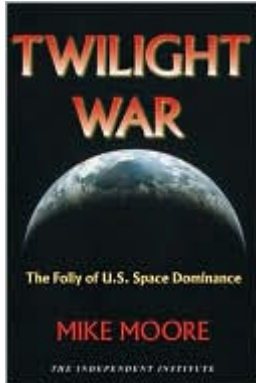


Twilight War: The Folly of U.S. Space Dominance

Mike Moore , Joanne J. Myers

June 10, 2008



Twilight War: The Folly of U.S. Space Dominance

- [Introduction](#)
- [Remarks](#)
- [Questions and Answers](#)

Introduction

JOANNE MYERS: Good afternoon. I'm Joanne Myers, Director of Public Affairs Programs, and on behalf of the Carnegie Council I'd like to welcome you all here.

Today our guest is Mike Moore. When he finishes discussing his book, [Twilight War: The Folly of U.S. Space Dominance](#), I believe you will have a new appreciation for why space is so important.

At present, much of the advanced military might of the United States is inordinately dependent on a complex network of space-based command controls, communications, and computer-driven intelligence, surveillance and reconnaissance capabilities. While these current assets bestow on the American military definite asymmetric advantages, they are also the source of deep vulnerability, and it doesn't require much imagination to recognize just how devastating a war in space would be.

The first era of the space age was one of experimentation and discovery, a "province for all mankind," as indicated by the [1967 Outer Space Treaty](#), inspired largely by President [Eisenhower](#). Nowadays, as dozens of countries have the capability of reaching space with satellites, the dynamics may be changing and could, if not checked, lead to a new epic of cataclysmic clashes in space.

Up to this point, America has not put any weapons in space. Rather, we have only used space for the purpose of preserving and extending the preeminent military power we enjoy on earth. The hegemony was recently challenged when the Chinese in January 2007 used a missile to shoot down one of their own weather satellites, thereby demonstrating that they could potentially destroy the spy and navigation satellites on which America's armed forces depend.

Given the dangers of a battle in space and the degree to which the military and civilian uses of space have blurred, you might ask why the United States has failed to negotiate arms control agreements for space. The simple answer would be that Americans, in the grand tradition of American exceptionalism, fear that, as a top space power with ambitious plans for antimissile systems still in the pipeline, we would be giving up much too much to countries such as Russia and China.

Our guest today offers clear insight into how we can ensure that outer space remains a resource for all and a security threat to none. Through a careful discussion of the history of space programs, their impact on past policy and events, the tactical and strategic influence of space weapons on the engagement of war, and the potential pitfalls of a strategy of dominance, *Twilight War* concludes that unilateral military dominance of space by the United States would be a supreme mistake and that it would make Americans less secure in the long run.

Please join me in giving a very warm welcome to our guest this afternoon, Mike Moore. Thank you for joining us.

Remarks

MIKE MOORE: Thanks, Joanne. That was a very comprehensive intro.

Now, my book says, *Twilight War: The Folly of U.S. Space Dominance*. Sounds like a space book, I know. But it really isn't. It's not truly a science book, it's not a high-tech book; it's not even so much about space. It's a

political book. It's about political issues; it's about ethical issues, which is of great concern here; and moral issues.

I'll start with the political issues. When the Soviet Union collapsed, we (meaning the U.S. government, the military, high-level planners) began thinking seriously about the future, a non-Soviet future. One of the main things they concluded was the Cold War had been very dangerous, that the nuclear arms race had been very dangerous. So what do you do now?

The prescription that was adopted by many high-level planners in [Bush the first's](#) administration, and then the [Clinton](#) administration, was to build such overwhelming military power on land, on the sea, in the air, and in space, that we would never again be challenged by a power similar to the Soviet Union. They called it a "peer competitor." We would never again have a peer competitor. So we saw a huge buildup, in many ways, in military doctrine and military forces during the 1990s, but primarily we saw great interest in space.

Now, as you know, Sputnik went up in 1957. Even before then, in 1955, President Eisenhower had established a policy that space should be used for peaceful purposes. He did not want the arms race and the Cold War to extend into space.

After Sputnik, he was greatly criticized, even by people in his own administration. His own Air Force chief of staff, [Thomas Dresser White](#)—and chief of staff of the Air Force is a pretty high position—argued publicly, as early as February 1958, that the goal of all Americans should be control of space. Many other generals and admirals, and certainly people in think-tanks, in editorial pages, opinion makers of all kinds, argued that Eisenhower had dropped the ball and we had better get busy with building weapons that could take control of space.

Eisenhower refused to do it. He said it was too dangerous. And the Eisenhower vision prevailed. It prevailed actually until the present day, in a way.

The Eisenhower vision led to the Outer Space Treaty in 1967. It was a basic treaty that outlined how space was to be used by all nations. It would be used for peaceful purposes, for scientific exploration, for commercial purposes, but there should be no weapons in space, no space-related weapons.

Now, back then when we talked about weapons in space—we meaning the United States and the Soviet Union—we were talking about nuclear weapons in space, nuclear weapons that could be called out at any time. That was a very dangerous idea. So the treaty outlawed nuclear weapons and other weapons of mass destruction in space.

Now, the Eisenhower vision was challenged very sharply in the 1980s, during the Reagan administration. Now, to his credit, [Reagan](#), I think, was quite sincere in wanting to get rid of nuclear weapons. He thought the idea of MAD (mutually assured destruction) was a very bad idea, a very immoral idea. He wanted to get rid of it. "Star Wars," the Strategic Defense Initiative, was his way of doing it: put a shield over the United States. It was a technological fantasy. I think most people realize that by now. But he was sincere. He wanted to defend the United States from space and eventually get rid of nuclear weapons.

But many people in this administration believed that "Star Wars" was something else; that it was a way to achieve the capability to control space at some future point, by developing the hardware that could be used to shoot down or damage or destroy satellites of other nations, if you had to do that, even weapons that could damage or destroy objects on earth from space. So although Reagan was very sincere, I think, many of his people were not.

U.S. Space Command and Air Force Space Command were both established in the 1980s. Part of their job was to develop a doctrine for control of space.

The first President Bush followed Reagan. He was not enamored of that idea at all. He got rid of a lot of people who were what I would call "space warriors." He thought, too, that it was a dangerous idea to develop the capability to control space.

Then the Soviet Union collapsed and Bill Clinton came into office, and the people I call space warriors were truly excited about the possibilities. No longer did you have to worry about the Soviet Union. We had no peer competitor on the horizon. U.S. documents indicated that the next peer competitor probably wouldn't arise until 2020 or 2025, something like that.

Under the Clinton Administration, huge progress was made in developing a doctrine of space control, often called space dominance. This involved the idea that we could actually dominate space with weapons in space and weapons on the ground, at sea, and in the air. I'm a Democrat, I have to admit that, but I think Clinton was too gutless to take on this issue.

When [George W. Bush](#) came into office, the first thing he did was appoint a guy named [Rumsfeld](#) to be his secretary of defense. I knew Rumsfeld very slightly in Chicago. We had run into one another at meetings from time to time. By 1998, I knew without any qualification that he was what I would call a space warrior. He wanted us to develop the means to control space.

When he was appointed defense secretary, I thought, "We're in big trouble." I had been working on the early stages of my book before then, but I got truly serious after he was appointed defense secretary.

In 2002-2003, I served on three national commissions, two of which looked expressly at space issues and one at national security issues in general. These were closed-door meetings. Lots of Air Force guys, Army guys, Navy guys, think-tankers, and academics in the meetings. I think I can safely say they all agreed that Rumsfeld had come back into office to transform the U.S. military, and that included getting us into space.

We would be there now, I think, if not for 9/11. That changed the priorities in the Defense Department very dramatically. So we have a little breathing room. We have a doctrine for space control. We have many systems under development that can exercise control of space. But it has all gone on the back burner, so to speak.

Now, as you may suspect, other countries are not happy with our talk about space control. The Outer Space Treaty of 1967 emphasized multilateral cooperation. Space was the property of all mankind. It used the words "peace" and "peaceful" many times in that treaty. And now the United States is talking about developing the capability to exercise military control of space if necessary. They define that as in a time of conflict.

But here things get a little murky, because we also have a doctrine of acting preemptively. Our national space policy says expressly that we reserve the right to deny the use of space to any country that "may present a treaty to us." Now, that's ambiguous language, but still, if you're, let's say, a leader in China, you've to think, "What does that mean?"

Now we are developing an antiballistic missile system that, if it works, would be basically an anti-Chinese system. Nobody in the know really believes that it is aimed at North Korea or Iran. It's an anti-Chinese system. The people in the space business know it, the people in the Pentagon know it, and the Chinese know it.

The Chinese have been worried about the United States in this respect for many years. In the 1970s, we attempted to develop a limited missile defense system that we expressly called an anti-Chinese system. Now the system we are developing is very similar in that respect—much more sophisticated in a technological sense, but it looks like an anti-Chinese system to them.

We also talk about control of space. We play war games year after year in the Pentagon in which a great Asian power is our competitor, and we posit the idea that war breaks out over some disputed territory, which is obviously Taiwan, and we have these endless war games. The Chinese are very uncomfortable with this.

Since 1999, the Chinese have been ardently pushing to get the United States to sit down in Geneva to negotiate a treaty that would prevent the weaponization of space and would prevent any earthbound weapons that could be used against objects in space.

Now, the Chinese aren't the only ones, by the way. The Russians are there too. In fact, every country in the world, except for Israel, favors such a treaty.

There have been UN resolutions since 1981 in which the countries of the world have expressed their interest and their desire to see the Conference on Disarmament in Geneva negotiate a new space treaty, one that would be ironclad, that would prevent any space-related weapons. It's called [Prevention of an Arms Race in Outer Space](#) (PAROS), one of those clunky acronyms they so often use.

Ever since the early 1980s, the United States has used its veto power at the [Conference on Disarmament](#) in Geneva to make sure we don't engage in any such talks. Now, that's pretty startling. We are a nation that prides itself as being based on the rule of law. That's fundamental. The Constitution is fundamental. The rule of law is fundamental. Every nation in the world, save for the United States and Israel, says they want a new space treaty.

Every year we say, "No, we're not going to talk about it." We give many reasons: officially, we say, "Well, it's not possible to negotiate one, so why even talk about one?" Unofficially, in the Pentagon, in D.C. think-tanks, in the White House, the point is this: We do not want to close any options. We do not want to try to negotiate a treaty. We do not want to sit down and talk. This has been the view under Reagan, under H.W. Bush, under Bill Clinton, and certainly George W. Bush. We do not want to talk.

I think it is time to sit down and talk and see if we can actually do it. If everybody in the world says they want it, maybe it's possible to do it.

Now, when the Chinese and the Russians say they want it, maybe they're bluffing, maybe they're posturing, trying to make points, but we don't know that for sure. We don't know it for sure until we sit down and try to do it.

So when we have a new president, one of his first duties should be to order his ambassadors in Geneva to sit down and conduct serious talks—not yet negotiations. You can't go into negotiations right away, but you've got to set some ground rules. You've got to sit down and talk to one another and do it in a serious kind of way.

Now, I said we're talking about an ethical matter here. I think this is pretty important. It's an ethical matter. Should we be the only major nation in the world to oppose such a treaty when everybody else says they want it? This strikes me as kind of a lawless attitude, a hypocritical attitude, and perhaps even an imperial attitude.

Now, you may wonder why do we want to develop the capability to unilaterally control space. Some of my friends on the left—I'm looking at one right now; I won't identify her or him—say it's because we are imperial-minded. I don't really believe that. I think we simply have an idea that I call, and others call, American exceptionalism, that the United States, because of its divine right or civic virtue or whatever, can do anything it wants to on the world stage; other countries have to play by international rules, but we have, can, and should play by our own rules.

American exceptionalism goes way back, long before the founding of the country. As you all know, the Puritans were exceptionalist right to the core—we would be the "city on the hill," so on and so forth. So American exceptionalism is part of it.

But another part of it is the idea that we "won" the Cold War, and we won it because we were so militarily powerful. The people I call space warriors—and I like many of them; I know a lot of these guys, and they're decent, honorable people—believe that the surest way to ensure peace and security pretty much forever is for the United States to have such military power that nobody is ever going to challenge us.

Well, the Chinese have said they will challenge us. The Russians have kind of indicated that too. The Chinese smashed one of their own satellites, as Joanne mentioned, in January of last year. Hard-liners and space warriors said: "Well, that proves the Chinese are up to no good. They talk peace and they talk treaty, but really they're developing weapons."

Well, the weapon they used was pretty primitive. It replicated a test we conducted in 1985, and we didn't think it was a very good way to do things. But anyway, the Chinese have done it. We got very exercised about it.

There are many ways to look at that. One way, as I said, is to regard it as a duplicitous act. Another way is to say it's a shot across the bow. We have ignored the Chinese request to sit down and talk for many years now, and we have done so dismissively and—dare I say it—rudely. If you look at the diplomatic record, some of the speeches our diplomats have made have been really, really rude.

So what do we do? We do have to understand that there is a reason why space warriors want to protect assets in space. They enable us to engage in precision war. No other nation can fight war as humanely as we can. We have to understand that. I don't think a nation should fight wars unless they are absolutely necessary. But if you do have to fight a war, if you really do have to fight a war, you should do it in such a way that you spare civilians as much as you possibly can.

We are the only nation in the world that can fight that kind of war. Our space assets, our satellites, make it possible. So there is kind of a moral issue here. We need to protect our way of fighting wars.

We can, from 12 miles downrange, 20,000 feet up, put a bomb right through that front door. I kid you not about that. Our precision-guided weapons are really that good. The Pentagon people don't like to talk about the accuracy, but it is well known that once a target is properly identified, they can almost always hit within 12 feet of the aim point, sometimes right dead on. Now, that's important.

You don't want to use the kinds of things you did in World War II. In World War II we talked about precision bombing, but we couldn't do it; and we ended up killing, by most estimates, maybe 900,000 civilians before we used atomic bombs. Now, that's a terrible thing.

So now we can do precision war. Now, there's a downside to that, of course. If we can do war "right," do we do war more often? I think Iraq is an example of that.

By the way, I have known a lot of military guys, and almost all the military guys I know—and they are colonels and generals and admirals—are really against war, in a very specific way. They were against going into Iraq in 2002. I heard this from every military person I talked to: "Why are we doing this?"

So precision weapons are a temptation to our civilian warriors who have never seen combat, who have done their own draft dodging, whatever.

Now, there is another moral issue. We are triggering a new arms race. Think what that means. The Chinese have said they are going to challenge us. We seem to be pushing ahead. We are triggering an arms race. If the Chinese really do challenge us, what are the Indians going to do?

Boy, they are going to react pretty strongly, because they don't trust the Chinese all that much, they're not going to let the Chinese get that far ahead of them. If the Indians pursue that, what are the Pakistanis going to do? If the Pakistanis get into it, what are the Israelis going to do? The Israelis are very capable in space. Pretty soon you've got a truly multilateral arms race.

I've talked to a lot of people around the country. Sometimes I get the question: "Well, so what? If you hit satellites in space, so what? You're not killing people; you're killing machines."

Now, I can understand that point of view. And yet, the physics are really against us. The easiest way to destroy a satellite in space is to smack into it, kinetic kill. We can do it without smacking into it. We have four, five, six programs that can damage and destroy satellites without creating debris. But we are so far ahead of everybody else that nobody else is in the same game. The way most countries would hit satellites is to hit them, smash them into thousands of pieces.

Now, in a battlefield there is always debris left over, and it has to be cleaned up, and so on and so forth. But when you have debris in space it stays there. It can stay there for years, for decades, for centuries, or even forever, depending on how high above the earth it is.

If we clutter up orbital space with a conflict, with so many hundreds of thousands of pieces of debris—and I don't kid you about that—the debris problem is huge, and it wouldn't take much to make it beyond home. I've talked to physicists who believe if some country smashed, say, a dozen of our big satellites, or maybe two dozen of our big satellites, we might make space unusable, just plain unusable. And satellites that are undamaged would wear out and we couldn't replace them.

The global economy depends on these satellites. We're not in the 1980s anymore. Everything we do in terms of the global economy depends in one way or another on satellites in space. If we can't replace satellites, if we lose the use of space, then we are going to have a situation where satellites fail and we are going to drift back to a 1950s-style economy.

In the 1950s—and I grew up then, and I kind of liked it—there were only about 2 billion people in the world. Now there are 6.5 billion people. If we lose the kind of global economy we have, which is space-dependent, how is that going to work? There are going to be wars for resources, there is going to be malnutrition, there is going to be mass starvation. It is going to be a very, very terrible thing. We can't go back to the 1950s.

Now, even if the worst-case scenario does not happen, even if there is no conflict in space, if we trigger an arms race—and we are doing that right now—think of the opportunity cost. We are facing huge problems in this century, from global warming (I don't have to say much about that), right down to runaway pathogens that cross borders. How much cooperation is there going to be in that kind of an environment?

If we have another arms race where the United States is developing space-related weapons, the Chinese are doing it, the Russians are doing it, the Indians are doing it, the Pakistanis are doing it, the Israelis are doing it—even the European Union would get into it probably—what kind of cooperation are you going to have? Nations need to work together in order to solve these problems.

I truly like Q&As, and I hope you all have a lot of good, provocative questions.

Thank you.

Questions and Answers

QUESTION: Just one question. What is the practical difficulty of policing violations of any space treaty by any signatory nation once it is put in place?

MIKE MOORE: Well, the difficulties would be very, very, very great. As you know, American diplomats generally argue you can't do it. I would say that the negotiators should be very hard-line people, realistic people—not people like me; I might see things in too rosy a way.

There would have to be ironclad verification. I think that could be managed, but you've got to begin switching over to different paradigms to manage that. Right now, the kind of intrusive verification I talk about, on-the-ground verification as well as in-space verification, would probably reveal some proprietary secrets. That's a big thing with us, and really it's a big thing with the Chinese and the Russians.

They're a little iffy about verification. They say, "Let's do a treaty and worry about verification later." I don't believe that. I think you've got to do verification, and it is going to be hard.

But if you look at a possible catastrophe that could be the end result of an arms race in space, I think it might focus the mind. Maybe we would think differently about tough verification. If you think about the opportunity cost, I think maybe we would think differently about it.

But I don't want to suggest it is going to be an easy thing. It won't be. You've got to have a situation-awareness network. That means simply keeping track of everything in space from the time it is launched until the time it dies. We can do it. We don't do it yet. We have sort of a random situational awareness. But we could do it. It is within the technological capabilities of the United States.

But it has to be an international effort. If we develop our own situation-awareness efforts even more, it is going to be viewed as a provocative action, as a way of targeting the satellites of other nations. So we've got to approach this in an international way, a cooperative way.

That harks back to the 1967 treaty. The idea of the Outer Space Treaty of 1967 was that it was a cooperative venture of all mankind. Today I would say "humankind," but back then they were all sexists so they didn't put it that way.

But it's not an easy problem.

QUESTION: It is forecasted that both China and India will actually have missions to the moon. I want to know, in light of some of the cross-border information you've put out, is there any movement within the United States for cross-border cooperation with any of these countries, especially India, towards mutual efforts in space?

MIKE MOORE: I think the answer is no. I am kind of displeased about the race to the moon. We have another race to the moon. We say we're going to the moon again, the Chinese say they're going to go to the moon, and the Indians talk about it, although they don't have a formal program yet. But it's looking like a competitive thing and kind of a waste of money. I think there are more important issues to worry about.

The Chinese civilian scientific program is very much integrated with their military program, as was the Russian program. The Indian program is supposed to be strictly civilian, scientific and commercial. But you have people in India who are looking at China and saying, "Let's get our own space command up and running. We've got to worry about the Chinese." I don't see much cooperation there.

QUESTION: Have either [McCain](#) or [Obama](#) or their senior advisors made any comments on the issue yet?

MIKE MOORE: No, not really. Obama at one point said he didn't believe we should have weapons in space, but it's kind of a generic thing.

The issue truly is not weapons in space anymore. Even the hard-line space warriors no longer talk about lasers in space and rods from God based in space that could be called down on earthly targets. They know that's hugely expensive. You can't really do it without putting the budget completely out of whack.

What we are working on now are anti-satellite weapons based on earth. We do have several programs going.

We have robotic small satellites that can find satellites in any orbit and get up close to them. We call them experimental programs for refueling future American satellites. Maybe they are. But as people know in the space business, if you can get up close to a satellite, you can do damaging things to it. In fact, we bumped one of our own satellites mistakenly a couple of years ago. It was in a very high orbit, about 22,000 miles up, but we managed to bump into it. We didn't mean to. But it shows what we can do.

QUESTION: Considering how central China is both to this debate about space and just generally for the future going forward, I'm curious what your thoughts are on the idea of, as an alternative to a new treaty, just a bilateral agreement with China, along the lines of a "rules of the road" agreement.

Such an agreement would allow us to insulate ourselves from the possibility that something else happening in China that takes the space program out of the top of their policy concerns would not lock us into a whole set of other responsibilities with other nations, and would allow us to be more responsible, as the only nation capable of

doing all these other things in the world that are dependent on our use of satellites.

MIKE MOORE: Rules-of-the-road agreements are much talked about in this business. I argue with people whom I otherwise agree with about rules of the road. They say, "Well, the treaty is just too much, and let's do rules of the road instead."

Rules of the road are simply kind of semiformal agreements, where you say you're not going to do X, Y, and Z. For instance, you are not going to put a satellite in an orbit that intersects the orbit of an American satellite, or whatever.

I don't like rules of the road. If they're a first step towards a treaty, that's fine. But too often things like that have a way of simply passing the buck, so to speak. You can develop rules of the road and not go forward to a treaty.

Rules of the road are, by nature, temporary things, or can be temporary things. I'd like to see an actual treaty worked on, and maybe some rules of the road could be part of it.

As far as a bilateral deal between China and the United States, I don't know. I suppose that's possible. Maybe a trilateral thing—Russia, China, and the United States. But both the Chinese and the Russians are very eager to proceed to a treaty. They're not talking about a bilateral arrangement.

Now, I've mentioned that China is often thought to be the next great threat by space warriors and other people in the military, hard-line think-tanks. I wonder about that. The Chinese learned something from the fall of the Soviet Union. They learned that you really don't want to take on the United States because you're probably going to lose. You don't want to take them on in a military sense.

And also, China is not out to bury us. Maybe they're out to buy us, but they're not out to bury us. When you think about the economic ties between China and the United States, it's pretty awesome. China is in the business of making consumer products for the Western world. China needs those jobs because they have tens of millions of people who are just on the edge of starvation. They need to get those jobs, they need to get that currency in, and so on and so forth.

Meanwhile, we need China because they buy a big part of our national debt. We like to live beyond our means. The Chinese are buying, roughly, \$200 billion a year in Treasury notes and bonds.

I mean we are in bed together. If the Chinese really were the next great threat, and if they really wanted to take on the United States militarily, all that would evaporate. The Chinese economy would collapse.

They need us and we need them. So I'm not worried about the Chinese taking us on in a military sense. They are going to take us on in an economic sense.

JOANNE MYERS: Let me ask you: What do you think it would take for the United States to enter into an international treaty?

MIKE MOORE: What would it take? The first thing it would take is for a president to say, "Let's sit down and talk," and talk seriously, not derisively but seriously.

A treaty would have to be fully verifiable. That's the key issue. We have to keep in mind, though, that many treaties are hard to police. A chemical weapons ban or a biological weapons ban, you can't really police those.

A nuclear weapons ban you can to a large degree, because we can truly tell—we have an international monitoring agency that can tell very quickly when a nuclear explosion takes place anywhere and very quickly determine exactly how big it was, or almost exactly how big it was, and what the composition of the weapon was, and so on and so forth. But we can't say that a nuclear weapons treaty can prevent somebody from developing a nuclear weapon without testing.

As you may know, if you build a uranium bomb, you don't need to test it. If you build a plutonium bomb, you do. So that's a little bit iffy.

But when it comes to space-related weapons, you can't do it without testing in space. You cannot do it. I have not found anybody in the space business who denies that. You cannot do it. And extensive testing, not just one shot, like the Chinese did. You would have to do extensive testing in space, and that becomes visible very, very quickly, instantaneously really. That becomes visible. Then you can take whatever action you need.

We are way far ahead, so we don't have to worry about that. Maybe if we let things drift, we might have to worry about it in 10 years.

QUESTION: What is your reaction to the use of so-called depleted-uranium bombs, which the United States has been using in Yugoslavia, 31,000 tons dropped by Clinton, and the thousands of tons dropped in Iraq, contaminating the earth for generations to come?

MIKE MOORE: You're not going to like the answer to your question. The question is about use of depleted uranium for shell casings, for armor, so on and so forth. I don't believe depleted uranium is a bad contaminant. I don't think it is going to do any long-range damage. I'm sorry.

QUESTIONER: I went to a presentation of this young man who served in Iraq and came back. He and his wife had a child, and the child was born with deformities, no fingers, et cetera. I should have brought a picture. Of course, the Army couldn't find anything wrong with him. He had to go to a private clinic to be told that his lung was contaminated with uranium. Thousands of those guys who are coming back are either disabled or sick, whatever.

MIKE MOORE: This is an issue that has been looked at for years and years and years, since the first Persian Gulf war. I think the studies indicate pretty clearly that there is not much of a problem here. But it's a very emotional issue. I think, because of that, we probably should give up the use of depleted uranium. But I can't really argue it at this point. I'd have to look at the studies again.

QUESTION: There are problems in Iraq, Iran, the Middle East, and with oil, and I don't hear you talking about that much, because probably it doesn't fit the talk. But how could you, in a quick general way, relate the problems that so many of us are focused on with the issue you're discussing? I just wonder if there is some relationship that you could draw for me.

MIKE MOORE: Well, there is. You remember the cartoons from the 1950s that showed Berlin as a powder keg, with a fuse lit and all that. Well, the Middle East is that kind of thing. But when it comes to the kinds of issues I am talking about, the space issues, that is clearly focused on China. I mean there is such a keen focus on China in these closed-door meetings that nothing else counts. The kinds of problem we are facing in the Mideast are well known. We have been stupid about our policies in the Mideast, so on and so forth. We're overly dependent on oil. But when it comes to space-related weapons, China is the name of the game.

QUESTION: Thank you. I found this very illuminating, and I appreciate what you have done for us today.

A question that's a naïve question: If the United States were not to be engaged in these activities, do you believe that China and India and all these other folks would also not engage? In other words, are we the leaders and are we the escalators of all of this?

MIKE MOORE: The clear-cut answer I think is yes, because, as I say, every nation has voted in the United Nations since 1981 to negotiate, or start talks on negotiating, a treaty that would prevent an arms race in space. We could have started on such a thing in 1981. We are the only nation that is preventing it. Israel will do whatever we want really in this issue. But we have the veto power in Geneva. We will not sit down and talk. I'm not saying that it would ultimately succeed, but how do you know it unless you sit down and talk?

QUESTION: If you could orchestrate the dialogue in the treaty negotiations, what would the end-state look like to you?

MIKE MOORE: The end-state, the treaty? It would emphasize that space is clearly to be used for non-weapons purposes. That gets very tricky, because the global positioning satellites we have, communication satellites, weather satellites, communication satellites of various kinds—these satellites are all objectively part of weapons systems. Our GPS-guided bombs don't work without GPS guidance, and so on and so forth.

We argue about this. When I say "we," I'm talking about hard-line think-tanks in the U.S. They say, "What are you talking about, Moore? We've already weaponized space."

But we don't have any shooters in space, nor have we deployed weapons on earth that can hit objects in space. We are developing them, but we haven't deployed them. I think there is a line—not a real bright line, maybe a dim line—between the two.

But if we actually start deploying these systems, then other countries are going to do it too. The idea is that if you are ready to go to war, the first thing you do is blind the other side. You hit his satellites. So you are going on a hair-trigger, if you actually had the weapons to do it. I don't think we want to go on a hair-trigger.

We've had war games in which we have played out a scenario where this great Asian power blinds our satellites

regarding Taiwan. We don't know what's going on, so we hit them with all we've got. In other words, a nuclear war results because we don't know what is going on, we're blinded.

We need satellites for very specific purposes. Observation is important. Wars begin if you don't know what the other side is doing and you don't trust them.

This was Eisenhower's great insight. Eisenhower was president at a time when many of his top military people believed we should start a war with the Soviet Union before they got too powerful. [Curtis LeMay](#) certainly believed that.

"Let's trigger a war. Let's provoke them into war. Let's do a preemptive war. Let's do a preventive war."

Eisenhower said, "No, no, no" every time. He launched the U2 project in order to get hard data about the Soviet capabilities, and then the first series of spy satellites to get hard data, because he had people like Senator [Symington](#) from my home state of Missouri arguing, "Boy, we should get going. We should build thousands of bombers and missiles and take those guys out."

Eisenhower believed the Soviets did not want war, but he had to have the hard data to prove that the Soviet Union did not have the capabilities to launch a bolt from the blue, as so many people argued.

Observation satellites of all kinds are very important to preserving the peace, so we need to keep them alive.

QUESTION: I want to return to your question. How else might the United States get involved in a treaty? One assumes that most people don't join a treaty unless they're pushed there. So are there any provocative actions you might see that the other parties might use to demonstrate that it would be in the United States' best interest to get involved?

MIKE MOORE: Sad to say, it is all going to be on us. The Chinese test in January of last year was a provocative action. I had hoped that that might provoke the Administration to say, "Well, gee, maybe we ought to sit down and talk." But the Bush administration didn't react that way.

Now, the Obama administration or the McCain administration might. I tend to have a dark view about this happening, but my wife reminds me that it took a [Nixon](#) to go to China, because he was a hard-liner, and maybe McCain could bring some of these space warriors under control because he's a hard-liner too. I don't know.

But it really takes direction from the top. The U.S. military is charged with the defense of the country and, according to our various policy documents, space control, the means to control space, is part of what they should be doing. That was set by civilian authorities back in the 1980s and 1990s. Space control is part of their mission. They are supposed to be developing the means to do it.

You have to have a president who says, "Maybe this shouldn't be part of the national policy of the United States. Maybe our national policy should be let's see if we can defuse the issue. Let's see if we can negotiate a treaty." So it has to come from the top.

QUESTION: Do you think the commercialization of space is going to have any influence on this debate?

MIKE MOORE: The people who build and operate commercial satellites, and especially the people who insure commercial satellites, are beginning to be concerned about this because they don't want space cluttered up with a lot of debris. How much influence do they have? I don't know. I'm looking at the military aspect. But I know there is great concern, and I can put you in touch with people who can elaborate more on it.

QUESTION: In terms of the way countries are going to be reacting to any sort of negotiations on this topic, I'm wondering what sort of lessons you see drawn from the Galileo negotiations and our efforts to limit the Chinese participation in that.

MIKE MOORE: [Galileo](#) is a European effort to develop their own global positioning system. Not even the Europeans are very keen on Galileo. It's too expensive, so on and so forth.

I don't draw any lessons from that, because we are talking about a problem an order of magnitude greater. If you are talking about preventing an arms race in space, that's a much more serious topic than Galileo or any other thing we've talked about before.

It is going to call for some real paradigm shifts. But the main paradigm shift is going to come from this country or it is not going to come at all. We are drifting into an arms race. We are drifting into it.

Now, back in the 1940s, when the nuclear arms race began, some people argued that we kind of provoked that ourselves. I don't make that argument. I think [Stalin](#)'s regime was about as evil as it gets, and you couldn't trust him, and so on and so forth. I can imagine how that arms race began as a rational response to the global situation. I think it got way out of hand, especially under the [Kennedy](#) Administration, but still there was kind of a rational response.

But right now we are just drifting. We are drifting because we are exceptionalist, because we are powerful. We are by far the most powerful nation in the world, and, by golly, we're going to do it because we can do it, and everybody else has to be happy with it. I don't think that's a viable policy.

JOANNE MYERS: I thank you very much for bringing this issue to our attention in such an accessible way.

I'd like to invite the rest of you to join us in continuing the conversation. Thank you all for coming out tonight.

MIKE MOORE: Thank you.

Copyright © 2011 Carnegie Council for Ethics in International Affairs