Interviews

Strategic Decisions: An Interview with STRATCOM Commander General James E. Cartwright

Wade Boese and Miles A. Pomper

The Bush administration set forth its plan for transforming the roles and structure of U.S. strategic forces in its December 2001 Nuclear Posture Review. The revamped posture, according to administration officials, aims to reduc U.S. reliance on nuclear weapons and augment them with growing conventional strike capabilities, missile defenses, and a more responsive and robust defense infrastructure base. The responsibility for making this vision a reality rests largely with the United States Strategic Command (STRATCOM). On May 12, *Arms Control Today* interviewed STRATCOM Commander General James E. Cartwright about implementation of the president's plan.

ACT:*STRATCOM's traditional mission has been the operational control of deployed U.S. nuclear forces but more responsibilities have been added in recent years. Could you talk a little about STRATCOM's additional missions for missile defense, space, and global strike?*

Cartwright: Back in 1992, the Navy mission and the Air Force mission were brought together and that was the stand up of STRATCOM.[1] The headquarters was at Offutt [Air Force Base, Nebraska]. Then in 2002, Strategic Commanc and Space Command were merged under the common head of Strategic Command. During 2003, we added in missions that included global strike, integrated missile defense, information operations, and C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance). There really was not a combatant commander[2] who had purview over those kinds of mission areas, which tended to be cross-cutting. The idea was to get them pulled under a single combatant commander who would be both an advocate for those capabilities and operational provider of those capabilities to other regional combatant commanders. That was the thought process in adding those missions. The last mission, combating weapons of mass destruction, was added in 2005. This involves nonproliferation, counterproliferation, and consequence management [of an unconventional weapons attack]. So that has been the gamut of missions added.

I will step through a little bit about how we brought those missions onboard and the organizational constructs that we put together. One of the things that we are trying to get our arms around inside the Department of Defense is the growth of headquarters. Each of these missions certainly in their own right could have their own headquarters in the neighborhood of 3,000 to 5,000 people to manage them. But we really are struggling with the headquarters we have; there are enough headquarters out there. They are big and proliferating. So one of our activities was to try to understand how we could take these large mission areas and get them integrated into military operations and planning, while constraining the growth of the headquarters side of the equation and building them in way that leveraged existing activities. So we put together what we called first operating principles. The idea was to have each of these mission areas be joint. We wanted to be able to operate in a coalition environment. We wanted to leverage c of the probably underutilized American business capabilities, industry, and commerce out there, as well as the academic side, including the national and services laboratories. We wanted to take advantage of all those resources rather than recreating them. And we wanted to make them interdependent. That way we could start to control some c the growth in the headquarters.

ACT:*Maybe you could talk a little bit about how that might relate to missile defense, space, and global strike.*

Cartwright: Sure. In missile defense one of the key things was to have an intelligence organization feeding [missile defense operators] indications and warnings about who might be getting ready to launch a missile. Having a dedicate intelligence organization inside missile defense may not be necessary if that function is performed someplace else in another headquarters. So, let's try to make these organizations interdependent. If one has the intelligence piece then provide that as a service to the others. As a commander, you like to have control over everything that is necessary to do your job. But the realities are that there are not enough [resources] for everybody to have their own dedicated assets.

On missile defense, what we did was go out and take a look at where missile defense capabilities, advocacy, procurement, definition of requirements, testing, and operational activities existed. We asked ourselves, "Where are some of the centers of excellence within the department that we could leverage rather than recreate?" There are a few. The one that we settled on was the Army's Space and Missile Defense Command (SMDC). It is commanded by Lieutenant General [Larry J.] Dodgen. Inside that organization, they already have a well-established center of

excellence for acquisition capabilities, requirement definitions capabilities, test capabilities, and operational capabiliti associated with missile defense. It had a long track record of operating those systems. So the intent was not to creat another SMDC, but take that command and leverage it as a component to a combatant commander. Recreate the to of the organization to be more joint. So, in the case of missile defense, you have an Army commander, a Navy deput commander, and maybe an Air Force chief of staff. Then, out of existing structure at Strategic Command, take a certain number of billets that are joint in nature and provide them to that organization. They would be the planner-typ people embedded in SMDC. Now, [Dodgen] is a component commander for me, as well as the commander of SMDC He has an operational role associated with missile defense for Strategic Command. But he also has a joint cell inside of his organization that does planning, identifies requirements, articulates those requirements, and identifies shortfall that might need an acquisition program to fix. He does that for me in addition to operating the organization that nets together global [missile defense] sensors, command and control, or weapons.

ACT: *Getting back to the more traditional mission of STRATCOM. As a presidential candidate in May 2000, George V Bush said, "the United States should remove as many weapons as possible from high alert, hair-trigger status." Yet, U.S. intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs) remain ready to fir within minutes and there has been no significant change in the number of weapons on high alert since Bush took office. Why hasn't the president's recommendation been fulfilled?*

Cartwright: The first assumption is that it has not been fulfilled and we can certainly debate whether that is true or n Clearly, the Moscow Treaty of 2002 directed bringing down a number of operationally deployed weapons. There is a 2007 midpoint that we set as an arbitrary goal within the government for "are you on track or are you not on track?"[3 We are well on track for that. We are meeting every one of the planned reductions and, in several of the cases, we a ahead of schedule. It is classified exactly what the numbers are. That is one piece of how we look at it.

Another is that we have gotten the B-1 bomber out of the business of nuclear weapons. We have taken the B-52 bombers off day-to-day alert, along with the tankers and other assets supporting them.[4] The MX, or Peacekeeper, ICBM was retired last September and taken out of its holes. My sense is we have moved in a direction that has been pretty aggressive in reductions and changes in posture. There are some other classified activities inside the military that are also in compliance with the Moscow Treaty. We are moving pretty aggressively here to do that.

As the advocate for operational nuclear forces, I would note that most of these weapons are aging. The design criteri associated with them that was valid in the 1950s and 1960s against the world that we live in today is starting to change. So this concept introduced by the Congress called the Reliable Replacement Warhead (RRW) is important t us. It is not a new warhead. It is going after upgrades in safety, security, and surety of the weapons. The extent to which you can leverage the reduction in operationally deployed warheads to free up resources—the intellectual capit the laboratories, the production- and maintenance-type capital, and the dollars and cents—to start moving us to safe and more reliable weapons is something we are supporting. So bringing down operationally deployed weapons is leverage to allow us to move in that direction. We also see in [RRW], the ability to build and design in the current construct weapons that do not need testing. Now, that has yet to be proved, but that is the design goal that we are trying to shoot for.

ACT: *Would STRATCOM be comfortable in adding an RRW weapon that had not been tested?*

Cartwright: The work that we are doing with the laboratories today would give us reasonable confidence that we ca move forward [without testing]. Again, it is not a redesign of the whole weapon; it is focused on safety, security, and surety. We believe we can understand the changes that would be introduced and be comfortable that we can manag the margins of performance inside of those and stay within the regime that would allow us not to have to test. Now, w are in the early stages of the design work. You have got to see this mature and you have to understand the uncertainties associated with it. There are a certain number of uncertainties that are just associated with nuclear science. You have got to understand how all of those stack up. But the belief right now is that you could, in fact, manage this activity in a way that would not require testing.

ACT: *Going back to the original question about high alert, what threats require the United States to maintain nuclear-armed strategic systems on high alert?*

Cartwright: In the old triad,[5] the bombers were on alert but their response measured in hours to close to the target Submarines were our survivable leg. Land-based missiles on alert were our quick responders. That was generally ho we looked at that triad. We already talked about the bombers. On submarines, there is a pretty good dialogue—good bad, or indifferent—on [converting some nuclear-armed SLBMs] to conventional. The thought process that we have worked our way through is that the conventional variant, if it was to be approved, would be the priority weapon syste for defining where we patrol and what we do. This stays consistent with the idea that submarines are the survivable leg. Those assets can afford a longer time to be responsive.

ICBMs remain the responsive—high alert as you stated it—assets. Again, we have gotten the Peacekeepers out of that level of activity. We are now at 500 ICBMs (Minuteman IIIs). There is a dialogue with the Congress to do some more reductions.[6] So that did not change the status of the ICBMs, but clearly the bomber status has changed. And, we are moving in a direction that would keep the submarines survivable, but prioritize conventional activities for them versus nuclear activities.

ACT: *In his May 2000 speech, Bush also argued that the premise of Cold War nuclear targeting should no longer dictate the size of our arsenal. However, even after the Strategic Offensive Reductions Treaty (or Moscow Treaty), th United States still intends to deploy up to 2,200 strategic nuclear warheads. This force level suggests that the U.S. arsenal size is still being driven by Russian targeting considerations. Why is this the case nearly two decades after th end of the Cold War?*

Cartwright: There are a couple of ways to look at that. The Russians still do have the preponderance of nuclear capability and they certainly have the preponderance of delivery capability to threaten the United States should they choose to. Intent is always the hardest thing to understand—you have to have at least one paranoid person around and that is STRATCOM—so you have to make sure you are accounting for the risks that you are accepting in a relationship. But, having said that, the Russians for all intents and purposes have complied with the Moscow Treaty. You are starting to see the emergence of other countries with either the acknowledged capability or the acknowledge intent to field nuclear weapons. Today, they are characterized by nowhere near the delivery platforms or numbers—if they have nuclear weapons—of Russia. Certainly, the accuracy, range, and all the other attributes associated [with those systems] are not as good, probably, as say the Russians were at the peak of their time. Then, there are those who just have aspirations and are working aggressively to get delivery platforms. So there is a range of activity out there. The question becomes what do you want to have and is that a more difficult target set than being able to focus in on just the Russian/Soviet Union landmass?

As these countries proliferate in their physical location—in other words, all the way say from an Iran all the way over t a Korea, or China, or India, or Pakistan, etc.—that starts to introduce, in global coverage, a more challenging problen Does [this expansion] get matched by the number of warheads? Is that an appropriate way to look at it? Is it really more of a problem for delivery systems and the appropriate way to do it? Do you have a broad enough range of effect? What we are talking about there is escalation control and confidence-building measures. When you have mor than just one adversary, those become much more difficult to manage. It's more complicated if you are dealing with multiple governments and the way they govern, multiple different end states that they might have in mind, and differe levels of sophistication in their weapons production and delivery enterprises.

One of the things that we came to with the Russians was a reasonable protocol about warning time and we used that to manage our relationship. If you got inside that warning time that was grounds for being uncomfortable with each other. We could measure that through treaties or sensors or whatever. We do not necessarily have those relationship with others that are starting to be interested in the nuclear enterprise or weapons of mass destruction in general.

ACT: *Speaking of treaties with Russia, the 1991 START accord with its extensive verification and information exchange regime is set to expire in December 2009. As a military commander, are you worried about losing that leve of transparency and confidence provided by that regime, and would you like to see those mechanisms or measures extended or transformed in some way?*

Cartwright: As a military commander, I would sure like to see them transformed; if not transformed, then to remain. I think you want something that is a little more responsive for the changes that occur in the world than the current treat construct. That is someone else's domain—the Department of State—to figure out. The attributes that you would see are transparency, the ability to generate warning time, and confidence in what the intentions are of a counterpart. When talking about the United States and Russia before, I mentioned warning time. Warning time allows me to defer myself and not misjudge what it is that you are doing. A vehicle [for the attributes mentioned above] should allow the regime or protocol to keep up with the state of the technology in the future.

The State Department is working very hard on a Joint Data Exchange Center with the Russians. It has had some trouble getting its foundation laid down, but it looks like it is starting to move forward. This center would allow us to exchange information in real time and across more than just offensive weapons. We could start to look at missile defense, defensive weapons, and space sensors. There are any number of things that you could start to bring in to help create, like we did with warning time, better confidence of what each other is doing so misinterpretation become less of a problem. Whatever the construct is that we do with a treaty-like activity, you are trying to make sure that you can build confidence, understand the intentions of your adversary, and have time to react appropriately to those intentions. Usually, appropriately is defined as finding alternative ways to get out of a problem. You want to generate the time to be able to do that; the less time, the less options you have.

ACT: *Recent articles by two U.S. scholars asserted that the era of mutual assured destruction (MAD) is almost over because the United States has essentially achieved a first-strike capability against Russia.*[7] *These articles have naturally generated a lot of attention there. Do you believe the era of MAD is over?*

Cartwright: With the number of different actors that we are now addressing rather than having just a single counterpart, a "one size fits all" strategy is probably not going to be appropriate today or in the future. There may be a adversary or scenario in which the fact that there would be assured destruction, or at least catastrophic destruction, c both parties may have an effect on an adversary's calculus. But it [might not.] So you have got to come up with a broader range of activities. That is why missile defense for STRATCOM is so important. It is why [we need] escalatio control activities to quickly demonstrate that we are not going for assured destruction of each other on the first shot and open up the aperture for alternative ways to solve a problem. MAD still does play in the calculus of an adversary' mind. It is a question of which adversary and in what scenarios is it appropriate. But as a stand alone, "one size fits a strategy for the world, MAD is not appropriate.

ACT:*Given that there is this assertion that the United States is attaining a first-strike capability versus Russia are there any steps, such as a no-first-use policy, that the United States can take to reassure Russia?*

Cartwright: I would go back to this Joint Data Exchange Center. I think that is going to be important for transparency As you well know, we have a broad range of delivery systems—tactical aircraft, [ballistic missiles], bombers, and cruise missiles—that technically could be used [for conventional or nuclear munitions]. It is a question of building confidence in how you are going to use them. How do you demonstrate that confidence outwardly in your exercises, your rhetoric, and in your postures so that it is clear what role those assets are being utilized in? We can do that in a way that gives sufficient transparency. Not [in a way] that you have compromised your ability to defend yourself, but i such a way that you have made clear steps to have alternatives in escalation control that allow you more choices rather than less as you approach a problem. That is where I think you want to be.

This idea of first strike is one that is problematic from the rhetoric side of the house because it would appear that it takes away the opportunity for alternative measures, such as negotiations. We should be shooting for confidence-building measures that give more time and [provide] more alternatives.

ACT:*You mentioned a broad range of delivery capabilities, including tactical aircraft. Russia repeatedly cites the continuing existence of U.S. tactical nuclear weapons in Europe as a threat and as a reason for not reducing its own tactical nuclear weapons arsenal. What is the military justification for retaining almost 500 U.S. nuclear warheads in Europe?*

Cartwright: We have a relationship with NATO under which we have various platforms and capabilities stationed in support of that activity.[8] So we meet those obligations.

The bigger issue associated with tactical weapons is the issue of their size, volume, weight, etc. It is hard to steal a ballistic missile. It might be easier to get at something that is tactical. [One concern] is that in exercising, protecting, and demonstrating what your [tactical nuclear] capabilities are in order to be transparent, do you expose those things and is that giving an opportunity to terrorists to get in and out? We believe with great certainty that ours are well controlled. We worry about newcomers and about all of the [former] Soviet Union. Where did all this stuff go? Do we have good control of it?

There is a reasonable argument that if Russia and the United States have concluded by all intents and purposes the Cold War, the use of our or their tactical weapons against each other is probably less likely. How Russia perceives th world and what threatens them versus what threatens us is not measured by our perception of the Russians or their perception of us. Most of our adversaries are on the other side of the ocean. Therefore, a tactical launch against ther or us is probably not likely. But the Russian perception of the world is that they are surrounded by countries that look like they are starting to proliferate and have the potential to have tactical weapons. Therefore, the Russians got to have an offense and a defense that is built to handle what they perceive the world to be. They may not have the transparency with [countries] that are relatively close to them as we have with the Russians. They may not have the time that we may have from an adversary that lives overseas to come and attack us versus what it would take to attack Russia.

ACT:*So your perception is that [Russia's posture] is a response to some other country's current or potential nuclear arsenal rather than say U.S. conventional superiority?*

Cartwright: It has to play into the calculus. I think it really has to play into their calculus. From the standpoint of our calculus, we have a strategy to assure allies that we will be there for them if they are attacked. In that assurance, we are trying to develop more precise weapons and more credible weapons. I'm talking more about the conventional sid of the equation here. [We want] capabilities that are responsive and that really can assure [our allies]. Assurance is a very difficult thing for those countries in today's environment, where short- and medium-range ballistic missiles can b rolled out, fired, and hidden in very short order, and their flight time is very quick. Look at the Middle East, for instanc the time of flight and the time of reaction is very, very quick now. It is starting to creep way inside of those comfort zones that we had in the Cold War about having time to have alternatives. This new class of weapons, particularly short- and medium-range, that is being developed really put stress on normal protocols to make sure that you got options and transparency.

ACT:*You mentioned conventional weapons. Given today's threat environment and STRATCOM's likely warfighting scenarios, do you believe that the United States needs to develop more useable nuclear weapons or a more effective array of conventional weapons?*

Cartwright: It is never an either or. But I think right now the balance of usability and functionality for the problems we are trying to address—because of precision, because of speed, because of the associated technologies—there are more viable options that can be serviced by conventional weapons than maybe in the past.

ACT:*In that regard, you have this Prompt Global Strike initiative to start converting two missiles on each U.S. ballistic missile submarine to carry conventional warheads instead of nuclear warheads. Does this reflect a determination tha conventional warheads can effectively replace nuclear weapons for some existing target sets or simply the addition o new missions and potential targets?*

Cartwright: Both. Let's go to new emerging targets and the war on terrorism, [using] both a historical example and a [more recent] one. [Look at] the activities associated with the [1986 Operation] El Dorado Canyon strike against Libya. We had problems [with] overflight rights and going into an area that was defended. We lost an F-111 fighter-bomber. We lost a crew. We had several Tomahawk Land Attack Missiles that did work, did not work, got the right target, did not get the right target. It was in an area where you clearly had somebody who was supporting terrorism acts that occurred in the buildup [before the U.S. mission]: where terrorists left that country, did something, and then went back etc. [What] if you could influence in a way that was quickly responsive and precise, while doing a much better job of controlling collateral damage and not having to expose crews and aircraft to defensive measures? All of those things would argue for a better way of doing it.

Now, there have been several initiatives since El Dorado Canyon to build weapons that could work in that environment. Still, move forward to Afghanistan. It took us almost six weeks to get the overflight rights to get at the terrorist camps. In that period, they had time to move, leave, deceive, protect themselves, you name it. If we could have gotten there much quicker—this is where you get into the subjective—would it have been different? Clearly, tim reaction, and the ability to get to places that are either heavily defended or are just plain hard to get to are some thing that we have got to understand as we move forward in developing delivery systems and weapons. The more complicated these problem get oftentimes—let's just take those past two examples—the more inappropriate, probabl a nuclear response is. Yet, if that is what you have as your immediate response capability, what choice does a count have? You really enter into a self-deterred environment.

ACT: *There have been some concerns raised about Prompt Global Strike. Russian President Vladimir Putin recently expressed concern that other nuclear powers might misinterpret a U.S. launch of a conventionally-armed ballistic missile as a nuclear-armed missile and retaliate accordingly. How do you address this danger of ambiguity, particularly during a crisis?*

Cartwright: It was interesting because he did use the word "other."[9] Maybe transparency and the Joint Data Exchange Center and some of these things are actually starting to work. I hope so. But you always have to worry in war that your actions might be interpreted incorrectly. It does not matter whether you are dealing with an intercontinental ballistic missile or an M-16 rifle. If you pull the trigger in war, the second- and third-order effects of intent are always the most difficult thing to understand. But you try to build in escalation control and transparency. As a ground commander, one of the first things you are always trying to do is establish some sort of communication with your adversary. They may believe you, they may not. But at least you have got to try to develop some sort of confidence-building measures so your intent is understood. That works both ways. You want them to understand why you are there and what you are doing. You want them to understand clearly what your end-state is because if they go in a different direction both of you can really get hurt. If you are a wrestler in high school, the worst person you can wrestle is somebody who has no experience and has no idea how to play the game because you are going to get hur

Where I think [Putin] is focused—now I do not want to put words in his mouth—is if you are an emerging country tryir to build delivery systems and saying that you actually have nuclear capabilities, how are we going to know when you launch that capability what it is that you are actually doing? [The United States and Russia] have treaties. We have a long history of talking to each other. We have several communications links. [We need to make] sure that emerging countries that are starting to develop ballistic missiles enter into some sort of set of agreements with us to help build an understanding of confidence about what it is they are trying to accomplish, what their activities really are, and wha they think [their activities] mean. If [they] are not going for mutual assured destruction, but limited action, make sure i is interpreted as limited action. But how do you build those transparency measures? Those are the key activities. Are Russia's neighbors bothering to tell the Russians that they are launching something? Most likely not. I think the key ones that do that are us and some of our allies, such as Norway and Sweden. But a lot of other countries do not bother to tell you when they are launching something. You have got a certain amount of time to see if it is on a ballist trajectory and what direction is that trajectory going. Is there one or are there multiples? The ambiguity goes up significantly if you do not get any notification.

ACT: *You interpret Putin's comments as aimed at third countries rather than the United States?*

Cartwright: I am sure that he is talking to us too. But I am also sure that there is kind of a secondary message here that this is not just a U.S.-Russian problem. We have got to look broader. How are we going to manage these ballisti missiles that are starting to proliferate? How are we going to manage the intent of the country, independent of what the warhead is? How are we going to manage the difference between test and exercise and conflict? Where do we start to build and in what form do we start to build those transparency and escalation control measures?

ACT: *What about vis-à-vis the United States? How would you answer those critiques vis-à-vis the United States?*

Cartwright: Today, what we have done—significantly with the Russians but also with others—is to start to publish whenever we are going to launch. Since 1968, we have had 430-450 [Trident] launches [without nuclear warheads]. We publish that. We put it out in the open source. We make sure that we tell what direction and the general part of th day or what day it is going to be. You can imagine that with that many launches, we have had bad weather, we have had maintenance malfunctions, etc., but we get that word out. We do that regularly. If a country is interested in knowing it, we are interested in telling them what we are doing. We will continue to do that whether we think they can see us or not. You ought to assume that something has given them an indication [about U.S. activities], rather than saying, "gee, they do not have a satellite," or "they do not have radar today." You always should assume that

somebody has seen something happen. The more you tell them, the more you announce it, the more you publish it, the more you are standardizing how you do business, the more important.

The other piece to this that I think is probably pretty significant is that we have certainly moved on a path to not classify what is going on. As we manage [Prompt Global Strike]—as we did with artillery, ground-based cruise missiles, sea-based cruise missiles, air-launched cruise missiles, bombers, etc. when we moved them to dual-purpose—we have tried to make that as transparent to everyone as possible. We are doing the same with what is called the SSGN, which is the same hull [of a Trident ballistic missile submarine] that has been converted to launch conventional cruise missiles and other capabilities. The intent here is to get it out, to get it understood, exercise it, demonstrate it, and show people what it can and can not do. If [other countries] have radar or they have a space system then they can see it. When we do that we tell them ahead of time: look in this area. [The goal is to] get to that more transparent environment. Again, at the end of the day, if a person believes that M-16 is going to kill them, they are going to react one way. If they believe that it is a warning shot, they are going to act a different way. The more yo keep it transparent, the better. But you can never guarantee how an adversary interprets something.

ACT: *You mentioned the proliferation of ballistic missile technologies. One of the concerns about Prompt Global Strik is that maybe it will imbue ballistic missiles with more strategic value in the eyes of others. Might this proposal undercut missile nonproliferation efforts?*

Cartwright: Two ways to go at that. One is that we have not built any new ballistic missiles in quite a while. In fact, w have gone down. Yet, what you see in the world is the proliferation of ballistic missiles.

Another way to look at it is if we do something like this will it [provide incentive to] somebody else to either accelerate what they are doing or start new efforts as they watch what we are doing? Again, there is no intent to increase the number of [ballistic missiles]. There is intent to create a diversity of effects that is more appropriate for the world that we are in and more controlling of escalation. But it is more of an acknowledgement that the world we are in is not one country versus another anymore. It is a global problem, particularly when you deal with terrorism. Our forces, transports, delivery vehicles, ships, airplanes, etc. are reducing in numbers so the physical distance that any one branch of the service has to cover is greater. The range of effect a ship has to cover is greater. So you have got to start to move to delivery vehicles that have global reach inside of the timelines of the regret factors that someone would deliver to you with a ballistic missile. [Prompt Global Strike] is really about if we have got to reach globally quickly—and that is the new world we live in—then let's have a more responsible effect at the other end. Some peopl use the word proportional. I am not sure that is a good one; appropriate [might be better].

ACT: *So does Prompt Global Strike herald a growing transition away from nuclear warheads for strategic missions?*

Cartwright: It certainly offers an alternative. Today, [our method of] prompt global strike is nuclear and that is where am trying to change.

ACT: *One [nuclear delivery] system that is nearing the end of its lifetime in another decade is the Minuteman III. Air Force Command recently concluded a study on the successor to the Minuteman III. Will that be another ICBM or will that be another type of land-based system?*

Cartwright: From a STRATCOM perspective, you have a couple of things you ought to go look at. We had the triad: the bombers, SLBMs, and ICBMs. Then, we have our general purpose forces out there. There are two problems that you would like to be able to solve as you move forward. The first is what is appropriate for the types of force that you want to have for the world that you think you are moving into. A crystal ball for 20 years from now is always tough. Bu what kind of diversity would you like to have in your delivery platforms to go after the problems that you think you are going to face? You always want to build in enough diversity to handle the unknown up to a reasonable amount of risk The other side of that coin is what can you afford to actually field? We have activities associated with space launch; we have activities associated with missile defense; we have activities associated with conventional and nuclear ICBM forces. Whatever it is we do, we ought to, between now and say 2010, build in some options that would give us a reasonable diversity of paths against a reasonable business case that is affordable. Building a stand alone nuclear ICBM, a stand alone conventional ICBM, a stand alone missile defense [interceptor] does not make a lot of sense to me. It may not be the same wrapper, but there has to be a high-degree of commonality in whatever it is you do.

[The second issue] is what is the right balance between things that go very far, very fast and those things that would go very far and persist for long periods of time? We ought to have some studies and demonstrations to understand th balance between those.

You also ought to throw into this mix that if you really believe fuel is a big problem then you ought to make sure that you do not [tie] yourself to a force that is completely dependent on fossil fuels. You have got to think about what a reasonable man would say about the future and then make sure you do not go after any obvious pitfalls. Nobody's crystal ball is perfect. Those are the types of things that I think are responsible things to go look at before you just make the next generation of what you have.

ACT: *The initial elements of a nationwide missile defense system were deployed in the fall of 2004, but it has yet to b declared operational. Why is that and what has to be done before that system will be declared operation?*

Cartwright: The declaration of it being operational is up to the national command authority.[10] But there are certain criteria that [are] important from STRATCOM's perspective. Today, the system is a [research and development] system with a rudimentary operational capability. In November 2004, STRATCOM entered into what we called a shakedown period, which was really the first chance that we had to put operators into the system, run it for extended periods of time to understand [whether] this is what an operator needs versus what a developer needs. What would you change about it? How do you do management of the system, [including] command and control of the sensors an the weapons? We went through that for about six to eight months. We took all of the lessons out of that, along with some other things that we did in testing, and said, "Okay, here is what we need to have in the system in order to be ready to go." Those upgrades, adjustments, or whatever you want to call them started to be installed by the Missile Defense Agency in about November of last year. That installation period was to take through the late summer of this year.

We are waiting to see how all that installation work goes. There were a series of test that we as operators wanted to see, [such as] using the radars that are in the system to actually track incoming missiles and then transmit the data. We had several [tests] over the past year across the face of radars and things like that. There were new sensors we wanted added for redundancy and command and control capabilities for redundancy and assurance. Those are all now starting to come onboard. At the end of this year, we will start to see the fruits of those upgrades. The other piec that you would like to see is some consistent success with the ground-based interceptor. We have had one good sho here recently, which was the first [test] that had all of the production components end-to-end in the system.[11] That was an important test. There are two more that are coming that shall demonstrate [the interceptor's] ability to maneuver and ability to actually hit the target. We want to see that along with the introduction of these new sensors s that we know those sensors match up with those weapons.

There is also a big piece of this involving the [Standard Missile-3] ship-based interceptors and the Patriot Advanced Capability-3 (PAC-3) interceptors. We want to see that piece actually integrated [with the sensors and command and control elements of the strategic missile defense system]. You may think you are just adding a module, like "gee, I'm going to have PAC-3 in the system now." But did that have any effect on what you are doing with the ground-base interceptor? Those are things that we want to see over the next few months to be very comfortable. Does that mean that I would be uncomfortable bringing [the strategic ground-based system] up to an alert today if I or the national command authority felt that we had some kind of threat? No, I would bring it online in a heartbeat. There is no reasor why you would not. But those are the kinds of things I would like to see over the next few months to make sure we gc the system that we really want to have for the long term.

ACT: *In addition to the ground-based program, current plans call for deploying missile defense interceptors to Europe and exploring their stationing in space. Given how you are still working on the ground-based system are these ambitious plans justified by the state of technology and the threat?*

Cartwright: Certainly, the sites associated with Europe. The technology is what we are working our way through. Whether you station assets in Europe or you take what is already there and create a sensor grid are things for the national command authority and the country to decide. The threat justifies going beyond where we are today. We are certainly looking at the emergence of the threat as it relates to the Middle East. But who knows in 10 years what direction we will have to look. It is not a system base-lined against hundreds of missiles coming in. It is not a shield. It is to change the calculus and, in many cases, prevent the cheap shot.

ACT: *House Appropriations Energy and Water Development Subcommittee Chairman David Hobson said it is time fo a thoughtful and open debate on the role of nuclear weapons in our country's national security strategy. Would STRATCOM welcome this debate and what are some of the key issues that you feel that debate should revolve around?*

Cartwright: You have hit all of them in this. I believe that debate is something we have to have. In the debate, what i the appropriate use [of nuclear weapons]? What is the appropriate match between what we see out there in the worlc today and the types of weapons we have available? [What are] the confidence-building measures and the escalation controls so we [can] build as many options to not use weapons as possible? All those things ought to be discussed. But we are, because of a lack of a debate, kind of locked in what we had in the Cold War and how we used to do it. That is why the [conventional Trident missile] is such big deal for us. It is to get a discussion. Is that what we want for a capability or is there something else we want for a capability? At the end of the day, I will do what I am told obviously. But I think people ought to understand at least what a commander perceives as sometimes a mismatch fo what it is we have as a threat out there and what we have as an arsenal.

ACT: *Thank you.*

ENDNOTES

1. In 1946, the Air Force Strategic Air Command (SAC) was established to manage U.S. long-range bombers and their nuclear payloads. The Navy later developed its own nuclear forces, the Polaris submarine-launched ballistic missile, and the Air Force added intercontinental ballistic missiles to the U.S. nuclear delivery mix. In 1960, the Joint

Strategic Target Planning Staff (JSTPS) was created to oversee planning and targeting for all U.S. nuclear forces. In June 1992, SAC and JSTPS were both shutdown and STRATCOM was established.

2. The Department of Defense has nine combatant commands: Central Command, European Command, Joint Force Command, Northern Command, Pacific Command, Southern Command, Special Operations Command, Strategic Command, and Transportation Command.

3. The Moscow Treaty, also known as the Strategic Offensive Reductions Treaty, commits the United States and Russia to reduce their operationally deployed strategic nuclear forces to 1,700 to 2,200 warheads apiece by the end 2012. The Department of State has reported that the 2007 target level for U.S. forces is 3,500 to 4,000 warheads.

4. President George H. W. Bush ordered U.S. strategic bombers off alert Sept. 27, 1991 as part of what became known as the Presidential Nuclear Initiatives.

5. The old triad refers to ICBMs, SLBMs, and long-range bombers. The new triad promulgated in the 2001 Nuclear Posture Review consists of conventional and nuclear offensive strike capabilities, active and passive defenses, and a responsive defense infrastructure. The old triad is now seen as a sub-unit of the offensive strike component of the ne triad.

6. The February 2006 Quadrennial Defense Review called for lowering the number of deployed ICBMs to 450. Warheads associated with the 50 missiles slated to be taken off alert are to be redeployed on some of the remaining ICBMs.

7. Lieber, Keir A. and Press, Daryl G., "The Rise of U.S. Nuclear Primacy," *Foreign Affairs*, March/April 2006. Lieber, Keir A. and Press, Daryl G., "The End of MAD? The Nuclear Dimension of U.S. Primacy," *International Security*, Vol. 30, No. 4 (Spring 2006), p. 7.

8. NATO's 1999 Strategic Concept declared, "The fundamental purpose of the nuclear forces of the Allies is political: to preserve peace and prevent coercion and any kind of war." The document further stated the alliance would "maintain adequate nuclear forces in Europe," although it noted the circumstances in which their use would be contemplated were "extremely remote."

9. In his May 10 address to the Russian Federal Assembly, Putin stated, "the media and expert circles are already discussing plans to use intercontinental ballistic missiles to carry non-nuclear warheads. The launch of such a missile could provoke an inappropriate response from one of the nuclear powers, could provoke a full-scale counterattack using strategic nuclear forces."

10. The national command authority is the president and the secretary of defense.

11. General Cartwright is referring to the Dec. 13, 2005 flight of the interceptor. This was the first successful flight tes of the interceptor model currently deployed in Alaska and California. However, the test did not involve a target or an intercept attempt.

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1150 Connecticut Avenue, NW, Suite 620
Washington, DC 20036
Tel: (202) 463-8270 | Fax: (202) 463-8273