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**Restructuring Military Policy to
Reflect Worldwide Political Changes
James Cassity, Jr.**

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Restructuring Military Policy to Reflect Worldwide Political Change

Lieutenant General James S. Cassity, Jr.

Lieutenant General Cassity is the director of command, control and communications systems for the Joint Staff. He began his armed services career in 1958 when he was commissioned through the Reserve Officer Training Corps program and earned his pilot wings at Laredo Air Force Base, Texas. He served with Air Force Special Operations, spending three years in South America flying C-46 transports with the 605th Air Commando Squadron. He also served one year in Southeast Asia, flying CH-3s with the 20th and 21st Helicopter squadrons. Subsequently, he served in a wide variety of acquisition, communications, and information systems positions. General Cassity commanded the Air Force Communications Command before moving to the Joint Staff in May 1989.

Oettinger: I am delighted that you were willing to come join us. Would you like to speak uninterrupted, or are you willing to take questions?

Cassity: I'll take questions anytime anyone has one, and I do have prepared remarks, all of which I may not use. I will attempt to use most of them, but by all means if I'm saying something that you don't understand, feel free to interrupt.

As an overview, I'm going to look very briefly at the changes that we see in the world; obviously, they are having a tremendous effect on the military. I'm going to look at arms control, the defense postures in space, command, control, and communications (C³), economies, and alliances. Then I'll talk a little bit about jointness.

You may think I'm in an Air Force blue suit, but it really isn't — it's purple, because I'm in a joint job and working on the Joint Staff. My executive officer, who was unable to come with me today, is a Navy captain, and my deputy is an Army officer. So we are indeed joint.

For those of you who may not have paid a lot of attention to my biography, let me summarize by saying that I've had lots of jobs in 31 years in the Air Force. The first 10 years I was a pilot and I participated in the air defense mission at Otis Air Force Base. I also flew with the Air Commandos in

South America for about three years, and spent a year in Southeast Asia flying helicopters. Because of the time logged in the C-46s, it being an obsolete airplane, I was unable to get a job flying real airplanes, so they sent me to school. No, I'm kidding. I went to get my masters degree through the Air Force Institute of Technology in a civilian program at the University of Southern California. Then I went into acquisition management and I worked on the F-15 aircraft for four years, and I came to Boston and spent another four years working on acquiring electronic systems. Then it was off to our Air War College; by then I had about 10 years in the acquisition business. After Air War College they decided that I should get into the communications business. So, for the past 10 years I've been in the communications business. That's quite a varied background. Most people's background is not quite as varied, but we do find that the Air Force, as well as the Army and the Navy, expects us to do many things. In general officer rank, general comes from "generalness," and so I'm kind of a jack of a whole bunch of trades, master of none, and I don't claim to be.

I have been in the communications business, the command and control business, for the past 11 years now. For the past year, I have been the J-6 on the

Joint Staff, which means that I am the daddy rabbit you could say, or the senior communicator, although there are others that outrank me. But I am the central focal point for communications, for command and control, and for those systems that provide command, control, and communications to the operators of the world. That's kind of who I am, and it's been a fun time. Thank you for allowing me to come here today.

My four predecessors have all been here. Although you may say, "Why's a three-star general speaking to a small class of young people at Harvard? Don't you have a better way to spend your time?" I don't think so. Some of you may one day have the opportunity to be a general or a flag officer in your service, so I hope you take something away from this. All of you will have the opportunity somewhere to contribute to your country, and probably to your country's government, I assume, since the Kennedy School is for those who are leaning in that direction. So, I hope that something I say will encourage you to spend a little more time thinking about what we in the military do, and why you have a military. Nearly every country has one; it's hard not to have one. There are a few folks who get by without it, but very few. Even Switzerland, who has been neutral for a long time, has a very strong military force.

We've seen some tremendous changes take place in our world over the past several months. Particularly as we look at the Soviet Union and Eastern and Central Europe. I served in Europe, I've been in Berlin, I've seen the Wall, and frankly I never figured it would come down during my lifetime. I have a good friend who is an Admiral in West Germany, and he was always convinced the Wall would come down, but he too never felt it would come down during his lifetime. To have the Berlin Wall removed, and to have countries declaring their independence, and literally asking Ivan to leave . . . it's kind of strange.

Now, as you know there's a lot of talk going on about peace and dividends, and restructuring, and refocusing our national priorities. For those of us in the Pentagon, this is a very active time in terms of restructuring, because we're working very hard on the 1991 budget. Whether everyone is aware of it or not, we've seen the DOD budget shrink by about 2 percent a year since 1985. Now we're going to see that accelerated, and in order to meet the new dollar goals, we're going to see a reduction in the forces of all the U.S. military. We're going to see the Army, Navy, and the Air Force come down in numbers of

people, numbers of flying wings, numbers of tank battalions, and numbers of ships at sea.

We're working very hard on the 1992 through 1997 budgets. We worked for years and years on a five-year plan, now we're up to six. So, we're developing what is called a SIDEPLAN, or a six-year defense plan. My piece of that action is not figuring out the numbers of tanks or planes; mine is laboring in the field of command and control, providing the wherewithal for the operator — the commander — to employ his forces, people, and weapons systems. That involves communications, computers, and information systems. It involves policy makers, it involves force commanders, it involves individuals in the field.

One of the things that we have to remember in command and control communications is that we're really not the leaders. We have to wait until the strategists, the planners, the folks who are figuring out what we will be doing, make some decisions — and then our business is providing the machines, the connecting pipes to those machines, the display systems, and whatever else to allow a commander to command and to control airplanes, ships, tanks, and people.

Now the computers that we have today are great; they're very, very important. However, nothing replaces people; the people remain in our forces. They are the most important part of a system, whether it's a command and control system or a weapons system. Always keep that in mind, if you remember nothing else, that people, not machines, make things happen. We talked at lunch about computers and how smart we're making them, but we've not even touched the intelligence of a human brain. I don't know whether we'll ever get there, but it's quite a few years away.

Let's look at our negotiations for the reduction of arms with the U.S.' principle adversary, Russia. We're into this verification game, and if we say things, we must also be able to prove things, and we obviously aren't going to. There will be borders opened up and there will be exchanged visits and what have you, but we need ways that we can look and see, so verification is going to become — or is — an essential element of arms control, and a part of command and control communications.

The J-6 world includes the effective global surveillance and warning systems that can advise us of what is happening, or what may happen, no matter what time of day, or what kind of weather we're talking about. As I mentioned earlier, I'll be looking at some of the challenges: economic, social, and

military. I'm going to get a little bit into the drug war business, which is a very real war. It's one that, one could say, we're not exactly winning right now.

The present U.S./Soviet arms control negotiations include the strategic arms reductions (START), initiated in 1982, the defense space talk (DST), and, more recently, the conventional forces negotiations in Europe (CFE). The CFE negotiations have garnered the most headlines, and obviously President Bush and now President Gorbachev were making offers back and forth as to what they'll do. We still have a lot of negotiation to go and, as I mentioned, verification. The arms control agreements themselves are a single tool, but I'm not sure that these treaties are a substitute for a military force sufficient to make our spoken voice credible.

A military force, in any modern nation, is essential to provide for that nation's security. Our security in the United States is dependent upon our defense posture. It's also dependent on a healthy economy. It's also dependent on cohesive alliances between us and our allies. There will be lots of challenges in each of those areas to look forward to over the next 5 or 10 years. I'm not sure what we're going to see in 10 years — that's a long way out. As fast as things are moving right now, even one year out is kind of difficult to predict. I'm sure that in March last year, no one thought that we would see the Warsaw Pact in the condition it is in right now.

I think, in regard to the defense posture of the United States, our American armed forces will be only as strong as the American people want them to be. The armed forces of the United States have never been a factor in the political decisions of this country, other than to be used as a tool by the civilian leaders. Our civilian leaders are elected, and it's been that way for a long time, and none of us who wear a uniform want to change any of that, I can assure you. I sure would not like to see a coup in the United States, nor do I anticipate that happening, nor have I ever heard of anyone even contemplating such a thing in our country, which is something to be proud of. The history of our country is one of the American people deciding. Now, for the past 40 some years, the American people have been willing to pay the price to have a very strong military to ensure our own freedom.

As we move into this time of peace, I hope that the public remembers that the world is still a competitive, conflictual, even a dangerous place. As we look at the folding up and the tearing down of the Warsaw Pact, we need to look carefully and recognize that the world is still — and Eastern and

Central Europe are still — dangerous places. We're going to see some things happening that we won't like, and we may see some things happening that the Soviet Union is going to have little or no control over. I hope we don't go back to the ethnic difficulties that were solved 20, 30, or 50 years ago. We do need to recognize that all the folks in the world are not necessarily our friends. We need to recognize that a military force that isn't necessarily there to fight in a time of war is still there. It does underwrite the political and commercial dealings of our country with the international community. It guarantees us the use of the sea lanes, and the space lanes of communications, and it allows us to communicate with our friends overseas and around the world. It does indeed reinforce our credibility in dealing with potential troublemakers or terrorists.

Obviously, after 30 some odd years I think that what people like me are doing is important to the good of our country. Our country derives substantial returns from the defense investment that has been made and that we make everyday. A no-growth or declining defense budget will cause the United States to make some difficult decisions in the coming months and the coming years. We've got to seek some kind of balance between our foreign presence overseas, in Germany, Korea, Japan, the Philippines, Panama, and lots of other places in which we are postured. I don't know what the correct balance is, that's a political decision that's going to be made by the political leaders of our country and the political leaders of the Philippines, Japan, Korea, NATO, etc. We're going to have to seek a mix of our active and reserve forces in this country. We're going to continue to need some sort of a shield that will prevent the two primary adversaries from exchanging nuclear weapons. General Pietrowski,* the CINCNORAD (Commander in Chief of the North American Aerospace Defense Command), has said we might like to have some sort of a space-based defense in case someone else decided to drop bombs on Moscow, which we might not like to happen.

Obviously, all countries in a leadership position must find ways to communicate. And we must be able to not only send but receive messages if we're to work together.

The U.S. has to face some large trade deficits. We have some difficult problems, and I think that all of you have probably had a chance to discuss them here. Maybe some of our defense policies are being

*General John L. Pietrowski, USAF, CINCNORAD, February 1987 – March 1990.

blamed for some of the budget deficit. Perhaps it is true, but we have to be careful how deep we cut the defense budget, and how big the peace dividend is if we are to maintain our position. If we make those big cuts in the defense budget, what is that going to do for the economic side of the house? I don't know, but it's something you should think about.

We've seen a significant decline in employment in selected U.S. industries, though not necessarily the defense industry. In some industries our producers have been beaten out by someone else — in the manufacturing of televisions, and computer chips, for example. There's a great deal of pressure to impose protectionism: to make Japan open up its borders, or to put a trade barrier around the U.S. There are opposing opinions.

Student: With the dwindling resources, and the requirement to prevent some bad guy from dropping a missile on Moscow . . . are we going to have the wherewithal to be able to maintain that C³ kind of environment?

Cassity: That's a decision we're going to have to make. There are those that say Starwars is a bankrupt idea and that we should stop thinking about that. There are those that feel, and I happen to be one of them, that we have the capability today to field a system that would be totally defensive in nature. It might not be 100 percent capable, but that is one of the mistakes I think we've made — looking for a 100 percent effective shield. I'm not sure that one needs to be 100 percent effective to provide a deterrent. I think you'd be very surprised, pleasantly surprised, with the abilities we have.

Student: Can you tell me who cut the Strategic Defense Initiative (SDI) defensive strategy? If we place ourselves in the shoes of the Soviet Union it might be looked upon as a very offensive system, because if I were the Soviet Union and the United States obtained that capability I would be placed in a position whereby I can be subjected to nuclear blackmail, because all my nuclear weapons would be useless. If I feel I'm superior to the United States I might be induced to use my weapons first, before my weapons become useless. I better make use of my advantage in order not to be subjected to this nuclear blackmail.

Cassity: Well, that's an argument that is available and that folks are thinking about, and that's part of the trade-offs we're going to have to make. I think you need to remember that Moscow has an antiballistic missile system that we think probably is going

to work, and we didn't launch a first strike to take them out. So, I think that the Soviet Union is a rational enemy. They're not willing to place themselves at risk by sending a first strike, and I think it's apparent that the U.S. can today, as it has been able to for sometime, respond, despite a first strike.

Oettinger: Let me try something on that score just to see if you agree. Part of the damage that has been done to SDI was through early claims by the President, among others, that were, on their face, so ludicrous as to discredit the whole idea. That led then to the questions about balance of nuclear terror. If you concede that 100-percent full defense is a lunatic objective, then that disappears.

Cassity: It's just not probable.

Oettinger: Now, at the other extreme, the notion of detecting and doing something about one missile coming up from Iraq or someplace and launched either toward New York or Moscow certainly seems within the realm of possibility. Can you give us a sense of realism about that spectrum between the one and the other?

Cassity: I think the probability of detecting a single launched ballistic missile is 100 percent. We do that every day, 24-hours a day, and we have done that for quite some time. The next question is, if you see it, if you know where it is, can you shoot it down? We can't today, but it's certainly within the state-of-the-art.

Student: Does that include the intermediate range ballistic missiles that they're developing in the Middle East?

Cassity: In certain cases, no. You miss a few of those, but you don't miss a bunch. I'm not telling you secrets; I mean go down to the public library and you can read about it. It is a capability that we have to detect space vehicles, that is vehicles launched into space, or ballistic missiles.

Student: Sir, unless you're going to get into this in your talk later, can you describe how the C³ environment might be different in the theaters under lower force levels?

Cassity: It depends on the way one plans to employ those forces. Let me give you a couple of scenarios that I think may help you. Let's suppose that the U.S. withdraws half its forces from Europe — half the Army, half the Air Force, half the Navy — and reduces the size of the headquarters. However, we retain our commitment to NATO to

replenish those forces with either reserves or what have you, and therefore we maintain those bases and berths to go back to. Then it makes sense to leave a communications infrastructure in place that we test to make sure it's working, so that we don't have to rebuild something like that. If one's intent, on the other hand, is to depart the area and only come back if and when a conflict occurs, then you would look at what we call tactical communications, or communications that you would carry with you. Right now, within NATO-collocated operating bases, allies have set aside places for U.S. airplanes. We have a very limited amount of money to spend on communications to hook that up. On a base that we are at full time, we spend a good bit of money on communications and computer systems. Cutting back our presence probably would lead us to spend a little more money today, or in the future, on tactical systems — systems that we can transport in airplanes or ships, and get over there for less than we are presently spending. That's a weakness, I think; from my standpoint we need to do a little bit better.

Student: Some folks at Leavenworth are talking about the nonlinearity of future battlefields in Europe.

Oettinger: You want to explain nonlinearity a little bit?

Student: Well, rather than having a FEBA (forward edge of the battle area) and a rear area, there would be a war going on through the whole continuum and there would be isolated units over much larger space.

Cassidy: That is, there wouldn't be a line of battle with troops lined up on either side. We would use a highly mobile force with very sophisticated command and control sensing devices to locate the bad guys. We would find them and launch a strike, a precision strike I might add, with a few folks at these kinds of folks. That is a view of the future that may well take place, because if there is a concentration, of course, well then that invites the use of a rather large bomb, which might be nuclear. So, we have a few folks here and a few folks there with weapons. It would be expensive and we need to develop some new equipment; we are in the process of doing something.

Oettinger: Could I get you to comment on that a little bit more, because I've a conceptual difficulty in visualizing those kinds of intermediate scenarios. At one extreme you have a terrorist situation, and one could assume that not only military command

and control systems, but the whole civilian infrastructure will continue to operate during the situation. You can make assumptions about things happening. At the other extreme, you have a total nuclear exchange, and the odds are against anything working, other than one's mail being forwarded by the postal service because FEMA (Federal Emergency Management Agency) has taken care of that. Again, that's a fairly clear cut, somewhat negative scenario. The difficulty I have is envisioning these intermediate cases where some things are working, but other things are likely to be in a state of chaos over a fairly wide area, and where assumptions that sophisticated systems (which are fairly shaky even under normal disaster conditions) will be operating — this strikes me as being somewhat wishful thinking. Could you comment on it?

Cassidy: In my vision, I don't anticipate the total annihilation of the United States. That would take a lot of bombs. Boston, New York, and Washington will be a big mess. Any kind of a war scenario makes a big mess of a large population setting. During World War II, the allies dropped tons and tons of bombs on Germany. You name the German city and it was just in ruins. But the probability of completing a telephone call on a public telephone system, between Berlin and Berchtesgaden, which is all the way across that country, was about .9. I recognize that they weren't nuclear weapons, but I believe that during any war there will be a plant that generates electricity somewhere. There will be a telephone system that is probably going to work; there will be some sort of radio system and what have you, so that there will be radio, perhaps even television, I don't know. Television might be a little farfetched because of some of the problems it has, but there will be ways to communicate.

No matter what kind of weapon systems that you have today, the complexity of just keeping up with the systems' spare parts — invariably leads to a computer. We've got computers in places that you would not even believe. We have computers in the supply, ware-housing, and distribution systems that keep up with spare parts. There are folks that tell me that the F-15 automatic fuel control system, from end to end, can contain 5,000 parts. Well you don't keep up with that number of parts on the back of an envelope. The question is — are we going to be able to keep computer A hooked up to computer B through a full contingency, conventional weapons or otherwise? Probably not. What we've got to look for is ways to hook up, pass a lot of information, shut

off, and then have that information feed a local area. We're going to have that capability.

There is a familiar old Military Affiliate Radio System (MARS), which is a group of folks using HF radios or ham radios. That came in quite handy when the hurricanes devastated the U.S., as well as several of the islands in the Caribbean; that was the primary means of communication. Well, lo and behold, wouldn't you know that we figured out a way to hook up computers through this HF radio system. So, we're getting better and better at doing all kinds of things with machines, and we're going to continue to do so; "we" meaning the U.S., Japan, and all industrialized nations that are learning to do more and more things with machines.

How are we going to fight a war in the future? Maybe we won't have any. I think we're going to have what one would call conflicts, and we're going to have terrorism, and we're going to have places where people solve their disputes in means other than peaceable. But, a world conflict? Maybe we've grown up enough that we won't have one of those. But I think we do need the ability to protect ourselves if some idiot decides to start something along those lines.

Oettinger: The first part of my question was something slightly different. At some level of conflict, all of these sophisticated technical means that depend on instantaneous communications will be useless. Meaningful control of a fighter wing will become impossible.

Cassity: At that instant, perhaps you're right. What then? Will the country attempt to retain its government or will we turn into a group of warring tribes, wandering around as the American Indians did 200 years ago? I don't know; I can't answer that. I foresee that our society will try to maintain governmental ties and search for the leader, and we won't have these little bands. I think that we will search for ways to talk to each other, using radios, carrier pigeons, or whatever we have.

Oettinger: You may have to have pigeon experts among Air Force officers.

Cassity: That's true. Some of our sophisticated weapon systems may not be of a great deal of value. We may not be able to get them airborne or get them to operate.

Student: Have you achieved an integrated information system at NATO, considering the nonstandardized equipment of each country? Do they have standard equipment for NATO forces?

Cassity: Yes and no. The ability to interoperate with the forces is better than it was 10 years ago, but certainly not perfect. The communications systems operate with difficulty, but we have made great strides in command and control systems, including computer systems. There are a number of other standards that we use across the entire NATO force. These aren't totally operable, although we have achieved more standardization with switched ground networks than anything else.

Student: In reference to training, which is leaning more and more toward the "world of computer" operation — and I guess that's more of a reality than I probably realized at this point — what strides are we making in terms of the training function? How do you see that connected to the whole idea of interoperability?

Cassity: Well, obviously if you have standard equipment you can establish a standard training program to teach people at a particular level. Now, if you have a group of people that you're trying to train to use a computer who are not inclined, or trained, or haven't passed the fifth grade, then there's a little bit of a problem. You have to bring them up to a point where you can start training them to use a computer. But if you have reasonably educated people who are "computer literate," there's quite a few ways to integrate them into standard training programs. We use lots of standard training. A number of schools are held in the U.S., as well as in other countries. For example, NATO has a number of schools in various countries that all countries send people to, to learn interoperable ways to communicate and operate together. We have a system called a Warrior Preparation Center, an Army/Air Force combined effort that teaches NATO commands, exercises, and war games so that people can learn to interoperate. This includes training at a very high level, at the general officer level, and also teaches people the same standards in flying airplanes or in driving tanks.

Student: Sir, I want to get back to Victor's question on standardization. The Air Force has moved quite a bit to Have Quick radios; the Army doesn't really have them, but at least the liaison officers do. I understand now that NATO and the United Kingdom and France are buying it, and these communications systems are supposed to be just like the NATO and the U.S. Airborne Warning and Control System (AWACS), which would provide greater interoperability. So the U.S. Air Force can communicate with our allies at a more secure level.

Now if we can bring in Army, is that a good example of where we're standardizing?

Cassity: Yes. What I hear you describing is more interoperability than standardization, but you can use the same thing. We are striving for ways to allow my radio to talk to the British radio, or to any of our allies. We have similar programs with other countries: Korea, Australia, etc. Many times one seeks to develop communications with a single kind of equipment — everyone buys a Macintosh or everyone buys a particular radio. The other way to do it is establishing an interface standard or a waveform standard for passing electrons, and everybody builds to that same standard. Then because you're using a similar waveform or the same standard, whoever builds the equipment can talk back and forth. The frequency hopping that you're talking about requires very similar equipment and that everyone have a pretty accurate clock as well. But all of those things are happening between us and our allies.

Reynolds: It seems to me that that particular problem is even more complex, because you've got to get the keys around. You've got distribution problems on frequency hoppers.

Cassity: We're talking about cryptokeys those things that cryptologically allow one piece of secure equipment to talk to another.

Reynolds: And specifically control the hopping frequencies, but we have a problem because the wider spread it gets the more likely the bad guys are to get it. Once the bad guys get it, your jamming, anti-jam capability is gone, because they can predict you.

Student: Maybe I should suggest one thing here. During the time that I've been flying tactical fighters, the biggest event has been that the radios have improved so much. It's so fantastic just to be able to talk to everybody, at least in the U.S. Air Force. I think we've got it where it works pretty well. Now, if we got it to work in this huge tactical Air Force, with the French and the U.K. on line, we could probably spread it around NATO. We haven't done that yet with the Army.

Cassity: The Army is fielding the SINCGARS radio, which the Air Force will be joining in on. So, that is happening even as we speak.

Oettinger: At the risk of raining on your flyby, let me push a little bit further; if I understand correctly, your missiles by and large remain under Army

control. It would seem to me that the odds of shooting friendly missiles as well as others remains fairly high under chaotic conditions. So that this question of Army/Air Force communications remains somewhat central.

Cassity: That's a good example, and it's a problem that we're working on right now. We have been working on the IFF/SIF, an identification friend or foe/selective identification feature, which is a black box aboard an airplane. It's on board commercial airplanes for air traffic control. There's the mode/code that this black box squawks, and there's an interpreter on the ground that hears this transmission. You can identify the airplane and the altitude, and the computer keeps up with it. Over the last several years we've been trying to come up with a system that you can't jam, you can't spoof — that is the bad guys can't talk to yours and make it do things that you don't want it to. Our U.S. Army, as you mentioned, has a lot of these ground/air missiles, these surface-to-air missiles. They are very accurate, and they are very, very fast; they can even catch a speeding jet.

We want this black box to squawk, after these guys down here look up there and they get a red light or green light: these guys are friendly, or not. Now the Army air defender knows that a lot of times the airplanes coming over look exactly like our airplanes. The Army air defender has worked it all out and says, "O.K., my rule is if it flies, it dies," and so he's ready to shoot anything. The guys that are flying back would like to have a box. We're having a lot of trouble building one of those, however, and it's very expensive. It takes up more space in our airplane than we'd like, but we've got big efforts going on.

Student: Maybe some airline has it.

Cassity: Well, it depends. You're talking about the incident down in the Persian Gulf, and if you take the black box that is normally carried in a fighter and you put it in another airplane, those folks that interrogate it are reading what the box is putting out. If that box says, "I'm a fighter," it doesn't matter what kind of airplane you put it in. You can put it in a kite and it's still going to send that same signal.

Student: From the Army's standpoint, the air defenders', so many times it ends up that if it's in the area and they don't think it's supposed to be there, then the guys are going to shoot it down. It's unfortunate, but I think it's procedure, I think the equipment is getting better.

Cassity: We're searching for equipment that will help us deal with situations that we're solving now with procedures — by stipulating certain air corridors, and certain altitudes and all this sort of thing.

Oettinger: The more elaborate and fail safe that is, the easier it is to spoof.

Cassity: Especially if you're a cripple. If you're coming back and you're crippled and you can't climb high enough and can't go fast enough and do the right things, then you're in trouble.

Reynolds: Just basically an old tale. About 10 years ago I was out in California and toured Teledyne; they had already put a little box on top of the Stinger missile shooter. It would recognize any IFF squawk that came by and it would show the identification codes that were coming down as well. That end of the technology seems to be well manned.

Cassity: What if you're the bad guy and you're able to spoof that little receiver down there, you say, "Hey, I'm squawking the good guy code and I'm a good guy and you're not."

Reynolds: That's why you have Mode 4.

Student: That's U.S. only. NATO doesn't have it.

Reynolds: That's right.

Cassity: Well, that's spoofable as well.

Reynolds: Oh, it's spoofable, but not as easily.

Student: Plus the reprogrammable Stinger did not work out like they hoped it would work out.

Cassity: These are very difficult technical problems and they're also very difficult procedural problems and important doctrinal problems. I don't pretend that we have solved them all, but the joint services world has done a great deal to help that.

Let me get into the joint world just a little bit. I'm not a recent convert; I've been thinking joint for a long time. In our United States forces we have had the Army and the Navy for years and years. There is also the Marine Corps, but the Marine Corps is part of the Navy to everyone except the Marines. In 1947 the Army Air Corps broke out into its own separate organization — the Air Force. There was a great deal of autonomy in the Army and the Navy. We had a Department of War and we had a Department of Navy. Then we established a thing called the Department of Defense. The military had always been ruled by civilians, but there were two separate civilian organizations: the Department of War and

the Department of Navy. Then we moved them together into a Department of Defense and the Air Force came along at this point in time. Then we had a thing called the Joint Chiefs. We didn't have a chairman, we just had the Chief of Staff, the U.S. Air Force Chief of Staff, the U.S. Army Chief of Staff, the Chief of Naval Operations, and the Commandant of the Marine Corps, and they just took turns, week by week, month by month. One of them was a chief; they were in charge and they chaired meetings, and when the end of the month came another guy took over.

Then we evolved into a system where we had a chairman, and all those guys kind of voted, and everyone sought compromises to get any authority. It was like a committee, and so you said to your friend in the Navy, "Hey, let's go this way and we'll beat up those guys in the Army and we'll win this one." So it depended on who was chief for that month or who had the right compromise in front of him. Then along came the Goldwater-Nichols Act, and we really made jointness official. At that point we made the Chairman of the Joint Chiefs a single, non-voting individual who advises the Secretary of Defense and the President of the United States. The decisions reached by the Chairman are not consensus decisions in which the Army, Navy, Air Force, and Marine Corps all vote. The Chairman decides how he will go and all those other guys say, "That's a great idea," or "I disagree," at which time they can go around and tell the Secretary of Defense, that "The Chairman is full of prunes." That doesn't happen very often, but there is a provision for it. But what's important is that you have a single person, who is the advisor to the Secretary of Defense.

Now when President Johnson was in the White House and Wheeler* was Chairman, he didn't necessarily have all those guys lined up on Vietnam. There was a difference between the Army and the Air Force and some of the other folks on what we ought to do. There's a great deal of service parochialism — we had all kinds of names for it — but we do things to others just to win. I'm not saying all that's cured now, but the joint thing has really helped. We have a law now that says whoever is to be promoted to flag or general officer, the warrior, must have served somewhere in a joint position.

Earlier today I was talking to the gentlemen here from the Navy Academy about Admiral Jerry Tuttle, who was my predecessor in this job. He was won-

*General Earle G. Wheeler, USA, Chairman, Joint Chiefs of Staff, 1964-1970.

dering what happened to Jerry after he got his purple suit. Well, he learned a lot of things: the Air Force had some good ideas, the Army had some good ideas, and he took some of those good ideas back to the Navy. Now it kind of upset some of the old salts, but the Navy is playing joint, and similar things are happening in the Army and in the Air Force. So, the joint thing is, I think, a really good deal.

I serve as the head of J-6 (Command, Control and Communications Systems Directorate), or the communicator. One of my functions is to serve as chairman of the Military Communications-Electronics Board, the MCEB. Sitting on this board is Jerry Tuttle, Navy senior communicator, Al Edmonds, the Air Force's senior communicator, Gerry Helms from the Army, and the Marine Corps guy. We also have a person from NSA (National Security Agency) and a person from the State Department sitting on that board, as well as someone from the office of the Assistant Secretary of Defense for command, control, communications, and intelligence. We actually make decisions as to which way we're going to go, and the decisions have teeth. Now, if one of those guys says, "Malarky, I'm not going to do that, I don't care what we voted or how we worked or what the right decision is, I'm not going to do that," then I say, "O.K., we'll have a joint action." So I raise this issue until it gets to the "tank," that's the room where the Joint Chiefs meet. I put the question forward, and if we can't reach agreement then we take it to the Joint Chiefs, at which time there is a decision. That decision is made by the Chairman. By the way, we've never had to go to the tank. The communicators have somehow managed to work and find an agreement. This has enabled us to do a lot of things toward interoperability, and to do the things with radios that you're talking about.

The Air Force, for example, is the lead service for the Milstar satellite system, and the Army is the organization that is principally responsible for the ground terminal that talks to this Milstar system. We don't have the Army, and the Navy, and the Air Force all working on the same program. We have a lead service that is doing something in each of the services, then buys from that contract or uses that technology. So jointness is helping us to have a single armed forces and get rid of some of the infighting.

Advanced technology has changed the way the armed services operate. In years past the Admiral of the ship was given his sealed orders and he didn't

open those orders until he was away from land, at which point he was totally in charge of the mission. We don't do it that way anymore. The communications systems we have are sufficiently good that we can talk to an attack pilot in the Persian Gulf and he can talk back and forth to the President of the United States and decide whether we're going to kill a particular ship or not — all in about two minutes. Now, I'm not necessarily saying that the President ought to be deciding which ship to sink, but in our country the President is the Commander in Chief and if that is a decision he wants to make in a particular instance, then we have the wherewithal to allow him to do that. The technology is there and we're doing it.

During the Panama incident the technological capability was available, so the President of the United States could talk to a person secure. He didn't do this, nor did any of the commanders in the chain leap down to participate in micromanagement. It was an operation where each commander had his thing to do. The communication was wonderful, which was quite a change from the last time we tried one of these things.

Oettinger: Let me just interject a comment here, because that's a very interesting remark that will pertain to some of you who are doing papers in this area. We ought go back through the records of this seminar over the last eight years and find the number of statements saying the communications possibility was there, but was not exercised.

Student: Could you describe the previous Panama coup attempt and the role that communications played between what was happening in the field and in the White House?

Cassity: Well, that involves areas that I probably shouldn't get into a great deal of detail about. We had the means. There was criticism that the President was not able to talk to commanders in Panama, and those reports are in error. What the President was unable to do was find out the intent of the individuals who were attempting the coup. The individual leading that earlier coup had been at the right hand of Noriega, and so there were a lot of folks who thought perhaps that could be a sting as opposed to a real coup. So, the means to communicate between Panama and the White House were available, then as they were in the Just Cause incident. Now, in the case of Just Cause we had them beefed up some. I can't get a lot farther than that.

Let me say one other word. I am a command, control, and communications person. I am a

“communicator” and I’m a “techie.” This is in contrast to a “warrior,” the person that flies the airplane or commands the troops. There’s a major difference. One of the things that is happening today, that is very important from my aspect, is that the communicators are taking their lead from the operator. I said right up front that we can’t get ahead of the strategists and the planners, neither can we get ahead of the operators — nor should we. The command and control systems are very sophisticated, very expensive, very hard to build, very complicated, and we must expend our energies and our dollars today to provide the operator with the capability that he wants and needs.

There is a tremendous tendency for us computer folks, who are interested in communications, who are into sophisticated equipment, to build a system that we like, that will do the magic things that we want it to do. Because we are very familiar with some of these sophisticated devices, we make them complicated, so that they pass more information than perhaps the operator wants. So, the most important thing that we, as communicators, can do is stay with that operator and bring him along, and let him set the standards. We are doing that now. For that reason the operators at many levels are content to let the operators at lower levels be in charge of their piece of the war, their piece of the action, or their part of the exercise, and not try to usurp responsibility or step down and micromanage a particular operation. Because the information flows up as well, so that these people sitting at the higher level, the CINC (Commander in Chief), the Chairman, the Secretary of Defense, the President, are able to know what’s going on at these outposts through the normal routine reporting. At any time during the Just Cause episode, we could provide the Secretary of Defense or the President with the ability to talk to the CINC. The CINC had the ability to talk to his tactical commanders, and the tactical commanders were able to talk to their unit commanders, on down the pipe. That’s one of the reasons that we’re able to allow the operator to let those below him do their thing without stepping in — because we techies have given the operators the things that they want without giving them too much.

Student: Can you give me two examples, one where the operators were out of the loop in terms of the requirements for a particular system that didn’t meet their needs, and one where it did?

Cassity: I’d be glad to. WWMCCS is the Worldwide Military Command and Control System. The

WWMCCS computer system was built by the techies and we made that damn thing so hard to use that one had to be a computer expert to sit and operate the keyboards. It achieved notoriety as a system opposed to what people wanted, and we spent a lot of money on it. It was downward directed by those of us sitting at a very high level in the C³ business and we kept trying to improve it to do more and more things. The operator wanted it, but he couldn’t use it and it kept passing information that he didn’t particularly want. We kept throwing more money at the WWMCCS information system (or the WIS, a later derivative). Finally, when we still had no useful products delivered, the whole damn program was canceled about two years ago. The newer alternative that we’re looking at now, which we are calling WWMCCS ADP modernization, uses off-the-shelf equipment, and we’re staying very, very close to the operators.

A system that did work is Granite Sentry, which is an Air Defense Command Post, or the Air Defense Operations Center. Granite is a word that we use for Cheyenne Mountain; it’s just a code word. So Granite Sentry was a program to upgrade and modernize the command post within Cheyenne Mountain. The Air Defense Operations Center was the first phase; we gave ourselves two years to modernize that center, provide modern displays that would be suitable for the CINC, and we selected a family of computers that we could use. Digital Equipment Corporation won that contract. We took Air Force blue suits as well as civilian programmers, and we used two small contracts for software programmers, and we began a prototype development of this command center. After 25 months and several iterations of its design, we completed the project and turned it over to the CINC. It was what the operator wanted because he had personally worked with us as we built it, and it was satisfactory. So, those are two examples that come to mind immediately.

Student: You made a distinction between yourself as a techie and the operators or commanders in the field and you called yourself a communicator several times, but you’re in charge of command and control communications. What distinction do you make between command and control systems and communications systems?

Cassity: The communications is the wherewithal that supports the ability to command and control. C³ systems are usually systems that a commander uses to employ forces. I call myself a communicator

because that's a convenient term. Those of us familiar with the business automatically know that I'm involved in computers, and the providing of command and control. So it's strictly the jargon of the business. It takes too long to say command controller, or command control communications person. We just call ourselves communicators for the most part.

Student: The question that I have is, is there really a difference between command and control systems and essentially communications systems?

Cassity: Well, I think that the command and control system is a communications system per se. We can say it is DSCS (Defense Satellite Communication System). That system is only used to provide the ability for electronics to flow from point A to point B. Communications systems involve the information that you pass and how you display that information and use the information. Command and control systems include the communications pipe over which the information flows.

Student: You mentioned that we've had a steady decline in the Department of Defense budget every two years.

Cassity: Every year. About 2 percent and now it's going to be more.

Student: I was wondering about the long-term impact of Gramm-Rudman and does it have a life cycle? Does it have a cutoff? Is there something that must be done before the cuts stop? Seems like since Gramm-Rudman it's been downhill.

Cassity: Well, I'll put on my economics hat for just a little bit, and I don't have a very big one. We have a budget deficit, which I think most of us recognize is a real problem. We have a Congress (please don't take this as a derogatory comment) that has been unable to face and resolve some of these problems, other than by using Gramm-Rudman. The problem is not that we have dummies in Congress, we have very smart people in Congress, but these persons are put there by their constituents. It's very hard to vote against your constituency because it causes you to not be elected again. Everybody is all for cuts in the defense budget but we don't want it to affect our district. Mr. Kennedy didn't like to think about closing Hanscom Air Force Base (AFB) out here in Massachusetts, and by the same token the senator in Colorado is not interested in closing Lowry AFB and some of the bases out there, so that's a problem.

The same thing happens in a thousand other budget areas. Our Congress has been unable to cut the budget, so they came up with Gramm-Rudman, which says: when the deficit gets this big, we're just going to cut everything. What is it doing to us in defense? Last fall the President said, "Well, I'm not going to exempt military personnel from the provisions of Gramm-Rudman," so he chose not to. Today, the Department of Defense, the Army, Navy, and Air Force are facing a very difficult problem because we need to reprogram some funds. We need some extra money that we don't have in our budget to pay for people's salaries, to pay for people to move from base A to base B when we want them to move. We either have to get rid of a whole bunch of folks or Congress has to give us permission to reprogram money — that is, take money out of this piece of the budget and put it into our personnel budget. That's a very real impact the Gramm-Rudman bill has had on us, and it's making all the newspapers. I hope that the Congress will allow us to reprogram some dollars. If it doesn't, then we're going to break some promises we made to young men and young women who chose the service as their way of life. We're going to kick them out, whether they want to go or not.

Student: It seems to me that a lot of things are changing around us and the Department of Defense should have some leverage in terms of being able to plan and strategize. If you're talking about being so close to the bottom of the barrel that someone's getting kicked out of the military, that's kind of bizarre.

Cassity: Bizarre or not, it's going to happen, and the Congress is saying, "Well, the President did that." So we have a little difference — it's the administration versus Congress — who's in charge?

Oettinger: Let me take you back to Jerry Tuttle and your comments that he learned a good deal from his purple suit. In his earlier role, sitting where you sit, it was clear in the comments he made here a couple of years back that he prided himself on having learned from being an operator, from being out there running the 6th Fleet. Then he was able to combine techie and operator viewpoints, just as you described. He made some comments in this seminar about making sure that the guy at the command level could get whatever information he needed. In spite of that, though, over the decade of this seminar there have been recurrent complaints in the post-Tuttle period by folks who say, "I know there's

information that the techies are supplying that comes from intelligence people and gets across some door, but we are not able to get it and use it. This says that in spite of advances in technology, in spite of occasional individuals who transcend the problem, something remains that makes this kind of complaint a perennial. I'm wondering if you could comment a bit on what change there may be in the problem as you see it?

Cassity: It's an age-old question of those folks who have intelligence information. Information is power, and if you have the information and the other guy doesn't, then you're more powerful than he; you know more than he does. That has been a complaint by the operator: as the person who is to drop the bombs or attack the target, he wants all the information. However, we run into some problems with how we get information. Certain information we get with satellites in the sky that hear people talking. Everybody knows we have those, but they don't know how good they are. We get other information because we can go and "image" objects on the ground or in the air, or on the ocean — with radar or with cameras, or whatever the case may be. Sometimes we get it from people. So, no matter how you get it, the intelligence gatherer says, "Hey, if I show this picture and it gets out so that other people see it, well then the bad guy knows I have a camera that's this good. Then he's going to hide his equipment. Or, if I share this information that can only have come from one person, the bad guy will kill my source of information. So there's intelligence that says, "I can't share that. If I share that then I'll lose my source." And the operator says, "Hey, give me all the information."

The amount of information that is available is reams and reams. So we've got two problems. We've got the operator on this side and we have an intelligence person on this side, and we have this door that doesn't always open (we invariably call that the green door, because some time in the past we painted one of those damn doors green). This is also called the black world. We have various sundry classifications; we have Top Secret, Secret, Confidential, For Official Use Only, and then after we get up into the Top Secret area we have Compartments Only. Guys that wear white ties can have this one. It's an age-old problem that Professor Oettinger brings to mind.

Let me mention one more problem we have. These people are getting information from hundreds of sources and places and they have a tremendous amount of information. They say to this operator,

"We'll tell you what you need to know. What do you want to know?" This guy says, "I want to know everything." The folks over here say, "If I give him everything it's going to flood him with paper and information and he can't use it all."

What we need is useful information over here and we usually call that fused information — it's fused between the intelligence community and the operational community. It's fused so that the operator can use it and he has the information he needs, and it's not too much.

The good news within the National Military Command Center (NMCC) in the Pentagon and the national military intelligence center in the Pentagon is that we've taken this damn wall down. It is absolutely open and the people on this side can walk to that side, and the people on that side can walk to this side. Although, we still have a few rooms back here that you have to have the right tie on to get into. Why have we opened a lot of this up, providing machines on both sides that fuse and pass information? Because we've had people who are willing to make this sacrifice and we've built our centers so that for the most part all of this information can be shared. In many cases we've clipped pictures, or taken away certain things, so that you don't know where the information came from, or what piece of equipment obtained this information, or we've done away with the source coding.

Another thing that we've developed is the Warrior Preparation Center, which is a classroom of sorts that we established in Europe. We set up a center with rooms similar to this where we could build replicas of different command posts. We provide both displays that duplicate the command centers and very similar fast-flowing information. In 1983–1984, we brought in General Jack Galvin, a three-star and a corps commander in Germany; General Bill Kirk, a two-star and the deputy for operations at USAFE; and a fellow by the name of Lenny Perroots, the intelligence person on the staff at USAFE. I was their communicator, and Colonel Moody Suiter was the operator who put it all together. What we did was put together a place in which the warrior could sit and he could say, "I need some information," and the intelligence guy could say, "What do you want?" and he'd say, "Everything." We gave him everything available. We absolutely overloaded the operator, so he says, "My God, I can't use all that information, don't give me so much." The operator then is able to pick and choose that kind of information that he wants and needs on a real-time basis.

We built a simulation that wasn't perfect, but it included an air/land battle, and it allowed the war to flow at a high speed. We didn't have a scripted exercise, we had a real live enemy sitting over there. We had a person with a red hat who had studied the red tactics, employing forces as we thought the bad guys would. We had a real war game. This person could use real intelligence information, passed in a real-life manner — pictures, images, television screens — and we could make it go real-time. The speed of war today is very, very fast. We could absolutely snow a commander with information and we could slow it down until he could put himself into a real environment and learn to think as fast as he is going to have to think. This Warrior Prep Center enables us to help the warriors pick the intelligence information they need and recognize that probably they don't want the whole bag. We've torn down the door here.

Now, we've not solved the information-sharing problem, but we're taking major steps in the right direction. We are fusing information — operations information and intelligence information — into displays that do away with some of the sensitivity issues of the intelligence community.

Student: I saw a quote some time ago saying that the Soviet Union has a radar satellite, called the EORSAT RORSAT, that can provide them with a real-time intelligence capability worldwide. They can monitor the air battle groups of the United States on a real-time basis worldwide, as well as other land/air forces of the United States. I'm wondering if the United States also has this kind of capability? Do you have radar satellites right now?

Cassity: The United States has lots of satellites but I can't get into all of that. I can say that Ivan does indeed have satellites that do precisely what you say. Now, don't get the idea that it's infallible, and that there aren't things we can do, but they do have it. This is one of the things that, when I was in U.S. Space Command, I made a number of speeches about. At that time, everybody was saying the Russians were using space for peaceful means, and I knew damn well that over 75 percent of their space assets were certainly not peaceful and these satellites were two of the assets. Yes, we do have satellites that can find information and see electronic signals, and all those things.

Student: It has also been reported the satellites are capable of tracking submarines. I wonder if this is true?

Cassity: I don't know. I really can't get into that other than say it would be very hard.

I came to town after having been the commander of Air Force Communications Command, which was a great job. We had about 55,000 people all around the world and I could go and ask somebody to do something, and boom, as commander it would just happen. I had two stars then and suddenly I got three stars and I said, "It's really going to be great when I get to the Pentagon." Well, I got to the Pentagon and they have more four-star generals in the Pentagon than they had generals at all the bases on which I had previously served, and a three-star didn't amount to a hill of beans.

I was reminded of the story of this little bull who was sitting on the hill looking out on a meadow and he sees two other bulls. This little bull was kind of watching the two older bulls and looking at all their cows. Then here comes this Texas Aggie in a pickup truck with a trailer. He opens the gate of this trailer and out gets the biggest, ugliest, meanest, toughest bull that any of these bulls had ever seen. He just kind of plants his feet on the ground and looks around at all those cows as if to say, "You're all mine." So one old bull says to the other old bull, "As tough as he is, I think I'll let him have half my cows," and the other bull allowed, "He can have all mine, because he's really tough." Meanwhile this little bull is back there throwing dirt, pawing, and scratching, shaking his head, and making noises, bellowing and what have you. So one old bull says to the little bull, "What are you doing, trying to pick a fight?" The little bull says, "No, no, not me. I just want him to know I'm a bull." So, as the new three-star in the Pentagon, I've been doing a lot of pawing and scratching and what have you just so they'll know I'm a general.

Student: You mentioned budget cuts and the changes in the world situation today. You also said you're chairman of the MCEB, so I'm curious as to what do you see as the challenges and priorities for C³I over the next several years? Especially in light of the fact that it looks like we may possibly lose access to certain foreign bases, and gain access to areas that were previously denied. How does the C³I react to all these changes?

Cassity: My system has to be flexible enough to support the operator wherever he goes, and however he gets there. In order to do that, I need more research, development, and production of tactical radio systems. That is, radio systems that don't require three C-5s to haul; I mean lightweight ones

that I can move easily from point A to point B, and that can bring information to and from my home base. Obviously in most cases we're looking at satellite communications and satellite equipment, and the ability to take that equipment out there. We need to do some further development and look at lighter, smaller, ground terminals. We need the ability to hide these, both electronically and physically from prying eyes. We need to do some of those things, but more important we need to be sure we know what we are going to do. Again the planners and the operators need to develop a strategy. Then we will build systems to support whatever that strategy happens to be.

In terms of deployment, we're still going to have friends in various places around the world where we can establish bases. We're going to move from some countries and to some countries, but we'll be able to work out these agreements as time goes by.

Another priority that I see in the C³ world is the passing of massive amounts of information, particularly imagery. Television is a thing that we know and love, and we know that we can take television cameras and pass information back to the United States, because the cable news network has proven that. They do a very good job, and everybody says, "Well, gee in all of the command centers, I've ever been, if they don't have CNN, I put it in." It's a damn good resource and you can see exactly what's happening to the extent that they can get reporters in there. We saw a lot of pictures of the same bunch of guys buried in the mud during Just Cause until we got the reporters in. We need a CNN-like capability that costs less, because we don't sell news. Every dollar that I spent on command, control, and communication information processing and display equipment is a dollar that I could have spent on a tank or an airplane. So, I have to look for ways that I can pass this information, process this information, and display this information for a reasonable amount of money. The challenge is to process and pass the information that the operator needs in real-time, and we're looking at ways to do it. How am I going to do it? I'm going to depend a great deal on the commercial world. I'm going to look at industry and many of the things they're doing, as opposed to building a lot of these things myself, because industry is building equipment like this for the cable news network. One of the better networks today is that of EDS, Electronic Data Systems, created by Ross Perot. EDS is now a part of General Motors. It is a fantastic network used for training, for passing prices, and for passing video. This great network is

very expensive, but they're paving the way because they've done it. I can buy some of this service from them or I can learn their techniques.

Oettinger: Early on you indicated a desire to say something about the narcotics problem and the joint forces working with law enforcement agencies.

Cassidy: One of the things we're working extremely hard on is the command, control, and communications connectivity between the various agencies. That's one of the jobs DOD has been given as a part of the drug war. DOD is not going to be taking our airplanes and shooting down drug smugglers. By law, a soldier or sailor on active duty is prohibited from acting as a law enforcement person — as a soldier I can't arrest you, that's outside my purview. (I can do it if you and I are in another country, but within the United States you've got to be a cop to do that, and I'm not.) However, we can help in many other ways, such as with the communications network; our initial cut at this was what we called the Joint Visual Information Display System (JVIDS).

Jerry Tuttle built a thing that he called JOTS, the joint operational tactical system, but everybody knows it's a Jerry O. Tuttle system. It was a Hewlett-Packard computer display and he ran very simple telephone lines from point A to point B, and he put real-time information on that and used it for LANTCOM to show ship positions. We've gone a couple of iterations beyond that and we're now calling it JVIDS. We've been able to use other workstations, other than a Hewlett-Packard; some of them were less expensive, some more. We've gotten into this thing so we can be competitive and we have used that system, plus a thing called the DDN (data distribution network) which is a DOD system which passes information. We're using those to provide the primary connectivity between the law enforcement agencies and all the other folks who are players in the game.

On January 30, we completed 17 sites. We're in phase 2 now and we've got some 20 sites connected all over the United States, in places such as Joint Task Force Headquarters in Miami (JTF-4), the one out on the West Coast in San Francisco (JTF-5), and the various law enforcement agencies surrounding those. There's one at NORAD, one down at Southern Command (SOUTHCOM) in Panama, one of course in the National Military Command Center, etc. We're providing the ability to pass information — whether it's the positions of airplanes or just a message exchange across these wires with screens.

So that's a device that operates at the secret level, that is being set up for all of the centers that are doing this.

One of the things we can't require is that the law enforcement agency share all of its information, for example, with NORAD. Each organization has to decide that, but we're providing the means and the opportunity for representatives from these various agencies to sit down and talk to each other, and get over that mistrust that exists between any two organizations, whether they're industrial organizations, military organizations, or government agencies. Everyone knows that we're doing this for the entire system and we have nothing to gain from it.

We are also making available secure telephone units. We call them STU III, which is a secure telephone unit using crypto devices and what have you from our friends from NSA; it is a very secure telephone that runs over plain old telephone circuits, so you don't have to have a terribly expensive connection system.

We have an organization called the EPIC (El Paso Intelligence Center) in which information that they gain can be passed back and forth, and we're expanding this network. It's an important part to support the J-3, the operator at the Joint Staff, and the various CINCs that are participating. From a DOD standpoint, CINCLANT (the Commander-in-Chief, Atlantic Command) is an active player as well as CINCNORAD, the North American Aerospace Defense Command, who is providing air-planes and interceptors — not to shoot down airplanes but to positively identify airplanes and to escort in certain places. We're also looking at ways in which we can take this information and pass it to countries that are involved: Mexico, Colombia, Peru, etc. We're also into the Pacific with PACOM out in Hawaii and we're passing information there. So my piece of the action is the connectivity as we look at the CINCs and the other operators' activity that's still being developed with the law enforcement agencies and the drug enforcement agencies.

Now, what we're also looking for is how we can provide the intelligence information that we have to other countries like Bolivia, Peru, or Colombia. Controlling the demand side of drugs will probably dry up the drug pipeline a lot faster than controlling the supply side. We in the military have been able to do a remarkable job as far as reducing the desire to use drugs. Everyone knows the consequences of our random drug testing; everybody gets to play and the probability of getting caught using drugs approaches 100 percent. If you are caught, your services are no longer required, and you're allowed to leave the

armed forces of the United States, under less than honorable conditions in most cases. Also, we have an all-volunteer force now so the people who are in the armed forces of the United States are not there because they have to be, but because they want to be. They're being paid to be there, and they want to be there, and if they want to keep their job they can't use drugs. So, for the most part, we've really brought the demand side down. I don't know how that's going to work everywhere else; it's a terrible problem.

Cigarettes, when I was a youngster, were a big deal and God, I couldn't wait to smoke. I was smoking cigarettes before I graduated from high school, and by the time I got to college I was a pack-a-day smoker. For 27 years I smoked cigarettes. But I was able to quit in 1980. Why? Well, I went to see the flight surgeon and I blew in the bubble, this little thing that records your lung capacity, and I flunked. Then I got to see a pulmonary person and he explained to me very carefully that I didn't have to quit smoking, I had another choice, I could quit breathing. I was able to quit smoking immediately after that. Withdrawal symptoms, hell, it lasted about all of three hours. I've not touched one since — I don't even like to smell people smoking cigarettes — but I was highly motivated. Somehow we have to motivate and convince our people, all our people — our kids, our friends — that doing dope is not good. It's going to be very hard. I have two kids that are grown now; I don't think they used dope. I'm sure that they tried some. Why some kids get hooked and some don't, I don't know. Friends of mine have lost their sons and daughters, in car accidents or whatever else, from dope and alcohol, and it hurts them. I've got friends who are lined up ready to fight drugs because of the loss of a child. We're losing lots of kids; we're losing kids in Washington at the rate of three, five, seven a night. We're wiping out young men, young black men particularly, and it's terrible. It's a tremendous waste of people, I don't know how to fix it. What I can contribute is the ability to offer command and control communications to support the folks who are working on the supply side. It's going to take a lot of us working on some of these things for the demand to be reduced.

Student: There have been some references, in the press in general, about bad guys in the drug war "militarizing." There's talk about their airplanes coming up with radar warning receivers, and their missiles in Colombia, and things like that. What's your reaction to that?

Cassity: It's true, I can't refute what's being said. I wouldn't call it militarization. What you have to recognize is the tremendous amounts of money that are involved in the drug business, and that for bucks you can get someone to do almost anything — even blow up cars with your mothers in them. We're afraid those missiles are out there. And there are radar warning receivers. How many of you have one to keep the cops off you? I won't ask you to show your hands. I don't have one. I really don't, because I'm too cheap. But these guys have the ability to buy the most sophisticated equipment available and there are lots of folks that will sell it. It's a real war, and yes, they are like a military in that they have real live generals and a lot of captains, I guess, who are willing to go out and shoot people. Their loyalty is bought, which means they go to the highest bidder, so sometimes they have drug wars among themselves. It's really tough and it's really true.

Oettinger: We don't want to impose on you and your generosity any longer.

Cassity: Thank you very much, I appreciate it. The very best of luck to all of you. I know a number of you are in the military, in our country as well as other countries, and I hope that my thoughts helped you, and I hope that you'll remember some of them. For all of you who are civilians and will be civilians forever, I hope you take away that we in the military are very much interested in our country and that we are, for the most part, your servants. You put the President in the White House, and he's the Commander in Chief, and you can take him out. We work for you. Our business is your business and we're interested in protecting our country and our way of life, yours and mine.