you heard this morning, the health of the U.S. launch posture is a national issue. The Air Force will continue to help make the nation competitive in the space launch business.

So far I've talked about the opportunities to strengthen the defense-industry partnership and, in the process, to sharpen America's competitive edge. I'd like to close with some thoughts on a workforce to sustain the edge into the next century.

Nearly 50 years ago Hap Arnold said that airpower is not made up of airplanes alone; it stems from the backing of the aircraft industry. The strength of the industry, in turn, is in its workforce. As we look forward 50 years from now, we see a workforce that is much more diverse than today's. Half of America's population will be what we term today "minorities." You, in Los Angeles, are particularly aware of the importance of workforce diversity. The Air Force shares your awareness and is aggressively recruiting people to lead and mentor a more diverse force. We are also focusing on business strategies that will help make sure that the more diverse workforce will be there to support future military needs.

One example is the Air Force's Mentor-Protege program, which is funded at \$24 million to date. It brings small, disadvantaged businesses together with minority institutions and historically black universities to work with a prime contractor on leading edge technology. The Air Force provides the wherewithal and focus to a prime contractor; the prime agrees to mentor, train and bring along a small, minority-owned company to a level of business and technology that's potentially profitable. Each agreement involves the participation of a historically black college so that the graduates are merged with marketable expertise in a high-tech area. Small businesses move into an industry that needs more minority participation. The Air Force and the

industry make strides in advanced technologies. And we all lay a foundation for a workforce that reflects cultural and demographic realities.

Besides the issue of diversity, there's another workforce trend that affects aerospace. It's the age gap in the aerospace engineering field. Many of the stunning aerospace successes of our time are the work of people who have retired or are close to retirement. This, plus a dramatic decline in the number of new aerospace designs, poses a challenge to senior engineers and managers: to seek out and mentor the young engineers and designers of the future. The Rand Corporation points out that in the 1950s, 1960s and 1970s, it was not unusual for a military aircraft design engineer to have worked on two dozen different designs in a career. A young engineer in the business today may get to participate in one design in his or her career.

These individuals will be our future leaders. How can we preserve for them the rich experience base of their predecessors? Senior design engineers must conceptualize design capability in a form that can be passed on to a new generation -- not just by replicating our past experience and methods, but by updating them with modern tools and techniques. And, again, mentoring can make a big difference. It can help keep the age gap from turning into a capability gap.

The fact is that today's entry level professionals will determine the kind and quality of military systems to be fielded in the next century. And hopefully they'll prove yet again that people are America's strongest, sharpest and most enduring competitive edge.

Thank you very much.

Question & Answer Session

"Sharpening
America's
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The Honorable Sheila E. Widnall

GENERAL HATCH: *Thank you very much, Madam Secretary, for those remarks.*

Yesterday, Dr. Warner was discussing the Bottom-Up Review. He discussed the match between the budget and the forces and the funding shortfall in the Bottom-Up Review. The question given here is: "Do you believe that with these budget challenges Air Force personnel levels will be sustained at 425,000?"

DR. WIDNALL: Up through what year?
(Laughter.)

GENERAL HATCH: *I guess the future. I think you've just answered the question.*

DR. WIDNALL: I think General McPeak is already on record as predicting that we will, in fact, drop below 400,000 by the end of this decade.

GENERAL HATCH: *The second question pertains to your discussion of the Air Force long-range acquisition estimates. For people from industry, would they work with the Air Force Materiel Command primarily to expand on this data and information?*

DR. WIDNALL: Well, my understanding is that the data are fairly self-explanatory. It gives a point of contact for all the various RFPs in the programs and, obviously, I think most of those will be out of Air Force Materiel Command.

GENERAL HATCH: *Thank you, Dr. Widnall.*

The Administration has indicated a willingness to work with industry, and you mentioned dual-use capabilities. Could you give us a little more detail in that area?

DR. WIDNALL: Well, I'm probably not in a position to list all the many programs that are underway, but certainly my understanding is that we have a number of programs at the DOD level out of OSD [Office of the Secretary

of Defense] that provide matching funds and other kinds of synergism for doing these kinds of programs.

Of course, in our own acquisition reform, we're trying to figure out ways that we can buy commercial and we're looking for pilot programs. In fact, we have identified some pilot programs that we want to use to try to demonstrate that commercial acquisition can work.

GENERAL HATCH: *Thank you, Dr. Widnall.*

This question is rather specific. It refers to theater and strategic missile warning. Do you foresee any changes in Air Force requirements? I assume that's talking about FEWS and DSP.

DR. WIDNALL: Well, it seems to me that General Horner covered that issue pretty well this morning. We view DSP as a strategic system. It's a program that is, in some sense, coming to the end of its procurement life. The new program that contains the theater requirements and capabilities is the FEWS program. We view that program as being on track. And certainly it has been re-scoped. We do not now view that program as a Cold War program. It has been significantly re-scoped as a result of world events. So we hope to keep that program on track.

GENERAL HATCH: *Thank you, Madam Secretary.*

This question refers to pay, benefits, and allowances for Air Force people in particular, and the need to keep fair compensation for our people in the future.

DR. WIDNALL: Is that a question or a statement?

(Laughter.)

GENERAL HATCH: *It's a hope, I think.*

DR. WIDNALL: Obviously we are very

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committed to the quality of life issues for our people. Certainly not only in paying benefits, but quality of life on the bases, base housing, child care, education and training and certainly in the whole medical area, we're very conscious of the concern that people have in those areas. We're committed to doing everything we can to ensure a good quality of life for our people.

GENERAL HATCH: *I think that's a very high budget priority for this Secretary and for all Air Force secretaries, past, present and future.*

Are there any other questions from the audience? There were not many questions during Dr. Widnall's points, but we'd be happy to take any other questions from the audience.

PARTICIPANT: *Are you having fun?*

DR. WIDNALL: I'm having a lot of fun. This is the best job in the world, as Pete

Aldridge all too well knows.

I must say that it is a very challenging time, as all of you know. You can read about the cuts in the budget and the absolute difficulty in trying to pull all of this off. So it is an extremely challenging time, but someone's got to do it.

(Laughter.)

It might as well be me.

GENERAL HATCH: *Well, we're very glad to have you as our Secretary. I can echo General McPeak's remarks, when he said, "We won the Secretary sweepstakes." I'm sure you will all agree with that.*

Thanks so much for being with us today, Dr. Widnall. It's a pleasure to have you here in an AFA audience, and we look forward to seeing a lot more of you in the future.

DR. WIDNALL: Thank you very much.

GENERAL HATCH: *Thank you all for coming. We stand adjourned.*

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