

INCIDENTAL PAPER

**Seminar on Intelligence, Command,
and Control**

**The Three Revolutions in Military Affairs
William A. Owens**

Guest Presentations, Spring 1995

Michael L. Brown; William A. Owens; R. C. M. (Mark) Baker;
Arthur V. Grant, Jr.; A. Jay Cristol; Robert Lawrence;
Albert Edmonds; John A. Leide

January 1996

Program on Information Resources Policy



Center for Information Policy Research



Harvard University

The Program on Information Resources Policy is jointly sponsored by
Harvard University and the Center for Information Policy Research.

Chairman
Anthony G. Oettinger

Managing Director
John C. B. LeGates

Copyright © 1996 by the President and Fellows of Harvard College. Not to be
reproduced in any form without written consent from the Program on
Information Resources Policy, Harvard University, Maxwell Dworkin 125,
33 Oxford Street, Cambridge MA 02138. (617) 495-4114

E-mail: pirp@deas.harvard.edu URL: <http://www.pirp.harvard.edu>
ISBN 1-879716-29-1 I-96-2

The Three Revolutions in Military Affairs

William A. Owens

Sworn in on March 1, 1994, Admiral William A. Owens is the third person to be appointed by the President to serve as the Vice Chairman of the Joint Chiefs of Staff. In this capacity, he serves as the nation's second highest ranking military officer. His career includes numerous commands afloat and a variety of influential tours ashore with the Department of Defense, the Secretary of the Navy, and the Chief of Naval Operations. From July 1992 to December 1993, Admiral Owens directed the post-Cold War restructuring of the U.S. Navy, serving as the first Deputy Chief of Naval Operations for Resources, Warfare Requirements and Assessments (N-8). He commanded the U.S. Sixth Fleet and NATO's Naval Striking and Support Forces, Southern Europe, from November 1990 to July 1992. Admiral Owens served as the senior military assistant to the Secretary of Defense from July 1988 to August 1990. He was Director, Office of Program Appraisal in the Office of the Secretary of the Navy and the first director of the Navy's Strategic Think Tank. He served as a member of the U.S. Navy's first Strategic Studies Group and as executive assistant to the Vice Chief of Naval Operations. He has commanded Submarine Group Six and Submarine Squadron Four. He served in four strategic nuclear powered submarines and three nuclear attack submarines, including tours as commanding officer, U.S.S. Sam Houston and U.S.S. City of Corpus Christi. Admiral Owens is a 1962 graduate of the U.S. Naval Academy with a B.S. degree in mathematics. He also holds bachelor's and master's degrees in politics, philosophy, and economics from Oxford University, and a master's degree in management from The George Washington University.

Oettinger: You have our guest's biography, so I don't think I need to recap his illustrious career. He has agreed to spend 10 or 15 minutes talking about things that are on his mind by way of priming the pumps, but is ready for questions whenever anybody is ready to hurl one at him. So, without anything further, I'm delighted to introduce to you the Vice Chairman of the Joint Chiefs of Staff, Admiral Owens.

Owens: It's nice to be together with you. I thought I would just give you a little overview of some of the things we're trying to do in the Pentagon that are different from what they might have been a few years ago. We are confronted with three revolutions, in a sense: the revolution in the world, the revolution in the defense budget coming down, and the revolution in technology. So, since we have these three dramatic changes going on around us, it's very important that we have a look at what we are doing with the U.S. military in the sense of reacting to the revolutions and

making sure that it's not business as usual—making sure that it's not business like it was five years ago, before the end of the Cold War, making sure that we're doing the right things for our country, and realizing the expectations of the American public for our military. So, we have a lot of things that are going on.

I thought I'd talk to you first about the way we're facing those three revolutions. I think the way we're doing it is through jointness, number one; through the use of the technology revolution, number two; and three, by trying to develop a cultural change to encourage innovation and the willingness to change as an element of our military officer corps and leadership for the future, because that's the nature of what you will face in the future. You can no longer expect to get back to a stable condition. You must expect that your careers in the military or in national security will be careers of change—change in every element of policy, in the elements of technology, and in the elements of organization, because I think that's what

you're faced with. So, unless you're ready for that cultural change, which is dramatic and significant, I predict we will not be able to march into a new period of national security strategy for our country, or at least, we'll do it far less efficiently. So, there are the three solutions, I think: jointness, technology, and a willingness to change.

Let me talk about jointness. I am, by Goldwater-Nichols, empowered and mandated to try to bring an element of jointness to the military in the Vice Chairman's role that deals primarily with joint requirements. Goldwater-Nichols was an extremely important part of our military's history. It was passed in 1986. It was a watershed piece of legislation. It affects you, as military officers and those of you who are associated with national security, in dramatic ways. I'm not sure we focus on it very much.

Secretary Perry says there are three legs to the Goldwater-Nichols stool. The first one is apparent to those of you in uniform: it is that we operate the United States military not through the heads of the services, but through the commanders in chief (CINCs) of the regions. There are five of those: CINCPAC; USACOM in Norfolk; CINCSOUTH in Panama City; CINCENT in Tampa, Florida, who is responsible for Southwest Asia; and CINCEUR in Stuttgart, responsible for Europe and a part of Africa. Those five regional CINCs, who come from all four military services, operate the U.S. military today for the Secretary of Defense and the President.

Goldwater-Nichols says the chain of command is from the President to the Secretary of Defense to the regional CINCs. I didn't say the Chairman; I didn't say the Vice Chairman; I didn't say the Service Chiefs; I didn't say the Joint Chiefs. If the Secretary of Defense decides to do so, he can sign a letter to the Chairman of the Joint Chiefs that says, "I would like you to be in the communication chain between me and the five regional CINCs," and every Defense Secretary to date has done so. So the Chairman of the Joint Chiefs is a communicator and advisor to the Secretary between the regional CINCs and the Secretary. In practice, it's the President, the Secretary of Defense, Chairman of the Joint Chiefs as a communicator and advisor, and the five

regional CINCs. That's the way we operate the military. What a dramatic change from just a few years ago!

Ten years ago, in the U.S. Navy, if you wanted to find out what was going on with the carriers or the submarines, the only place to find out would have been in the OPCON (operations control) center in the CNO (Chief of Naval Operations) staff. That's on the fourth deck of the Pentagon. There were dozens of people there who kept track of and controlled the ships and submarines and airplanes of the U.S. Navy. It was the same for the other services. So, if you had an admiral who was doing an exercise off Kamchatka, it was being controlled directly in the operational chain of command by the head of the service, the CNO. So, the first leg of the Goldwater-Nichols stool—operations—has changed radically.

The second leg was acquisition reform. It is less fleshed out, but it's very important to realize that acquisition reform was modified significantly to reduce the levels in the chain of command. The resulting acquisition hierarchy is from the Secretary of Defense, to the Under Secretary of Defense for Acquisition and Technology, to the service acquisition executive, to the program executive officer—the PEO, and to the program manager.

Now, who's not in that chain? The Deputy Secretary of Defense is not in the chain. The Service Secretary is not in the chain. No Assistant Secretary of Defense is in the chain. So Goldwater-Nichols radically changed the structure for acquisition and was meant to streamline it. It's better than it was, but we have a long way to go.

The third part of Goldwater-Nichols, the reform of requirements, is the third leg of the stool. Goldwater-Nichols said that henceforth there will be a Vice Chairman of the Joint Chiefs. It said the Vice Chairman would be an adjunct member of the Joint Chiefs of Staff. That was the way it was for a couple of years, and then a supplementary piece of legislation said no, he'll be a nonvoting member, and then another piece of legislation said he'll be a full voting member, and then another piece of legislation said he'd be senior to the Service Chiefs. That was done by the Senate to

make the Vice Chairman of the Joint Chiefs of Staff second only to the Chairman, primarily with joint requirements in mind. It was done to say, "Services, the day has gone when you individually will determine the requirements for our military. So, Navy, you are not the sole determinant of ship requirements. Air Force, you cannot be the requirer of airplanes or weapons. Army, if you want to buy a new piece of artillery, AFAS (Advanced Field Artillery System), or FARV (Future Armored Resupply Vehicle), you can't do it by yourself." The Vice Chairman and the JROC—the Joint Requirements Oversight Council, which is made up of the four Vice Chiefs of the services and is chaired by the Vice Chairman—is the group that will bless (and the Vice Chairman has to bless) each of the requirements for new weapons systems.

So, Goldwater-Nichols put a person there with that mandate and established the rule that that's how requirements would be. It also said that the Chairman of the Joint Chiefs of Staff will, every year, assess and evaluate all military programs and submit directly to the Secretary of Defense his recommendations for budget and programs that will make for the optimum joint military force. Think of what that means: every year, the Chairman of the Joint Chiefs, a four-star officer, submits his budget and program recommendations—program element, line item, dollars, and units for systems of the four services, whether they're airplanes or weapons or communications systems—directly to the Secretary of Defense. That's what Goldwater-Nichols told them to do. Those are the three legs of the stool.

Oettinger: If I may, let me just underscore the importance of what Admiral Owens just said. Preceding the Goldwater-Nichols Act, the services had absolute authority over procurement. The language was "fielding, deploying," et cetera, et cetera. The CINCs did have some authority to use the forces, to fight them, but the contrast is absolutely stark in terms of difference in authority before and after.

Owens: Yes, it really was a watershed piece of legislation. So, in my existence in

the Pentagon, I take as my mandate, my challenge, to do what Goldwater-Nichols said to do. All elements of the requirements part have not been carried out. General Herres got started with a lot of changes. It was very, very, difficult.* Admiral Jeremiah came along afterwards. It was still difficult, and he made a few more changes. I have decided that we will jump into the swimming pool and try to make it absolute that Goldwater-Nichols, in the requirements leg of the legislation, will be met.

The first Chairman's Program Assessment (CPA) was submitted last September to Secretary Perry from General Shalikashvili. It was about 25 or 30 pages long and had lots and lots of programmatic recommendations directly from the Chairman to the Secretary. Now think of what that means. When the Chairman submits these recommendations on programs and budget to the Secretary, it means that they do not go through the Service Chiefs. They do not go through the Service Secretaries. They do not go through the Assistant Secretaries of Defense, the Under Secretaries of Defense, the Deputy Secretary of Defense. They don't go through any stovepipe. They go directly from the Chairman to the Secretary.

Also, realize that when the CPA goes from the Chairman to the Secretary, it reflects the best judgment of the four-star military as to what we should do about programs and requirements. It represents the Chairman's and my view of what we should do with procurement in terms of numbers of weapons, airplanes, et cetera. It represents what the JROC thinks, because twice every year the JROC and I get on an airplane and visit each of the nine CINCs for a day. We talk, not just for an hour office call, not just for a half hour, not just with his staff, but with the CINC himself and his entire staff of admirals and generals. We spend 10 or 11 hours of the day talking about future warfighting require-

* See Robert T. Herres, "The Role of the Joint Chiefs After the 1986 Defense Reorganization Act," in *Seminar on Command, Control, Communications and Intelligence, Guest Presentations, Spring 1989*. Program on Information Resources Policy, Harvard University, Cambridge, MA, August 1990.

ments across the four services, built on what we've done in our JWCA process—the Joint Warfare Capabilities Assessments—which is to do assessment of nine areas: air superiority, joint strike, strategic deterrence, information warfare, intelligence, surveillance, reconnaissance, et cetera. We perform these assessments at the four-star level. We take them to the CINCs. We bring them back to the Chiefs, and then the Chairman signs out the CPA to the Secretary.

When the Secretary gets that, if he wants to do something different, it's clearly a political decision for him, and that's fine. That's what civilian leadership is for. He can make a judgment that says, "I've heard the military advice of my senior four-star military leadership, and I disagree. I am going to buy more aircraft carriers, or more divisions, or some different kinds of weapons." But when he does that, it will not be done with the advice of the warfighters. So, it's an attempt not to thwart civilian leadership, but to be very clear in what our recommendation is, and to make it a consensus of four-star leadership that this is where we want to go.

Last year, for example, one of the things in the CPA was a very strong recommendation for a cost of living pay raise for all of our troops, every year, to the end of the century. That had never happened before, but we said one of the most important parts of joint readiness is to keep faith with the troops. It doesn't matter what kind of equipment you buy, or what kind of readiness you have; if in fact you don't keep faith with the people, the hollow corps will develop, as it did in the late 1970s, and you lose readiness for joint warfighting. So we said, "It's very important that you commit to a long-term pay raise equal to cost of living for the troops." And that was done—\$12 billion worth of pay raise! It's a lot of money. It was the consensus of the four-star military.

That's about all I'm going to say about Goldwater-Nichols, except to say, "Life is different now." It will affect you in your careers in radical ways over the way it would have been just 5 or 10 years ago. It's important that you realize what the legislation says and how radical a change it

was when Goldwater-Nichols was implemented. So jointness is an important part of addressing the three challenges: the three revolutions that I mentioned earlier.

The second challenge is technology. I believe that there is a revolution in technology. It's easy to use those words, but I believe it. I think that we are at a time where it's not just the technology of information or processing. It's not just one or two or three technologies. It's the ability to see a system of systems developing that will have a radical effect on the battlefield. So, I believe that if you stack up the things that we're already buying for surveillance and reconnaissance—for example, satellite systems like HASA and space-based IR (infrared) satellite systems (I won't go through these acronyms for you, but take it on faith, or ask me a question if you want me to), or UAVs, unmanned aerial vehicles, that will fly at 60,000 feet with 1,500-pound payloads for five days, relatively inexpensively—\$10 or \$15 million worth. There are some flying out there today at 25,000 or 30,000 feet for two days with great capacity and real-time video control, sending imagery back to us. If you tie satellites, those kinds of vehicles, along with the vehicles we already have—the U-2s, the Rivet Joint, the Reef Point aircraft, the Guardrail aircraft, the E-3As, et cetera, then you have a system of systems of surveillance that will provide dominant battlefield awareness to us.

There's another system of systems that will allow you to communicate that awareness to the warrior. Here is where the explosion in processing and the explosion in bandwidth come in. If you listen to Bill Gates, the chairman of Microsoft, he says (I believe) that processing is going up *so* fast, but bandwidth is going up much faster. So he's much more interested now not in computer processing, but in bandwidth development—fiber optic, information transfer bandwidth capability. That's real. You won't find a lot of it inside DOD, but you do find a lot of it in commercial industry.

So how do you do that? What's the process by which DOD brings these commercial technologies inside the Pentagon? There's the global cellular network; if you

don't know about it, you should. It's going to be with us in a couple of years. Your Motorola handset will allow you to talk to anyone on the face of this earth via satellite—no land lines, no telephone poles, no wires, just direct from you to the satellite, off to Bill Owens in Alma Ata, Kazakhstan, or Cape Town, or wherever around the world. I can reach any creature on the face of the earth with my Motorola handset. Not only will I be able to talk clearly, but I'll also be able to talk somewhat antijam because there are 60 of those satellites, and if one becomes jammed, it skips to another. I'll be able to talk secure because there's a card that goes in my little handset that will match with the card that goes in your handset. It is called a "MISSI (Multilevel Information System Security Initiative) card" or "fortezza," and will allow me to have the level of security I need. It will also tell the computer where we both are on the face of the earth so that the telephone company will be able to tell you how much the call costs—30¢ a minute or \$2 a minute. It will be with us, not from DOD, but from commercial industry.

That kind of stuff is out there, and if you want to find out about direct broadcast satellites, or digital video, or compressed digital video, don't come to me or the Pentagon. Go see commercial industry. Talk to AT&T or talk to Ted Turner at CNN or his CEO, Tom Johnson, who will, by the same approximate time—1997 or 1998—have the ability from Atlanta, Georgia, to cover the earth in direct broadcast television satellite with digital video in 37 languages, which means that they can now send not only video, but also information, since it's a digital signal. So they can broadcast CNN to all the creatures on the face of the earth by 1997 or 1998.

There are a million of these things out there. Automatic target recognition comes from breast cancer research—an interesting story, and there are a million other little anecdotes that provide us a revolution in information flow.

I haven't said anything about processing. It's just interesting. It's there for sure, but it's just interesting. The rest of this, the system of systems of communications, will allow us to downlink that reconnaissance

and surveillance that I talked about a minute ago to the warrior.

Then the question is, what does a warrior do with it when he gets it? Does he use his tank, or his submarine, or his airplane? The answer is: only remotely, only indirectly. What he really is concerned about is getting a weapon on the target. Now he knows where the target is—real time, 24 hours a day, all weather. We have lots of precision weapons. I can name them to you if you wish. They are Tomahawk, Block-3, Block-4—very smart weapons that will go 1,000 miles. They are ATACMS (Army Tactical Missile System), the American Scud that always goes when you push the button, and it goes where you want it to go, and when it gets there, it's absolutely lethal. It gets there very quickly, faster than any of the other platforms available to us today: it goes 200 miles in four and a half minutes. If you've got a mobile target out there, and my system of systems finds it for you and transmits the data on it, four and a half minutes later, 200 miles away, there's a weapon on the target, and that means a lot. So that's why ATACMS is a very important weapon for us. There were 32 of them used in Desert Storm, and 32 of them worked.

There are other weapons—JDAM (Joint Deep Area Munitions) and JSOW (Joint Standoff Weapon), and Powered JSOW, and Air Hawk, and CALCM, and on and on. We've got lots of very expensive precision weapons. So, in about 7 or 8 or 9 or 10 years, I'm certain that we will have something like dominant battlefield awareness and the ability to do something about it. We will know about the targets in this very large battlefield, 200 by 200 miles, perhaps. We will know where every radar is, where every communications transmitter that we care about is, where every concentration of armor is, and we'll know it in real time, 24 hours a day, in all weather. We'll be able to get that information back to the Tomahawk shooter, to the aircraft with the standoff weapon, to the ATACMS battery, and you will see this chessboard of the battlefield in its clarity for the first time in history.

So, maybe Clausewitz was wrong. Maybe the fog of war isn't so foggy. It will

never be 100 percent, will it? There will always be some fog. There will be some virus. But we're up to that. I think this is a smart and deep team. And so, we will have, I predict, dominant battlefield awareness, and we'll have the ability to put weapons on target.

As a result of that, some age-old strategies might not seem the same. The strategy of the deep, shallow, and intermediate battlefield may not seem as relevant. If your battlefield is 200 miles by 200 miles, who cares whether your ATACMS goes deep or medium or shallow, or if your Powered JSOW goes to the far end or the near end of the battlefield? You'll be able to do mobile warfare, not force-on-force warfare, to go after the centers of gravity of that battlefield, knowing the distribution of that chessboard. You've never seen the other chess pieces before. You've never seen them in real time, in all weather.

Is it a dream? Some of it is. But most of it is there. Most of those reconnaissance and surveillance systems, the C³I systems, and the weapons are there. Notice, I haven't been very interested in talking about tanks, or armored personnel carriers, or airplanes, or submarines. Most of the stuff is there now. The vision is to tie it together, to make it a system of systems—systems of reconnaissance, systems of communications, systems of strategic weapons—and to tie them together in a macro system of systems that allows you to address this most efficiently. There is a chance that we will see a revolution in military affairs that makes a real difference in the way we do things and the way we think about things in the future.

I didn't talk to you about other things that will help this a lot also. Smart nodal targeting makes a big difference. Information warfare makes a big difference. You may not have to launch weapons. You may be able to go at the heart of this guy's soul in some interesting electronic and information ways. Or he may be able to go at your soul, so you'd better be prepared to defend against it. There are lots of programs, most far too black to talk about here. There's not much policy that allows us to have a clear definition of where we're going in this information world, but it's a very important

thing for us to be thinking about. The whole area of nonlethal weapons is an important element of the discussion as well.

That's the second answer to the three revolutions. The first was jointness: Goldwater-Nichols. The second was technology. The third is the spirit of innovation and change, and I don't know if you have it in you, because you haven't been brought up that way. You don't have very good teachers. You may have a good teacher in my friend here, but you don't have a very good teacher in me, because I don't know what it's about. I don't know how to prepare myself culturally for continuing, radical change. I want to find a solution for the things that I've talked to you about this morning. I want to finish it. I want to make the decisions, and get on with it, and do it, and then it's done.

Well, it's not done. It's going to be changing because technology is going to change, and the world is going to change more, and there will be more Iron Curtains falling or going up. There will be so many changes that I'm going to have to live in this world with a continuous, radical, cultural change. I don't know how we prepare you for that because we don't know much about it ourselves, and we're certainly not ready to give you any particular prescriptions for how to prepare yourselves. I'm certain that if there is a certainty, it will be that you will live in these periods of continual change. It will be frustrating for you because you're not used to it. Your parents didn't live that way, and the people whom you've served with or worked for have not lived in that kind of environment either. So, whatever we can do to convince ourselves that that is the truth (if it is), and secondly, to convince ourselves that we had better learn how to do it functionally, professionally, I think will be a service to all of you and to our country as well.

All I want to say here this morning is that this is a time of big change. We, at the four-star level in the military, are trying desperately to understand it and to contribute to it, and put rubber on the road, not just to talk about it, not just theorize, not just have seminars among our four-stars, but to do something about it. As somebody said to me about a year ago when I came to

this job, "It's the budget, stupid!" It's what you do with that money. It's not only the budget, of course; it's what you do with training our people and talking about it and debating it, but it's also, "... the budget, stupid!"

So, what do you do with that money that is left? What do you do to spend that money wisely, to give us the best possible warfighting capability, not only for two nearly simultaneous MRCs (major regional conflicts), but also for the plethora of non-traditional military operations—the Rwandas, the Bosnias, the other crises that we face in the world; keeping camps at Guantanamo; doing compassionate work in the fields of Haiti—all of the elements of operations that the U.S. military is involved with today. How do you do all of those wisely? There are a lot of smarts required, there's a lot of change required, and it's a different look at our military capability than we've ever had to take.

And, frankly, there's the challenge of the all-volunteer force. You in the all-volunteer force are the best we've ever had. You're also the most expensive. You have more family. More of you are married. Fewer of you, by a long shot, have parents who were in the military. When you go to speak to audiences across the country, fewer of them recognize the uniform you're in. We, the U.S. military, are becoming separated from American society, and it's no small thing.

Twenty years ago, if you were in an urban area in this country, and you had some trouble with drugs, or with the law, or with your parents, there was a way you could come to the military. You might have to go to the military! But today we're not interested in you, thank you very much. We want good high school graduates, and we want them without any criminal record. We're not particularly interested in them if they don't test well. So, we're not very interested in those 200,000 young people from the inner cities who used to come to the military for two years, and left the military two years later knowing how to pledge allegiance to the flag, and had a little discipline and a little dose of patriotism. Two hundred thousand of those kids a year used to come in, and two years later they went

back into America. Some went back to the inner city; most did not. It was a relief valve. They went to Pensacola, Florida, or San Diego, or Fort Bragg, or Norfolk. They got out of their morass—the tragedy of what they had grown up with. They had a way to get out. That doesn't exist anymore.

So, there's an upside of the professional military, but there's a downside, too: the separation from society, and the fact that we are not bringing lots and lots of these kids into the military as a part of their patriotic duty and education. There are pluses and minuses, as with everything. So there are lots of things to discuss in all of this, and I'm happy to talk about any questions you might have about anything I've said here. Thank you.

Student: I'd like to ask a question about intelligence support for the Army tactical commander in the Gulf War. It seems that from what I've read, the comments on it, the CINC and those strategic commanders are pretty well served with strategic intelligence, much of it from national assets and so on. In peacetime it's just as good. But at the tactical level, especially for the Army, there were many complaints that they didn't have the access. Part of the problem seems to be dissemination, but I think a bigger part of the problem seems to be that they do not have any access or any control over the use and deployment of these assets. So, in line with a vision for this dominant battlefield awareness thing, how will it tie in? Will it go some way toward solving this problem?

Owens: That's a very good question. Today, in Somalia, we have a couple of thousand Marines ashore. They are operating from ships at sea, but there are 2,000 of them actually ashore. In support of those Marines, we have U.S. Air Force AC-130 gunships, and we have Navy Reef Point P-3 aircraft doing fairly sophisticated surveillance over the area of Mogadishu. The commander of those Marines ashore has the ability to look at the video of the Reef Point aircraft, which is either coming to him directly or via satellite, depending on what the situation is. His equipment is there to

do that. That equipment wasn't there in Mogadishu just a few months ago, when we had the tragedy of the loss of the Americans in the street fight. This stuff is coming very fast. We're very focused on getting the downlink to the warrior. The sensor-to-shooter part of this is enormously important to us.

There are different elements of requirements for command and control. There is a direct military line that has to be supported by command and control capability from the President of the United States to the Secretary of Defense, to the CINC, to the Joint Task Force Commander, to the soldier. He's got to get commands, and he's got to get rules of engagement and command-type information. There is a whole bunch of information that doesn't have to go through that chain. It is all information that might be in a direct broadcast satellite capability that might cover a variety of completely different subjects, from logistics to manpower availability, or sensors that might be satellite based, or they might be UAVs, or they might be aircraft like the Reef Point I mentioned. All that information can be put on the direct broadcast satellite, and the soldier in the battlefield can call up his Windows on his laptop computer and punch "Intelligence," and up comes a menu, and it says, "Ground-Air" or "All." He punches "All" and "All Intel" comes up. Then he puts a circle around the geographic area he wants, and all the intel comes up for that geographic area. He says, "Tell me more about that target," and puts his circle around it and punches a button, and it says, "Here's the location, plus or minus X meters. Here's what it is: a T-72 tank. Here's where it's come from, down this road, and here's how fast it's going." The guy punches it up in his AT-ACMS computer, and launches his AT-ACMS 75 miles away, and hits the T-72 tank. None of that information went down the chain of command. What went down the chain of command was, "Shoot T-72 tanks north of 32 degrees north." What he got was a wide range of intel that now goes directly into his ATACMS, MLRS (Multiple Launch Rocket System), M-270 launcher, and he punches the button, and the ATACMS goes to the GPS (Global

Positioning System) location of the tank. That kind of thing is not far ahead of us.

A couple of days ago in the Pentagon, we had a predator, a UAV, flying at 30,000 feet out of Fort Huachuca. It was flying over an area looking down at a city and we were able to put a circle around a building in the city and I said, "Let's take a look at that. Get homed in on that building." You see the building and the number of windows, so if you had it in mind to fly a precision weapon through a particular window, you could do that. You might know which window you want to go in for a variety of reasons. The process was real time, via satellite, back to a screen in the Pentagon, and it gave you the GPS latitude and longitude of the target, not of the vehicle, but of the target. If there had been an F-16 at 35,000 feet, it would have been able to put the GPS latitude and longitude in and the pilot could drop his (in the future) JDAM or, at present, his laser-guided bomb on that target from 35,000 feet. Those kinds of things are coming fast; they are really with us, à la my example just now with Reef Point. But in the future, we'll have both the very reliable up and down command communications—that's Milstar—and the wideband information capability for logistics, intelligence, and sensor information, which is probably direct broadcast satellite. So that's how I see it.

Student: Just quickly, I am a little less sanguine about the whole thing, because I think a lot of lessons drawn from the Gulf War were quite unique. We had the open terrain and good overflight weather, in the sense that you could see mountains, and there was no population and so on. A lot of the information seems to be coming from the imagery sources. What do you have to operate in a different theater where there is lots of population? You don't have forces just squaring off at each other; you have other buildings and gas stations in between and all that.

Owens: It becomes much more difficult when you're fighting a war where you're in an urban area. I guess that's one of the things you're thinking about. But it's going to be a lot easier if you see the urban area

from above than it would be if you didn't. So, the degree of difficulty may be worse than Desert Storm was. But I offer to you that mountains don't matter, that foliage doesn't matter, and that weather doesn't matter, because in the future there will be not only electro-optical infrared: it might also be infrared of a different frequency that will see through clouds, or it might be synthetic aperture radar. I'm sure it will be. We're building one now. Westinghouse is building a synthetic aperture radar that will go in a UAV and will fly at 60,000 feet for five days and will be able to image objects and hopefully have an automatic target recognition feature so that when the missile TEL (transporter/erector/launcher) pulls out of the hardened tunnel in North Korea, the automatic target recognition will say, "That's a TEL" in real time.

Is that going to happen? I think so. If you don't believe it, go to Sarnoff Laboratory at Princeton, and they'll tell you how it's going to happen with automatic target recognition. It's not there today. All of these pieces aren't there today. But I predict that it will be there in 2005, and that we'll see the battlefield with that degree of fidelity. Even if I'm only half right, think how wonderful it would be. If I'm entirely right, think what a world of change we will have had in military capability, and in doctrine, and in tactics, and in the meaning of weapons and sensors versus tanks, ships, airplanes—the old way of thinking about things. It's still important; you still have to have land armies, you still have to have some airplanes, you still have to have airlift, but different quantities of it, different kinds. The whole panorama of issues will change, not the least of which is strategic lift: the amount of tonnage, the amount of cubic footage of stuff that you have to move to fight a Desert Storm. It might be down significantly. How much? I don't know. A lot, if you conduct war in this kind of environment.

Student: Admiral, first of all, as an EP-3 pilot, I'd like to thank you for highlighting the importance of Reef Point aircraft to all of my colleagues. Secondly, I'd like to ask a question.

Owens: How many people in this room know what an EP-3 is?

Student: I do now.

Oettinger: How many don't? It would be useful to spell it out.

Owens: There's only one person in the room? I know that's not true. There are a lot of people in the room that know.

Student: Then the next question: how many care?

Student: I'd expect that from a SEAL (member of a Navy Sea-Air-Land unit).

Student: He's a SEAL, so you understand that.

Student: But if I could, Admiral, since we're going to be getting so much of this stuff from commercial systems, how do we address duplicate use of a lot of these systems with potential adversaries? In other words, how do we try to deny them communications capabilities or information abilities when we're using the same satellite? Are we looking at that? Is that a thing we're considering, or should we?

Owens: It's a broad question. I believe that elements of the system of systems will be able to be countered. Clausewitz is right in that sense. The enemy is not a dumb guy; he'll be able to come and get pieces of this, but this is a system of systems, and it doesn't rest on any one given part of it. So it will be very difficult, and I don't think anybody else in the world today is going to put together a system of systems that is similar to what I'm talking about here with that kind of robustness. I think that's where the key is. Is he going to be able to affect it? Yes. But I think it will gradually degrade, not completely collapse, and so I'm optimistic that this capability will be something that we have in greater sophistication, maybe, than others.

I believe that we should share with our allies because, like the nuclear umbrella, perhaps, of times past, this is an umbrella of smartness that we can put over a battle-

field, not only for us, but for our allies as well. If the bad guys in the world start to see that we have that umbrella to put over a battlefield, maybe the bad guys won't be so anxious to tangle with us, and maybe this will be part of a policy structure for the future that matters a lot to this country.

Oettinger: It seems to me there's an inherent sort of contradiction here. You conceded in this last comment that Clausewitz might be alive and well, whereas in your earlier remarks you have pronounced him, if not dead, at least moribund. You talked about an open chessboard, countermeasures, hiding things, and the perennials, which is what triggered me now. If you share the umbrella with our allies, that means folks like our Iraqi friends in the days when Iran was the common enemy, who then become the enemy and still have the umbrella. That's some of the fundamental nastiness that contributes to the fog of war, it seems to me. I don't see it going away with quite the ease of the chessboard metaphor.

Owens: Somebody said to me the other day, "Do you think this is a video game, Admiral? You're going to play this chessboard?" I think you're right. There are some of the elements of this, but sharing the information with our friends doesn't mean you give away the system. It doesn't mean that other people aren't as smart as we are. They are. But with the coming together of the deck of cards that we have in front of us today, I think that for now, at least, it looks as though the Americans will be the ones who will put together the system of systems. If we're smart enough about it, we'll use it wisely for the good of our friends and allies, and we'll use it as a deterrent structure against those who are not with us, and we'll try very hard not to give away the critical parts of it. But clearly it's a matter of the margin. How much? Which things? Are you going to make some mistakes? Clausewitz is certainly hanging around to take advantage of that if we do.

Oettinger: Let me try, if I may, to test my understanding of what you say. I don't mean to be unnecessarily argumentative,

but with regard to the revolutions in military affairs, technology, et cetera, clearly there are capabilities that are around, or that are coming, in which the United States may have a serious advantage. This bears thinking about, because if Clausewitz were to disappear, if the fog were to disappear, then the revolutionary starkness of the possibilities is enormous, and you really need to rethink almost everything from scratch. In that observation, I would agree with you.

I also think I hear you saying that for a certain period, the United States may have or be able to count on sufficient dominance of this realm, if not perfection. You've got to think about it in a radically different sort of way, but even if that all doesn't come true, there's dominance. But, in a longer range context, I don't see anything that would have abolished the historical measures-countermeasures game. So I think I'm more anxious about the notion that this necessarily lasts for very long than you seem to be.

Owens: It's a great debate. Some things have changed radically. Jointness has changed radically. We buy into it. We all raise our hands and say, "yes." It's the first time in the history of the world, and it's the first military in the history of the world, to have operated that way. That's a big change. The Israelis have done it, maybe.

Oettinger: The Canadians put their military services together. It was a disaster!

Owens: Sir, sir, that wasn't jointness; they all wore the same uniform! Any Canadians here? If you went to see a naval officer, he was very proud of his naval pin on his purple uniform, and he loved to tell you about the ships of the Canadian navy. He was as proud of those ships, and they were as far separate from the army and the air force, as when they all wore separate uniforms. I think true jointness escaped the Canadian experiment. Living, standing, real jointness is something that makes a difference in this, and it's part and parcel of something that might be identifiable as an element of change that could account for an advantage that this country can take some-

thing from that others won't have for a while. It doesn't exist that way in the Russian navy and the army and the air force today. I'll tell you, they are a long way from integrating their navy and its capabilities into the land war. We're a long way from it, but we're getting a lot closer.

Look at other places! If you want to talk about the Chinese—they're going to be the world's largest economy in the year 2000. How are they doing in jointness? How are they doing in the People's Liberation Army and the navy working together on a common battlefield sort of capability, or common schools, or jointness? Show me the Goldwater-Nichols of the PRC; you won't find it there. So, jointness is a big element of it.

But I also think you should remember systems of systems. And for God's sake, stop thinking about your favorite things! Stop thinking about your favorite missile! Stop thinking about your favorite satellite, your favorite airplane, your favorite anything! Stop thinking about things that way, and start thinking systems of systems that come together in ways that I believe only American educational institutions and industrial capabilities will provide an architecture for. If we do—if you are joint first and systems oriented, then you'll tie things like the global cellular network I talked about before together with the direct broadcast satellite kind of capability out of CNN. The problem with CNN direct broadcast satellites is that the communication is one-way. So, how do you get the message to it to broadcast to you what you need via the global cellular network? Put those two technologies together, and start thinking about things as systems of systems. That one's free! All you have to do is sign up. It's not a billion-dollar program. It's also free to other people around the world. So that's one where they can really start to get into it.

But who's thinking about that now? Is there somebody in DOD who is thinking about it now? ARPA (Advanced Research Projects Agency)? No. DDR&E (Defense Development Research and Engineering)? No. Naval Research Lab? No. Who's thinking about those commercial technologies? We're all pretty proud of our sub-

marines, and our Milstar satellite, and our airplanes, and our jets, but who's thinking about those kinds of things? Sorry. There isn't anybody. There isn't any process, and there isn't any way right now. All of us smart people in the Pentagon need to do a lot better at gathering this stuff in, and making something out of systems of systems, not only military but commercial.

Student: Sir, the Army's battle labs are doing that. That's where I just came from ... oh, oh, I got the smile from Admiral Owens! I guess I don't know what I'm saying. Sir, that's noted. I was the chief of future infantry concepts at Fort Benning, and our whole job was to become aware of the commercial technologies that have military applications. Not to use a pejorative term, but I used to call the guys "suits," because every day suits came into my office and laid something on the table or a slide show, and said, "We use this for this," or "We're building this for this, but we think you might want to use it for lethality, or battle command, or survivability, or whatever. So what do you think, sir?" That's what we were doing. Now I'm going to tell you, there was a lot of inefficiency and ineffectiveness in that process. I'm going to write about that later. It's another one I have to study. But that was what we were doing.

Owens: Every week a lot of people come and show me stuff too, so I'm not sure of your point there.

Student: I'm saying that there is an organization that does that, within the Army anyway.

Owens: Oh, within the Army anyway? Within the Army *infantry*, anyway?

Student: It goes across the entire Army.

Owens: Have you been at Leavenworth to ask how they're bringing commercial technology in at Leavenworth? The Army's doing better at many of these things than most others, I've got to say that. But I'll bet that most of the people who came to see you were defense contractors.

Student: Sir, they were.

Owens: And I'll bet that there weren't many Bill Gates kind of people. I don't think Bill Gates likes to do business with the military. It's too bureaucratic, and we're too locked into our stables. There's a world of remarkable stuff at AT&T, or the breast cancer analysis capability at Sarnoff Labs, which is a wonderful automatic target recognition capability (it really is), or any of the things that are out in the R&D of non-defense companies. What you and I often see, I think, are the guys who have been selling defense products for years. They're still very important to us, but there's a whole new world, not just of computer processing, but of data transmission, target recognition, even people who are working on chaos theory.

Jim Blaker* has been trying to tell me what chaos theory is, and I recognize it only by virtue of the fact that in the Department of Defense, for years of course, we've built this joint warfighting capability by funding stovepipes, and I've always considered the fact that we have a pretty good joint warfighting capability to be proof that there must be a God who puts this stuff there, because I can't figure out who does it otherwise. I mean, a Navy guy puts together the Navy budget. It comes up at \$70 billion a year. How much does he know about the Army or the Air Force and the Marine Corps? Not too much! Does he know about ATACMS or B-2s? Not much at all. Who puts it together? The Secretary of Defense has knowledge of 10,000 programs that all come up? I don't think so. The Deputy Secretary? No. He doesn't either. Certain civilians—wonderful civilians, but civilians, who haven't had nearly the exposure that many of us in the military have? No. It's the Joint Chiefs! They haven't done that in the past. So, who does all of this? It's an example, I think, of the fact that there must be somebody out there taking care of us. Chaos theory may be right! There's a lot of chaos, and out of it comes some degree of order, like the defense budget and joint warfighting. Now

we're going to try to help it along a lot with what we do, not just leave it to the theory of chaos.

Oettinger: Let me underscore that for a moment because I think it's worse than Admiral Owens portrayed. It's not all that easy in the civilian sector either. The minute you try to get two things put together—proprietary this and that—it's almost as if you were dealing with separate services, or separate faculties in the university. I think it's really almost mystical, but the invisible hand of the marketplace is often what accounts for how it gets together: sooner or later somebody stumbles into the insight that you're better off making money, maybe even with your enemy, than if you are not putting things together. But the hell of that is that it takes sometimes a whole generation to do it. It's not cheering from the point of view of being proactive and getting something done, but it's cheering in terms of the speed at which countermeasures come in.

Everybody keeps saying, for example, that facsimile is something that happened very fast. Not true! We have a report by a Postmaster General of the United States worrying that facsimile will put the postal service out of business, and you think, "This guy is really with it!" Then you realize it was his annual report from 1872.* The guy scared himself to death 100 years too soon on something which is fairly simple minded compared to what Admiral Owens is talking about. So the problem of pulling together systems of systems, whether it's in the military or in the civilian sphere, is one of the hardest problems I know of.

Owens: I agree with you. It is a discipline, though, that I think we can apply ourselves to now. It is facilitated by jointness in the military sense, but in the generic sense, the system of systems architectures, and the theory behind them, and the structure behind them, and the meaning of them

* Special Assistant to the Vice Chairman.

* *Annual Report of the Postmaster-General of the United States: The Fiscal Year Ended June 30, 1872.* Washington, D.C.: Government Printing Office, 1872.

are enormously important to overall capability, not only because of the capability, but also because it gives you an edge that probably nobody else will have, at least in the relatively near future. So, I just want to comment that probably the Postmaster General would now facilitate a fax in an effort to get out of the business.

Student: Before I ask my question, just on your comment about the Postmaster General: as a point of information, last year was the first year electronic mail exceeded snail mail in pieces of correspondence. We all think it's a good thing, because the post office would never have handled the load.

My question, Admiral, is away from technology, on something that I think is even more murky, which is policy and politics. There's a very widespread perception among the civilian community that I'm exposed to here at Harvard that senior military guys like you and General Shali and your predecessors are directly and almost solely responsible for decisions like, "No, we don't want to get involved in Bosnia," and "No, we really don't want to invade Haiti. That's not a good idea." I think that's fostered a great deal by the media, particularly the national defense-type journals: that the senior military can say, "No," and write U.S. policy. General Sullivan,* when he was up here giving a speech to the Committee on World Affairs, stressed over and over, "We don't get to pick our wars." Where is the truth in that spectrum of the Chairman and you and the Service Chiefs being able to say, "No, that's not in our interest," versus the military just being told, "Go do it whether you like it or not?"

Owens: It's certainly important for General Shali, and me, and the four Service Chiefs always to remember that we are there just as advisors. That was what Goldwater-Nichols was about: to say, with respect to joint requirements, for example, "That's just our advice to the Secretary of Defense on requirements." And so it is with conflicts. If we are observing what's hap-

pening in Bosnia, which we are right now, as a matter of fact, then a number of things happen. The National Security Advisor, Tony Lake; Strobe Talbott, the Deputy Secretary of State; John Deutch, the Deputy Secretary of Defense;* and I, the number two military guy; watch these things. We get together in Washington in what's called the Deputy's Committee, at the subcabinet level, to talk about them. We have a lot of those meetings. There's one going on right now on Bosnia that I'm missing because I'm here with you, as a matter of fact. At the cabinet level, General Shali is involved in the same thing with Secretary Perry, Secretary Christopher, and Tony Lake.

So we have our input, but we try very hard just to give the military advice as it affects the U.S. military. I think that's what the Constitution wants from us. Whether or not we think we're smarter (and we don't) than our civilian leadership about policy, we try very hard not to represent policy in these decisions. But it's awfully hard. It's a fine line between what's military capability and what's policy when you get ready to go or not go into Bosnia, for example. So I think it's important that we recognize what our position is according to the Constitution, and that we let the decision itself be left to the decision makers, the politicians, to the NCA (National Command Authorities), and to the Congress, when they have a role in it. I don't know what more there is to say about that, except that it's important to be schooled in the Constitution and in the use of force. There is no doubt that if we say, "We don't want to go somewhere because we think there will be significant loss of life," it's going to influence the decision maker. I guess that's why we're there to give military judgment: it's to let him know as best we can what our best advice is. So we want to make sure it's good advice, not an emotional shot that is meant to establish policy.

Student: Your presentation of system of systems is very impressive, but I was wondering if you could say a few words

* General Gordon R. Sullivan, Army Chief of Staff.

* Admiral Owens gave this presentation in March 1995, before John Deutch became the Director of Central Intelligence.

about the enemy you see over the next decade. Whom is it designed for? Also, what are you doing to prepare for more conventional threats, like Islamic revolutions in areas that are sensitive to the United States and things like that?

Owens: It's really hard to see the enemy out there, isn't it? We saw him a lot more clearly when we were in the bipolar, sort of Cold War situation. We knew what he was, we knew where he was, and we knew how to get him. He probably knew how to get us, which was the element of deterrence. Today you can identify some areas where we're particularly concerned. We're still concerned about Saddam Hussein, of course, and we're concerned about North Korea. Those two countries make up the illustrative two MRCs we address ourselves to in terms of force size and capability.

But there are many other areas where clearly there is great instability—for example, the Balkans and what will happen there in April. I don't know what will happen when President Tudjman officially has the UNPROFOR (U.N. Protection Force) leave the Croatian-Krajina-Serb border. What will happen in Bosnia when that happens; how will the Bosnian Serbs react? And then, how will Milošević and the Serbs react to what the Bosnian Serbs are exposed to? Are we involved in some kind of significant thing there, and if so, what is it? Whom are you going to be concerned with? It's a little hard to see how that plays out.

So, as we look at the future, I think that anybody who tells you that they have a clear view of where it's going to be is probably not worth much of your time, because I don't think any of us see it very clearly in terms of the threat that we might face. Most of us tend to think that it's important to build a generic warfighting capability based on the most likely probability of war that we will face, and that's what we're doing. We're building a generic capability, not a capability against an established threat, because I don't know how else to do it. I don't know how to define that enemy out there. Once you've taken as a given that the primary mission of the U.S. military is to fight this country's

wars, that's not popular with a lot of people. There are a lot of other things to be done—humanitarian ops, peacekeeping, peacemaking, et cetera—but our primary function is to fight this country's wars, and we'd better not forget it, because it is the one crucial thing that could affect the long-term livelihood of our country.

How do you define what the size of that war is? We've now chosen two MRCs nearly simultaneously, which means about 45 days apart. It means 12 carrier battle-groups and 20 tactical fighter wings and 10 Army active divisions. That's the force size, in general. Given that force size, we also like to say that there are other things we have to do out there—military-to-military, peacetime operations, peacekeeping operations, peacemaking operations, humanitarian operations, contingencies less than MRCs, et cetera. We have to prepare ourselves, train ourselves, buy some equipment for that kind of capability and manage it very carefully so that it doesn't get out of hand. But it's a complex balance of things.

So, how do you look at the problems of the future? Well, I guess, you worry about what's going to happen with Russia. You worry about how China will develop. You hope that both of them will develop peacefully and that we'll establish good relationships with them. You hope that the Islamic fundamentalist movement is not something that can't be dealt with. I guess there are different kinds of Islamic fundamentalist behaviors. We need to learn a lot more about it and try to deal with it, but I don't think that any of us are focused on it as *the* threat against which we should organize military capability, certainly not.

I worry about refugees. What is the impact of the refugee flow as you get to the turn of the century? There are 400,000 Yugoslavs in Germany today who weren't there a year ago. If all of the immigrants from North Africa were to vote, they'd control all of the provinces of southern France. Ten years from now in North Africa there will be 200 million more 18-to-25 year olds ... (Is that right? I'm going to have to check this statistic. It's a little old.)

Student: The total population will reach 200 million.

Owens: Anyway, a *lot* of young people in North Africa—maybe it's 200 million more 18-to-25 year olds in the entire Islamic belt. The distribution of people is getting younger in the Islamic countries.

So, I don't know how you would put that all together, but clearly, political leadership had better do that for us so they can tell us what to do with the military, because we're not smart enough. This is where we're weak. But I think your question is very good. We just have to continue to think about it, work with our allies about it, understand it, and try to make sense of where it's going.

Student: Sir, you talked about the services building their budgets in a relative vacuum. Prior to Goldwater-Nichols, they instituted the so-called CINC Priority List, and that was the way the CINCs got to input. I was very interested to hear that you took the entire JROC around to see the CINCs, which is probably better than getting a list. I was just wondering, is that not one of the things you try to do: to be the CINCs' voice in forums such as that? How is that working out?

Owens: I think it is exactly that. I'm trying very hard to understand where the CINCs are in warplanning requirements, and to represent what their interests are, what I have learned from them, and also to share with them what our vision is for the future, because most of the CINCs don't have that capability. That doesn't mean they're not smart enough; it's just that they don't have all the resources that we have to look at the future of warfighting, and they don't have the time.

Student: They also don't have programmatic staffs. At least, they didn't.

Owens: They have a little bit of capability now. But in general, it's a two-way street. I learn a lot from them, and they, I hope, get something from us. It helps us to build a consensus, and also it helps us, as the four-star military, to testify together, be-

cause each of the CINCs comes back, as do the Service Chiefs, as do Shali and I, to testify. We all go up on the Hill, and if we're all saying something different, then it's very ... counterproductive. So we try very hard to come to agreements, and 80 percent of our positions are common. There may be some that are not, but there are many more now than in the past. I think that's good. We're not trying to lobby ourselves so that we have more strength. We're trying to talk about things so we're all smarter about things, so we can all understand where we think we should go, and then have them say it to Congress as well as to the administration.

Student: Can I just have a short follow-up? You didn't mention the Defense Acquisition Board. Is that still in existence? And are you still the vice chairman of that?

Owens: Yes, it's still in existence. It's the point at which requirements become acquisition, and it's cochaired by the Under Secretary of Defense.

Oettinger: Let me pursue a point he just made that ties back to some things you said earlier. The services have their own dynamics, and, left to their own devices, they would do certain things, among them, build equipment that wouldn't necessarily work together. The CINCs are responsible for tomorrow morning's fire-fighting or whatever that might turn out to be. So, when you take on, as I think you have (at least in the remarks you've made here), the responsibility for thinking ahead and planning ahead, and motivating ahead to what it might be like five years from now, clearly, that was something that was kind of absent pre-Goldwater-Nichols. It is present, post-Goldwater-Nichols, at least in the head of one Vice Chairman of the Joint Chiefs of Staff.

Owens: Sir, give us more credit than that!

Oettinger: Well, where else is it? Supposing you go out of office, what remains? Is there an institutional base that would carry this on?

Owens: I really think it's much more than a personality-oriented thing. If we're successful in building a process that includes the warfare assessments that I briefly addressed earlier, that we put a lot of time and effort into as an element of trying to make us all understand how we jointly contribute to the areas that make up modern warfighting, and if that is oriented more to the long term than the short term, and if the process is that we build a Chairman's Program Assessment that goes to the Secretary every year, and we take those assessments as the basis for a discussion to each of the nine CINCs for the five regional and the four functional areas, then, separate from personality, the process will tend to make us better than we would have been before. We do spend a lot of four-star time on this. It's not a staff drill; it's a real thing. If we take it seriously, and if we believe in a process like this ... and maybe it should change. Maybe there's a better way of doing it.

Oettinger: So it's a bully pulpit with budgetary teeth?

Owens: I think it goes two ways. It's a bully pulpit for the CINCs because they're very interested in what's going on out there, and that's the way we want them to be. We want them to represent our country in the regions they're in, and to be able to fight wars for America and to represent America in those regions. So, this is an opportunity for them to be on the bully pulpit and say, "Hey, Mr. Vice Chairman, I need the following kinds of things or else I'm not going to be able to implement my current warfighting kind of capability."

It's also a little of a bully pulpit for the Vice Chairman and for the JROC to say, "Here's what we bring to you in the future. How does it feel for your region 5 or 10 years from now? Give us some inputs. How would this work if you had dominant battlefield awareness 10 years from now? What difference would it make, and how should we start planning now, assuming some element of truth is in it?" The discussions are endless. Think of it—nine CINCs, 10 or 11 or 12 hours with each one, four-stars and all of their admiral and general staff and 70 or 80 additional people

with them in a room talking about warfighting like this. It's an important forum for talking about not only the present, but also the future.

In this, I guess, is my strong belief, which I'll just throw on the table for whatever it's worth, that in a bureaucracy the only way you will make changes is to have the right people talking about the right things with the right amount of time. There isn't any other prescription.

Think about the Pentagon, and what I just said. Let me amplify a little bit. "The right people" in my case is the JROC, the four-star military; "the right amount of time," 30 hours a month, 7-1/2 hours a week. It's a lot of four-star time together talking about such issues as: What frequency do you transmit on? What is an EP-3? What's an ATACMS? How far does it go? How do you target it? Boring stuff for these big picture guys, right? Oh, it's not so boring! It's the guts of our business. So the JROC and the right people, the right amount of time—that has not happened often in the Pentagon. When you look at our typical four-star schedule, it's 15-minute meetings throughout the day. It's lunches, it's a variety of subjects. Now we're saying "the right amount of time," so that we all understand what we're doing in this very important area. The right subject? Warfighting, built around the nine JWCAs, and time spent developing these positions, by staff and by us.

So, three elements that will allow substantive change in a very difficult bureaucracy: right people, right subjects, right amount of time. Think about it in your organizations, and see if you agree or disagree. I would encourage you to talk about it, because it doesn't work very well when your schedule is like most of ours, starting early in the morning and running until late at night with 15- or 30- or 20-minute meetings all day long about things that flow quickly and people looking at their watches for the next meeting.

Oettinger: That's music to my ears. I may be tempted to tease you further into maybe giving me an endorsement on something. I got taken to task by several members of the class for assigning as

reading a book that had only questions in it. They said, "What the hell good is a book that only has questions and no answers?" I choose to hear in what you said that that's not such a bad idea. Or am I reaching too far?

Owens: A book with only questions in it, Professor?

Oettinger: You can't win them all! Next question.

Owens: You had all better do what the prof says.

Student: I would like to highlight something that you mentioned, but I wonder if you would elaborate on that, and it's the danger of becoming too smart or too sophisticated, and I would like to discuss that in two dimensions. The first is if there is not a growing gap in becoming kind of enamored of technology in everything that's new, and becoming sophisticated; the price of not being street-wise, in a sense. The college degree might not help you in Harlem, and you might be better off with a gun. So the question is, maybe the challenges are not ones of peer competitors, but rather ones of sticks and stones, and change may not necessarily just be progress, but change can also be going backwards. Maybe by becoming smart and sophisticated, the military is damaging some of its capabilities to handle these more sticks-and-stones situations. So that's one dimension.

You highlighted the other dimension of becoming too sophisticated or too smart, and maybe you would like to discuss it: the Army becoming too professional and maybe playing a role of kind of a social force. In Israel it's much stronger than in the U.S. Army. How much is it still important as a role of the military, and to what degree is there a danger of becoming too sophisticated, too smart, too professional, and forgetting that kind of social cohesion-type role?

Owens: I agree with you completely that you can't forget the street fight, but I disagree that technology doesn't play a strong

role in the street fight. I encourage the folks who will be fighting in the street to continue with their sticks and stones. They'll find that life is very difficult for them in the street in the future. It's not just the kinds of things I'm talking about, but it does include some of the same elements. If you have surveillance the next time you're fighting in Mogadishu, and that UAV is there, and it's able to map the streets, and monitor the movement of technicals and identify them, then you have a great advantage that you didn't have to start with the last time we had a street fight in Mogadishu. If your bag of tricks includes devices that are very probably going to be with us in one or two years, soldiers in a street fight can walk down the street and see people's shadows through masonry walls with a detecting device that is hand portable. Or if you have the ability to remove the threat of snipers in that downtown street scene rather effectively by virtue of being able to detect very quickly the flash of a sniper's bullet, which is very hard to be stealthy about, and whence it came, and shoot it quickly (and I think that technology may be with us relatively soon), then you not only shoot snipers, you also deter them. So, these kinds of technologies, as well as a lot of training, like the Joint Readiness Training Center at Fort Polk, where we have built up cities and prepare ourselves for these kinds of things, will make the American military far more successful in going into Grozny equivalents in the future than what the Russian army experienced going into Grozny.

You're right, we have to stay involved in the street fight, but we'll do a lot better at it with some very important technology than we will if we don't bring that technology along as well. Maybe some of the Army folks in the room would care to comment on that also, but I think that we have a lot we can contribute to the sophistication of the street fight that is as important as the sophistication of the large 200 by 200 mile battle.

With respect to the army in a society, I think every country is different. Your country is different from this country, I believe, in the sense of what role your people want the military to play in society. In this

country, quite frankly, I think we want our military to be our military. We don't want it to be involved in domestic protection unless it's an absolute emergency. We do not want Army or Navy or Air Force or Marine police in the streets of our cities. We want our military to be fighting wars out of country, because of geography for one thing (it's very different from yours) and to be able to project power in support of alliances, but we're not very anxious to allow it to become a national police, a gendarmerie, an element of a different kind of a military. We're going to be anxious to keep it separate from policy, so that it is the military reacting to civilian leadership in a very precise way, and not getting too far over as though we're making policy, or establishing defense policy.

Our Constitution is very specific about this, and we have to make sure that we stay in the bounds of that constitutional limit, and with it, the decision about what we do with our military in the future. Is it going to be primarily a warfighting institution? I vote "yes." But if the American people say, "No, it's a much more peaceful world. We want you to become a sort of international peacekeeper," we'd do things quite differently. I'm not sure that this country would be nearly as secure or as likely to succeed much beyond the turn of the century if we took that approach. But it certainly is an approach that could be taken if America's citizens and the Congress and the President decide to do that.

So what is the role of a military in society? In our society, I claim it is primarily to fight this nation's wars, and secondarily, if there are humanitarian ops or peacekeeping ops that can be carried out with that same force structure in a prudent way without risking our ability to fight this nation's wars, then we should probably do that. That's how we envision today's policy about the U.S. military. I think it's different in every country.

Student: Admiral, earlier, when you were talking about your system of systems ...

Owens: I was talking about *your* system of systems.

Student: ... you cursorily mentioned that a superpower would design it, and you would assume that superpower was us. It's not for here, but there are indicators and discussions today about whether we will be a superpower in the future, or if we'll be a co-superpower. It depends on how you define superpower, but if you define it militarily, economically, or politically, if we were to assume that we did not become *the* superpower, or at least a co-superpower sometime in the future, how do you as a senior military leader advise our civilian leadership? How could that ... I don't want to say undermine ... but how could that affect the civilian leadership's commitment to the military—sort of in the area you were just touching on: what the military wants to be, or what they want us to be ?

Owens: Your question is, what kind of advice would I give to civilian leadership to maintain our superpower status?

Student: If you go beyond the military superpower, how do you define it, how is the U.S. going to define it, and how are we going to carry through with it, to maintain it?

Owens: I don't know. It really is the question of the hour, I guess. Are we going to try to be *the* superpower, and what does it mean? Many would say we are today. But is it just military? I don't think so. I don't think it's just economic, and I don't think it's policy. It's a whole blend of all of those things. It's American leadership that results in a superpower status as perceived by the world. I would think you could be a very strong country militarily, unwilling to use force and not very good at extending your reach as perceived by others, and not be a superpower.

I don't think I have any very good answers to your very good question. We have to be very careful to make sure that our policy and our actions fit together in the framework in which we want to be perceived around the world. Clearly, there is an American framework; it's all we are. We've been brought up with a culture that gives us a lot of benefits. Some of those benefits are cultural: multi-ethnic, multi-

racial, and that's a great quality. If we think that's a quality, then we should go out and do the things we think are important. It's compassionate leadership, not "Big Brother." Military-to military contacts that we're doing today are of that variety, not to try to float our aircraft carrier by so everybody can say, "Wow, what a big aircraft carrier!" but maybe keep it off 100 miles, and simply bring the small ship alongside if it makes the country feel better. We must show compassion, understanding, sensitivity, and genuine willingness to listen to others, and then, when the time is right, take the leadership—not just military, but economic and political—and say, "This is what we're going to do because it's the right thing to do," and then do it, do it! Not say things that we're not going to do, but have the spine to follow through and to undertake resolutely the actions that we think are necessary. Easy to say, hard to do. But my sense is that's the essence of world leadership.

Oettinger: You said a little bit earlier, in connection with the pay raises for the troops, that it is keeping the trust, and it strikes me that that's an important element in a superpower equation. It's hard to imagine many countries inviting the Russians, or the Japanese, or the French, or the Germans to keep the peace, or do anything significant. The United States has a unique position that comes out of the element of trust, more than any of the other countries.

Owens: Consider Bosnia, and the risk of a rupture of NATO. It's real. The British and the French have troops on the ground in Bosnia. We do not. On the other hand, it's a different kind of decision for us. We don't have our sons and daughters in danger on the ground. We have them in danger in the air, but it's not quite the same. And so, let us be sensitive here about our NATO allies, because NATO is very important to us, and those people, those allies, are very important. We need an element of compassion and sensitivity that is along the line of being a good partner, as the professor was saying.

In Somalia today, the reason we have U.S. Marines ashore is not because we're

particularly concerned about anything that's going on with Aidid or Ali Mahdi or whom-ever. It is because when we went into Somalia, we asked the Pakistanis and others, like the Bangladeshis and the Egyptians, to come with us, and they came. We left, and now they need to leave, and they are in some danger. As an element of keeping faith with those countries that we very much wanted to be a part of our future relationships (for many reasons of course, not just for our own good, but to have faith in them and them in us in the future), we decided that we would do this rear-guard action with the U.S. Marines to make sure that the Pakistanis and the Bangladeshis were safely brought out of Somalia. These kinds of things are part and parcel of our foreign policy—part and parcel of what compassionate people do for other people they care about.

Student: You talked about the increasing bandwidth. This may be old thinking, but I know that in the past big bandwidth requirements caused unusual problems for ships at sea and ground mobile forces that didn't have big antennas. Are we well along and making progress on that problem?

Owens: Yes, I don't think there's an issue anymore. It comes in two forms. It comes in the form of very reliable support for a warfighter that deals with antijam, secure communications to a mobile soldier or Marine in the battlefield, or an aircraft in the air or a ship at sea. With Milstar, you have the ability to have stovepipe communications to warriors that is secure, antijam and medium data rate, but without the wideband capability that I talked about earlier.

But those are command and control sorts of communications, and that does not include the sort of wide bandwidth, direct broadcast satellite capability that is possible to us and that need not be in an up-and-down chain of command. Here, the potential for a number of direct broadcast satellites transmitting data, not just up and down the chain but in an entire area, could be very important, and would dramatically expand the bandwidth. So, multiple transceivers ganged together on a satellite, like

the direct broadcast satellites that CNN is using, and that will proliferate—PANAMSAT, ARABSAT, et cetera—will give us a capability to be wideband beyond what we thought possible just a couple of years ago.

I think the fiber optic revolution is also a part of this. The fiber optic cable is not just limited now to fixed lines that go from node to node around the face of the globe, but can be streamed behind you if you're driving your tank in a battlefield. If you want to stream fiber, then stream fiber, and stay in contact with a much more energy-efficient information system that will give you 10^4 times more data than you would have if you did it via a typical battlefield sort of communication system. Or if your amphibious ship is in an objective area, and you are going to be moving only 100 or 150 miles, stream fiber, or maybe plug into a fiber buoy.

There may be other alternatives to provide us this kind of capability that keeps us linked in to the wideband, high data capability. A lot of things are possible. We're working closely with AT&T, for example, on the fiber ideas, and with many organizations on direct broadcast satellite. You can also make it much more efficient—by factors of 100 or 1,000—with digital compression, if you're talking about imagery, for example.

Student: Sir, where do the concepts that you spoke about—jointness and proving interoperability—fit into the decision criteria for infrastructure downsizing and base realignment?

Owens: I wish we were a lot better at it. I believe that we should get good at jointly consolidating. There's a lot of good stuff that is going on, a lot of our training is now done jointly, but maybe not enough. We need a lot more joint training. A lot of joint pilot training, fixed-wing training, is now being done with the Navy and the Air Force. Do we need to tie our assaults together better with helicopter training? Many of us think that we should. Some of us think that we shouldn't, and there are

reasons why we shouldn't. Joint consolidations are clearly a very important element that we haven't done enough with. I think it gives us a lot of potential efficiency in the future.

Another area where that kind of infrastructure can give us a lot of efficiencies is contracting out. I am an advocate, for example, of contracting out things that we never thought possible. Why does the U.S. Navy have to run a Navy base? Why don't we contract it out? There are lots of companies that would be happy to contract out at Norfolk Naval Base, one of the world's largest Navy bases. Why do we want to do that? Why do we want to have Navy people cutting the grass, or fixing the plumbing, or guarding the gates, or handling the lines on the pier, or managing the public works to fix the buildings, or any of a variety of things? Why don't we contract that out? We don't do it very efficiently. We bring people in who are not trained for it, and we sign them up for two years, they get good at it in about a year and a half, and they transfer in six months. So why don't we contract it out with Brown and Root, or with McDermott, or with any of a variety of other places? The big thing in this, in my view, is that when you contract out a base like that, you save 25 to 30 percent, and you also save your military people for warfighting, which is what our primary mission is.

Oettinger: Before I thank our guest, have you all handed in your Coakley critiques?

Owens: You're a real task master!

Oettinger: Well, you fight wars; I beat up on students. Sir, I want to thank you so much for a wonderful, illuminating presentation. This is a token of our appreciation: it's small, literally, but it's large figuratively.

Owens: You shouldn't have given me this gold coin. Good luck to all of you. If any of you would like to trade jobs, I'd be happy to. Thank you very much.



INCSEMINARS1995



ISBN-1-879716-29-1