

INCIDENTAL PAPER

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

**Planning Information Operations for a Changing World
John J. Sheehan**

Guest Presentations, Fall 1997

Jr. Robert R. Rankine; Victor A. DeMarines; Keith R. Hall;
William R. Clontz; Kenneth A. Minihan; Henry A. Lichstein; John
J. Sheehan

January 1999

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.

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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 1-879716-54-2 **I-99-2**

Planning Information Operations for a Changing World

John J. Sheehan

General John J. Sheehan, USMC, became Commander in Chief, U.S. Atlantic Command, and Supreme Allied Commander, Atlantic, on October 31, 1994. Immediately prior to assuming his current duties, he served as Director for Operations, J-3, Joint Staff, Washington, D.C. General Sheehan's military career began in 1962, when he was commissioned a second lieutenant in the Marine Corps. He has served in various command positions, ranging from company commander to brigade commander in both the Atlantic and Pacific theaters of operation. General Sheehan's combat tours include duty in Vietnam and Operations Desert Shield and Desert Storm. His staff positions include duties as regimental, division, and service headquarters staff officer, as well as joint duty with the U.S. Army, the Office of the Secretary of Defense, and U.S. Atlantic Command. His decorations and medals include the Defense Distinguished Service Medal, Silver Star, Defense Superior Service Medal, Bronze Star with Combat "V" and a gold star in lieu of a second award, Purple Heart with gold star, Defense Meritorious Service Medal, Meritorious Service Medal, Army Commendation Medal, Navy Achievement Medal, Combat Action Ribbon, Presidential Unit Citation, Navy Unit Commendation, National Defense Service Medal with one bronze star, Vietnam Service Medal, Southwest Asia Service Medal with two bronze stars, Republic of Vietnam Cross of Gallantry with silver star, and the Republic of Vietnam Armed Forces Honor (First Class). General Sheehan holds a B.A. in English from Boston College, and an M.A. in government from Georgetown University. His professional education includes the Amphibious Warfare School, Naval Command and Staff College, and National War College.

Sheehan: I've reorganized what I was going to talk about, so as I go through this process, I will start out here and work my way down to what you wrote me about.¹ During the process, if you have some serious disagreement, raise your hand. The only requirement is that you have to justify what you say. I will try to explain the conclusions—why I've come to where I am—and we'll go from there.

Let me start out with the way professors at this university will describe the world to

undergraduates. You can divide the world into three parts. First is the industrialized world, and all the things that characterize it, probably up through about 1989 or 1990: small change rates, nation states, territorial boundaries, et cetera. Then there is the corporate world, the world of transnational corporations and global economics, where economic power and corporate multinationalism and information technologies expose you to another set of principles. This started in the mid-1980s, in places such as Detroit, when the American automobile industry realized that they were not competitive in the world market. This is what I call the Toyota family of nations. In 1985, less than 2 percent of Toyotas were built in the United States. Now there are more Toyotas built in the United States than there are in Japan. Finally, there is the developing world, the Third World. "Third World" is a pejorative term, but in terms of synoptic discussion, this is the world that we're trying to come to grips with now.

¹ A reference to a statement in the letter of invitation: "We're eager to learn about the impact you've had by making information available at classification levels which support all theater joint and coalition command and control functions. We're keenly interested in your perspectives on how 'collateralization' of information will affect traditional command and control relationships and decision cycles. But you should also feel free to dwell on any aspects—past, present or future—of intelligence, command and control that interest you. The mix is entirely up to you."

What's interesting about this is that these three worlds have different value systems. The first is the world of the Western value system, the Judeo-Christian ethic system. Organizations such as the U.N. and the Department of Defense are large Western-value based institutions. Then you have the institutional value systems, where the values are not nationally driven, but rather corporately driven. Finally, there is the world in transition, and oftentimes, the value systems of the institutions that try to run this world are in conflict with each other. For example, the World Conference on Population is a classic case perceived by many Third World countries as the imposition of Western value systems on their developing world. That's the world that we're trying to struggle with.

At the same time that you have this organizational conflict, you have a phenomenon called "population momentum." In simple terms, it took until the year 1800 for the first billion people to show up on the face of the earth. It took another 150 years to add the second billion people. Now we add the rough equivalent of the population of China (1.2 billion) every 12 years. That brings tremendous discontinuities.

The interesting part is that if you look at the nations with Western values—France, Germany, the U.K., the U.S.—you find that these countries have a live birth rate of less than 2. Why do you need 2.2 children per couple? It has everything to do with sustaining an economic base for a nation. It has everything to do with the demographics of how you build a military. It has everything to do with how the society views itself from a historical-cultural perspective. When you look at Germany, for example, the reason they bring in Turkish laborers is because the population of Germany cannot sustain the work force requirements. That brings tremendous discontinuities. Also, as the population ages, and lives to about 87 on the average, the cost to the next generation to pay for the older generation is significant. Those are tremendous social implications with this whole business.

My number two daughter, who just finished grad school, did some work for me. She said, "Okay, Dad, let me tell you what the world looks like. Consider the current (actually year 2000) population statistics

shrunk to a village of 100 people. Interesting world! There are 57 Asians, 21 Europeans, 14 people from the Western Hemisphere, and 8 Africans, so 70 of the people are nonwhite, and 70 are not Christian. If you're a white, Anglo-Saxon male, you are a statistical minority."

The interesting part about this village of 100, though, is that 50 percent of the wealth is held by six people. We haven't seen this type of friction since about the year 1848, the beginning of the Industrial Revolution. The difference between the haves and the have-nots has never been so significant. There is a genuine fault line that runs through the Eastern part of Europe down through North Africa and down to Latin America. On one side you have the people in the developing world; on the other side you have the Western-value world. The difference is that the migratory population on a worldwide basis is moving toward where the jobs and security are. In the old days (old days meaning pre-1989), one of the ways you survived was by teaching kids to read. Television—the ubiquitous BBC, SkyNet, CNN—says that people in the lower end of the spectrum can watch television and realize that on the other side of the fence line there is a better world.

So, what this whole thing comes out to, in very simple terms, is that we're in a process of redefining what security means. For 50 years, during the Cold War process, we defined security purely in military terms. There was a correlation of forces argument, where the central, inner-German border became the center of the universe from a conflict prevention standpoint. Interestingly enough, what's happening now is that security is being defined in political, economic, and cultural terms, and that requires multilateral responses. Bosnia is about culture. You can move all of NATO into Bosnia (the former Yugoslavia) and you're not going to solve the problem. It's about the cultural reintegration of the tripartite country and the economic reconstruction to cause the warring entities to stop becoming nationalists and have some sense of identity.

Security is affected by migration, environmental degradation, and proliferation. Migration has everything to do with population growth, as we talked about—the difference between aging populations and the require-

ments for a sustained work force. The importance of environmental degradation is evidenced by the argument that's going on now at the summit in Japan. Proliferation isn't just weapons of mass destruction or the micro-miniaturization of ordnance in terms of deliverable warheads.

That's a concern, especially in the Mideast region. But, on a day-to-day basis, the real concern is the proliferation of assault rifles. There are 500 million assault rifles, in round numbers, available in the world market. In Albania during the Ponzi crisis, which was essentially a monetary scheme that caused the government to collapse, assault rifles were selling for about \$17 a copy. In this proliferation argument, you can ask yourself why there are more private security forces in the United States, South Africa, and Australia than there are uniformed service members. Why is it that you spend about \$50 billion a year on private security, which is more than all the NATO nations' budgets, save that of the United States? It's because the world we all live in is very, very different. This whole business of how you look at the world comes at you from a very different perspective.

There are several reasons for this. I told you earlier that if you divide the world up into three parts, one had to do with globalization. World trade has grown from \$15 billion a year in 1970 to \$5 trillion in 1995. What causes world trade? It's simple math. Labor costs constitute about 60 percent of your cost of doing business. If you consider the cost differential among nations, in 1980 the average hourly wage in a manufacturing industry was \$5.52 in Japan, \$9.86 in the United States, and \$12.33 in Germany. In 1985 the rates were \$6.34, \$13.01, and \$9.60 respectively; in 1990 they were \$23.66, \$17.20, and \$31.88. So what happens is, unlike the old days (old days again is just a few years ago) where industries were semi-protected from outside influences, this is not true any longer.

I'll give you an example, the steel industry. The steel industry essentially started in the U.K. just prior to the Industrial Revolution. From the Industrial Revolution to about 1942 it was essentially centered in Sheffield, England. Around 1942, it moved to Pittsburgh, Pennsylvania, partially because of technology, partially because of the war. It

stayed in Pittsburgh until the late 1950s, ... when it moved to Japan. It stayed in Japan roughly 15 years before it moved to South Korea. Where is it today? It's in China.

We're now moving whole technologies. Most people think of steel in terms of gross tonnage. We're moving technologies, which causes labor forces to shift. Just six months ago, we closed out a garment assembly sector, and 6,000 jobs moved from Jamaica to Mexico in two weeks. Siemens AG, the telecommunications giant in Germany. Because of labor costs, where is their software center of excellence? The answer is Richmond, Virginia. Where is their microchip technology plant? The answer is Taiwan. Why? Labor rates.

It's interesting that most people argue the case that says, "If you only invest in technology, you can create great efficiencies in technology, which causes your labor force to become more efficient." That's partially true. Let me give you some numbers to think about. The average European nation spends about 1.7 percent of GNP in technology. Japan spends about 1.8 percent of GNP in technology. The U.S. spends 2.8 percent. The problem is the culture of the people who are using the technology. Until very recently, if I worked for Sony, Toyota, Mitsubishi, or what have you, I got hired for life. So I have this inflated bureaucracy in the work force, and it doesn't make any difference how much money I put into technology; I'm going to continue the inefficient organization because I have this extended overhead that I have to pay attention to. The same is true in France today. And so, it isn't just a question of what percentage of GNP you put into technology; it's the culture of the people who are dealing with this issue that has social implications in terms of how you become more efficient. These kinds of things are causing the world to change. At the same time, it was, in fact, a true revolution that took place.

This is a simple way to demonstrate it. In World War II, basically 1,500 B-17s bombed railroad yards, and we were within 3,300 feet of the target. During the Vietnam War, we flew 176 F-4 sorties, and we were within 400 feet of the target. During the Gulf War, we dropped one bomb, and we were within 10 feet of the target. Now we're down to three feet. That also changes the way you

look at combat, at conflict. The United States and Western European nations were always focused on mass—mass production, mass manpower, mass firepower. The Europeans and the U.S. essentially won World War II, and in a sense the Korean War, by the concept of mass. That stayed a constant way of doing business until the Gulf War, where we first started mixing mass maneuver and precision. Now it's precision.

With precision comes the organizational theory of speed—your ability to think faster than the enemy. "Think" is not just a generic term for what you do cognitively, but rather, your bureaucratic decision process. It's called the "OODA loop," defined by John Boyd as "observe, orient, decide, act." But because of technology, that's now a 24-hour-per-day evolution.

One of Israel's advantages is that their decision loop was always faster than that of the Arab states confronting it, and their decision cycle was faster than their adversaries'. Yet, when you disconnect the policy process from the execution, class-one nations always lose. The Russians lost in Chechnya and in Afghanistan. The U.S. lost in Vietnam, and when the Israelis disconnected the policy process from the execution, operational end in the Litani operations,² they ended up with a disaster. So, my point is, in the future, decision cycles and time become constants that you have to deal with.

At the same time, while this revolution is going on, there is what I call a downward pressure on defense. If the Europeans meet the EMU (European Monetary Union) goals, there will not be one European nation that spends more than 2 percent on defense, even the U.K. This means that, disproportionately, global security issues are migrating toward the United States from the "world policeman" perspective. The other side of that equation is that increasingly European nations are becoming constabulary forces: they're not capable of operating at the high end of the spectrum of operations. So, as we deal with this issue, symptomatically what happens is

that it isn't just a matter of scale; it's a matter of quality. I'll just pick on the U.K. The U.S. and the U.K. have the strongest cryptologic SIGINT relationship of any two nations in the alliance. But it is not only a matter of scale, when you're talking about \$600 million as opposed to \$23.4 billion being spent in this kind of world: you've changed the quality. There are a lot of different ways you can deal with this issue, but they're policy questions you need to come to grips with.

Embedded in this change is this whole concept of what I call "bureaucratic inertia." To give you a kind of classic example of how DOD sees itself institutionally, if you're a bureaucrat and you're hanging around DOD, the guys at the top are called warfighters. Underneath them are whole groups of organizations—J-6, C³I organizations, systems commands—whose sole purpose in life is to provide equipment to these kinds of people out here. But the process of how you see the battlespace very much constrains you in terms of how you solve problems. Our organizational theory of having geographical CINCs, et cetera, causes you on a constrained basis to see the world in a very different perspective. Most of the theory here has everything to do with bureaucratic inertia, or bureaucratic survival, or competition for a share of the budget.

Budget is the imperative bureaucratically, but yet, at the same time, what's going on is that the militaries are being asked to perform fundamentally different missions. The Article V, NATO focus for the last 50 years has gone away. The Russians aren't coming; they've called in sick. And so, you go to Haiti, you go to Somalia or Rwanda, you go to Bosnia, you name it. It's done on a coalition basis, but you do it with declining resources, and the very nature of warfare has to be changing.

At one time, we used to discriminate between the strategic operational and tactical levels of war. That is no longer true. When they handcuffed the Dutch soldiers to the lampposts in Srebrenica, and the next day, the minister of defense of The Netherlands was almost fired by parliament, you've changed the way you think about conflict. When we lost 18 soldiers in Somalia and the next day we changed our Somali policy, it was be-

² In 1978, following a terrorist attack, the Israeli Defense Forces entered southern Lebanon to clear out PLO terrorist bases south of the Litani River. Operation Litani led to the establishment of the U.N. Interim Force in Lebanon.

cause of a realization in the United States that policy had to change the way the policy is.

In the same way, the demographics of how you recruit your forces change how you think about conflict. A smaller demographic base of available population to fight wars causes the value rates of your soldiers to increase. Israel has always understood this. When you talk to General Israel Tal, for example, who makes the Merkava (he is the father of the Merkava tank system), he will tell you that in Israel there is always an argument between mobility, firepower, and protection. There's always this trade-off. You can't get it all. The Israelis always have weighted their weapons platforms toward survivability because the political cost of one Israeli soldier is disproportionate to the financial cost. That's happening in the United States. That's happening in Europe—to a lesser degree in France because their expeditionary force is essentially still a Legionnaire force. But as the population shrinks, the political cost of losing soldiers increases exponentially.

The political cost of casualties is also reflected in terms of how you organize yourself in the battlefield. Very simply—in the American Civil War, you had 39,000 soldiers per 10 square kilometers who were transmitting 30 words per minute. That didn't change for a long period of time. In the Gulf War, we were down to 24 soldiers per 10 square kilometers, and we were transferring 192,000 kilobits of information. In Force XXI, the experiment we just concluded, we were transmitting 1.5 trillion bits of information with three soldiers per 10 square kilometers. This is the fundamental part that the Israeli forces are trying to come to grips with. How do you build tactically mobile, smaller, and more lethal forces and use information to manage your battlespace, at the same time as your battlespace is changing? It isn't just a question of having two forces, one that can go to the Golan and one that can go to the Sinai: it's now having a core capability in the center of a region that can go in any direction simultaneously.

But how do you make this type of force coherent, so that it fights on arrival? The great lesson that came out of the Gulf War is: Never give the United States six months to get ready. Your adversaries of tomorrow will

engage you when you arrive in theater. If you have to fight on arrival, this means the IPB process—the intelligence preparation of the battlespace—is absolutely essential.

And so, while we're trying to come to grips with this issue from an information perspective, what you see now is a world where your organizational battlespace and your organizational theory are underpinned by the commercial world and a commercial network of information systems that is independent of the Department of Defense. Better than 90 percent of the Department of Defense's information network system is on a commercial network system. Globally, that's true of most nations. You have no control over this. You have no control over the ground stations, and you have no control over where these electrons go. So, how do you manage it?

You can build a self-contained military command and control system, which is very, very, very expensive, or you can go to a dual-use strategy. But to do this, and to manage 1.5 trillion bits of information, because you're making the deployed battle groups faster in terms of decision cycles, smaller in size, but more lethal, you have to organize yourself differently. This expands the area of responsibility beyond traditional physical and geographic boundaries.

This is wherein parts of the argument lie. There is what I call a fundamental organizational argument that goes on regarding the difference between the Napoleonic structure that has existed since the 18th century and where we are today. The functional structure focuses on the decision cycle, and improves coherence within the joint task force, not outside it. Eighteenth century architectural models do not work in today's operations. They're too hierarchical. NATO, for example, has 56 different organizational commands, and 20,000 people, who do nothing but process paperwork. When the air strikes were going on during Deny Flight, or the bombing campaign in the UNPROFOR (U.N. Protection Force [in Bosnia]) era, we struck a dead tank with an F-16. It took the Secretary General until three o'clock that afternoon to get a report as to what happened. He walked across the hall, and the BBC and CNN were broadcasting it in real time, live.

What's the standard that you have to deal with in today's world? It's 90 seconds.

Where did 90 seconds come from? It comes from Tom Johnson and CNN. I built my headquarters much like CNN's floor in Atlanta. Essentially, what Tom Johnson did when he built CNN was go out and hire people from different parts of the world, not second- or third-generation Americans who speak Arabic or Yiddish or what have you. He went to the country that was the center of gravity for the particular region, or to a particular country. Most of the people he hired were university professors, and most of them had a political science background. He brought them to the United States, and their job was to sit on the floor and listen to the radio broadcasts or watch the television for the region from whence they came. So Arabsat, Israeli TV, SkyNet News, or what have you, is broadcast live, real time, onto the floor at CNN International in Atlanta, Georgia. The mean time between the event occurring in a country and its electronic transmission, before you see it on CNN International, is 90 seconds.

So, if an obscure Dutch soldier is handcuffed in Srebrenica, it is being broadcast live, and the parliament in The Hague is asking the question, "How the hell did that happen? Who let this happen?" As a result, as I said before, the Dutch minister of defense almost got fired. The chief of defense of the Dutch forces was compelled to reorganize his headquarters in order to make himself more centrally aware, because the deployment of forces today is a political activity. When you lose 18 Rangers, and that's being broadcast live to Washington, D.C., and the Congress is having a hearing the next morning at nine o'clock, and they want an administration spokesman to tell them how the hell this happened, you don't have time for 54 echelons of command to digest the information for you. This is why the U.K. has gone to the PJHQ (permanent joint headquarters), because it realized on a global basis it cannot afford to participate in combatant-type functions and not stay politically aware.

So, what's going on in this world is a requirement, especially in the intelligence community, to kind of rethink your needs. You have to develop an information operations (IO) campaign as a means of meeting national objectives. Because you've redefined "security," it isn't just a classic enemy order

of battle that's important. It's describing the adversary's decision-making process, and defining your information environment. You now need what I call the Internet type of information, which is unclassified.

And so, when you look at the world, you have to start out by asking, "What do you really want to know?" That's a hard question. What does a commander really need to know? Not what does he *want* to know because it's random information, but what does he *need* to know? What does a policy person need to know? As a sideline, it's interesting that when we first started operations in Bosnia, I went to what we called the fusion cell in Sarajevo and tracked back information. Sixty-three percent of the information coming out of Bosnia was political information going back to policy makers. Twenty to 30 percent was going back to operating forces.

And so, when you think through this world, it's a very different way of coming at intelligence. I've an expression that says, "Information does not have ownership." It isn't J-2 information or intelligence information, it's *information*, because the battlespace that you're talking about is not a Napoleonic structure; rather, it's the decision cycle where people make the distinction between data and intelligence, and a collective group of people decides on IO and future operations. What that really means is that the nature of warfare has changed to the point where you have to rethink warfare. IO can, in and of itself, achieve a desired end state without the use of conventional military force.

If your institution is kinetically focused, you'll always come up with a kinetic answer. If you come to Harvard, there are certain answers you will always get regardless of the data you bring to the argument, because Harvard has a predilection for certain kinds of conclusions. And so, if you ask guys in uniform to solve a problem, you will always deal with kinetic solutions. The globalization of IO allows you for the first time to think a problem through from a different perspective, which says you can actually move this thing away from kinetics to battle management at the peace or crisis level. But if it fails, you've done so much intellectual work that you can actually go to a shut-down type operation, what I call a *coup de main*, and collapse the enemy before he has an opportunity to create

havoc. Not only that, it's not economically to your advantage to extend the conflict. You cannot afford it. And so, the object of the exercise is always move a problem from crisis toward peace.

This has everything to do with the things I've already talked about, because war is too expensive. The Gulf War is a perfect case in point. We sent the Secretary of State around asking people to contribute money instead of soldiers. In addition, as the demographics change, the cost of casualties is too high. So what you have to do is figure out a different way to fight.

What is it? It is not what most people ordinarily refer to as C²W, command and control warfare. It is not cyber attack. Those are means to an end, but this is a rational thought process that says you're constantly focusing on this end. The others are the means to an end only if you're in a kinetic or crisis mode. What's different about it? It's a whole different concept. You still make direct, indirect, and supporting attacks, and you have to defend your own resources and counter attacks against them. Your support functions are still intelligence, surveillance, and reconnaissance, as well as advance force operations, which involve developing access, probing, and then implanting and embedding your own forces. But now you're talking about information operations, and you're using system information to attack the target set. Whom do you focus on? The decision maker.

A tough question is: Who are the deciders? This is the toughest part. This is where we had most of our problems with the intelligence community during the last two years. Most intelligence communities can tell you order of battle information. They can tell you where Saddam Hussein hangs out, where his intelligence headquarters are, where his J-2 is, and all that kind of stuff. But you have to ask: How does he decide? What are his inputs?

During the amphibious deception operation in the Gulf War, the object of the exercise was to tie down as much of the Iraqi forces as possible. So we purposely worked on what we knew about Saddam Hussein as a decision maker. We knew that his information was very filtered, his structure was very careful about what they told him, and that he relied on the outside press as part of his bat-

tlefield sensor system. We didn't use the press in a nonlegal context, but we allowed the press to come to their own conclusions. So, when Dan Rather came aboard the *Blue Ridge*, he said, "You're going to conduct an amphibious assault, aren't you?" I said, "Well, I'm really not going to discuss future plans." Dan Rather came to his own conclusion, published it on the news that night, and we knew that news went to Baghdad. Hence, eight Iraqi divisions sitting on the coast were not available for defensive operations along the berm line.

So, when you look at adversaries, I don't necessarily mean adversaries in the classic bipolar sense of the word. There are parts of your family of nations that are economic adversaries. How do you convince the Japanese that their protectionist trade policies are ultimately wrong for the nation of Japan? That's a form of economic warfare. So, your thought process is very different than it was in the classic bipolar world. Again, you still have peace, crisis, and war, hopefully moving back to crisis. But if you think through a campaign plan to manage the conflicts of tomorrow, you've got to come up with a campaign plan that is very different.

You can construct an actual generic campaign plan minus specific words and specific countries. You list systems on the vertical axis: political, military, economic, and social systems, and you have to include protection, which means protecting your own national information architecture. Don't forget, on a global basis, your information architecture resides outside your territorial boundaries. This is especially true of economic information. Then you have separate columns in which for each of those categories you describe the characteristics of peaceful competition, what would lead to conflict or crisis, or even to war, and then your objectives for the post-conflict era, hopefully for peace. You have to know what you want as an outcome, though. You can't just do this unless you know where you want to come out at the other end, or what you want to avoid. Most of this stuff is what I call negative profiles.

Let me give you a case in point. You're the National Security Council, sitting around in Washington, D.C. I come to you and say, "I have a problem with the Indian subcontinent. India and Pakistan both have an MRBM

(medium range ballistic missile) capability, and we think that they've weaponized some warheads. The Kashmir problem is heating up. Both have decided there is no conventional solution to this, and they're threatening each other's cities with MRBMs. You have the technological capability to control their command and control systems. You can read their computer screens. You can even inject information into their computer screens. As a matter of policy, what do you want to do about it?"

Student: I'd have to think about a matter of policy right off the bat: Which of those states (peace, crisis, or war) was I in at the time, before I would even consider ...

Sheehan: Just as is, India and Pakistan. Both are countries in which you have a vested interest. As a matter of policy, do you want to distort the command and control information system that they use to the point that neither side is capable of making a decision, thereby averting or avoiding potential conflict?

Student: How do you guarantee that they're incapable of making a decision?

Sheehan: I'm just telling you that you have the capability to distort the system so they can't make a decision to launch. Do you want to do it?

Student: I'd do it.

Sheehan: Why?

Student: Before I'd say I'd do it, I'd decide what my objective was.

Sheehan: That's exactly right.

Student: If my objective was to see that no war started because of its overspill or what it might cause, then yes, I would act to keep it from happening.

Sheehan: Sure.

Economics. What would you do if I told you that I could distort your money and banking system? I could transfer funds elec-

tronically from your account to my account. ... It happens every day in the New York Stock Exchange. Or I could electronically alter your student account here so your bills are all paid. Do you want to do it? What are the consequences of that?

One of the fundamental issues in this whole business of what we're migrating toward is that information has not been defined as a national security objective. Yet industrialized states such the United States are increasingly more and more dependent on software systems to run all of our infrastructure and most of our policy processes. The software capital of the world is where?

Student: India.

Sheehan: Bangalore, India. Most of the software that you use here in the Boston area is made in Bangalore, and you accept it, without having gone through the process of checking for trapdoors on it. That doesn't mean that they're doing anything bad; but it does mean that you're increasingly vulnerable to the information architects because you haven't decided what you want to protect.

Oettinger: Could I just ask a question? In what you just said, there are a bunch of judgments that I'd like you to try to make explicit. At one level, I agree with everything you've said about the vulnerabilities, and in the same sense, that if I were suicidal enough I could probably assassinate anybody in the world that I cared to.

Sheehan: Turn your phone on.

Oettinger: Okay, it's on.

Sheehan: Do you use that when you wander around town?

Oettinger: Sure.

Sheehan: Do you use it when you're out of state?

Oettinger: Yes.

Sheehan: How does the phone company know where to bill you?

Oettinger: It's a self-identifying phone. It's got a built-in serial number.

Sheehan: So, when you're in Manchester, New Hampshire, it says to bill this from Manchester, New Hampshire, which is the location code, right?

Oettinger: Yes.

Sheehan: What would you do if I told you that if I had access to the satellite that has your location code, I could kill you?

Oettinger: I believe that.

Sheehan: Think about it.

Oettinger: Let's pursue that for a moment. Okay, so you kill me. So I assassinate some global leader. So what?

Sheehan: Fortunately, there's a law against that.

Oettinger: That's not an objective right now. I'm crazy enough, or I'm suicidal. So you kill me, or I assassinate somebody. Now, the world, except for my wife and children, won't miss me, and that's true of many leaders as well. So the question is, where is the transition between a random and regrettable act of violence where you make me disappear or I make a world leader disappear, and destabilizing the city, the country, the global order, and so on? It seems to me that there's a scale here that needs to be filled in.

Sheehan: Let's get back to our information operations campaign plan.

Suppose your name was Dudaev—you know, the Chechen leader. How did he die?

Oettinger: I don't remember.

Sheehan: Does anybody know?

Student: He was killed.

Sheehan: How was he killed?

Student: In a bombardment.

Student: Wasn't he on a field telephone?

Sheehan: He was on a telephone.³

Student: You're talking about how he was located.

Oettinger: That trick was used in Lebanon for targeting purposes. You called the guy, and when he answered the phone you homed in on him.

Sheehan: But what happened after the day he was killed? The Chechen resistance collapsed, and the peace process was allowed to continue on both sides, which ended a terrible conflict. My point is that there are times in this process when lethal operations become essential to achieve certain kinds of outcomes, either in terms of injecting information, or using information sources.

For example, there's a debate going on in the state of Maryland about driver information. If I get your Social Security number or your driver's license, which in many states is the same thing, I have access to information about you that is proprietary. I can alter your records. When I say, "I," I'm not talking about me as a nation state, I'm talking about increasingly nonstate actors, who are available for a price. For example, during the Gulf War, Saddam Hussein tried to buy, through a European country, a firm within a European country that was going to distort the U.S. logistics information base. This is a nonstate actor, which is available for sale. Most of the attacks against the information architecture of the United States come from outside the United States. Many of them are high school or college-age kids who do it for kicks. But they're available for a price.

Oettinger: Yes, but again, let's say I buy one of them. Tell me a bit more about where you see the transition between a tragic nui-

³ General Dzhoher Dudaev was president of the Chechen Republic from 1991–1996. He was killed on April 22, 1996, in a missile attack targeted on his satellite dish.

sance and a thing of strategic value. The Dudaev example gets warm in the sense of saying that in that situation ...

Sheehan: In Chechnya, it's more than warm.

Oettinger: ... you leverage an individual. There's a considerable amount of leverage there.

Sheehan: Yes. The problem comes in first in the policy process. Right now, there's this kind of infantile process because most nations are still focused on the C²W piece. The issue becomes that if the U.S. center of gravity is increasingly its information system, you ought to think through how you want to manage it, or not manage it. The nations in the order of spectrum that deal with this issue from a policy or doctrinal perspective are China, France, and Russia. In some cases, there's great value in not managing it. But from a policy perspective, if you have nothing in place to think your way through it, and how you decide, you have a problem.

Inside the United States, pretty much everything that interferes with the information architecture is an FBI issue, because it's a crime. If it's outside the United States, depending on the nature of the activity, it belongs to CIA. Are they the policy mechanisms you want to deal with this issue?

Oettinger: No. Emphatically not.

Sheehan: So, my point is that you can go from harassment—a pain-in-the-neck type of activity, where your cell phone is jammed and you don't know why it happens, but you know it happens—to all of a sudden losing \$50,000 from your bank account because some bright young kid has access to your Social Security number. He's already hacked his way through your code, because you're relying more and more on an online banking system. I suspect that \$50,000 is a nuisance for you. For some people it would be difficult to deal with. Or, for example, a nation can alter the air traffic control pattern around Chicago and cause a mid-air collision for which there could be no fingerprints.

Student: Whether or not you get caught (nothing's perfect), your jamming their systems could be viewed by the rest of the world as an act of war. Or it could be viewed by the rest of the world ...

Sheehan: Ask the Israelis, the Mossad, what the political consequences were of the most recent abortive assassination attempt.

Student: I think that's a serious point. Just because you can do it doesn't mean that necessarily you should do it, unless the risk and confidence ...

Sheehan: You have to think your way through what you want as an outcome.

Oettinger: I'm beginning to think that I understand what General Sheehan is saying. It is less an advocacy of particular policies or outcomes than, if I hear you correctly, the notion that somebody has to be thinking about this, and that you see a serious absence of coherent thought about how you would deal with this. Did I understand you correctly?

Sheehan: Yes, absolutely. Organizations are not currently structured to deal with this kind of thing.

Student: I'm in 100 percent agreement.

Sheehan: Let me tell you what DOD's state-of-the-art Venn diagram for information operations looks like. It is a kind of simplistic, cartoon version. "Information operations" includes information warfare and special information operations. "Information assurance" is essentially describing the system that you want to protect.

Just because it's on a computer screen doesn't mean it's right. You can ask undergraduates here at Harvard if they believe that because they call something up on the screen, that makes it true. Not necessarily! How many of you watched the movie "Forrest Gump"? How would you like to wake up some morning and watch the President of the United States on TV telling you that he resigned?

Oettinger: It's Hollywood. It's a Forrest Gump deception.

Student: There's a film, "The Running Man," where that's what actually happens.

Sheehan: My point is that in today's world you no longer have the luxury of strategic surprise. The globalization of information, the globalization of media, does not allow any nation strategic surprise. The Kate Adies BBC journalist of the world will always tell you where the Special Air Service is in Bosnia. There were 250 press at the Hotel Montana in September 1994 waiting for our intervention forces to come to Port au Prince. The cameras were on the beach in Somalia waiting for the SEALs and the Marines to land. Part of that has to do with technology. You can buy satellite imagery with one meter of resolution on the Internet for \$1,500, so you no longer have the luxury of massing your armies.

Oettinger: Could I stop you a moment? That's one of those questions of "now you see it, now you don't." I've heard arguments that, in a Clausewitzian sense, mass disappears; you can't mass forces. But wouldn't you get an equivalent result by having dispersed forces well coordinated, and able to rain precision munitions on the same spot? As far as that spot is concerned, there's certainly mass out there in a very traditional sense, except that instead of coming out of one identifiable massed, and therefore vulnerable, point, it comes from 60 different locations and all rains on the same spot. So it doesn't make mass disappear. It alters the notion.

Sheehan: In the kinetically focused world, that's not a bad idea. The secret, though, is that the target set you selected to destroy should be the center of gravity that collapses the enemy for the first time.

Oettinger: Can I push you a little bit? By "kinetic," you mean things that move and that have mass and so on?

Sheehan: No, things that are explosive.

Oettinger: Things that are explosive! I -- worry about the notion that some folks advocate (and I'm trying to probe whether you do) that somehow information things are not kinetic in the sense that they have no physical existence and so on. If I do any one of the things you have described, it requires much less energy than your ordinary ordnance. But still, even though I may measure it in microwatts, I've got to go someplace and do something.

Sheehan: The difference is that the target set in an information operation may be in a country that's friendly toward you. You've got to do something in that country, and it is nonbelligerent. You may have to go into space to distort an information system.

Oettinger: Yes, but those are political dimensions. They are not kinetic versus nonkinetic. It's high energy versus microscopic energy.

Sheehan: It's not just a question of high energy.

Student: I don't think that's true, if you look at a bigger picture. It's sort of like squeezing the water balloon. You can go for nonprecision, a lot of energy put on the target, without expending a whole lot of effort and treasure and energy up front to get the information you would need to make that weapon, to target that weapon, to find that tiny target, and kill it. Or you can spend a lot of treasure and energy up front identifying that very small target and developing the weapon to get to it. But you didn't get it for free—low energy here versus high energy there. It's just where you concentrated your effort and your energy. If you think of energy in terms of treasure and resources, besides just dynamite, then, all of a sudden, there are a lot more options besides just blowing something up. So, nonkinetic doesn't mean low cost, especially if you have to think ahead of time about all the things that the general has talked about, and already had the debate and the dialogue to make sure you had an idea of what you're going to do, and you can marshal that information.

Sheehan: This is called asymmetrical warfare. That's the operative word. Industrialized nations that rely on mass are very vulnerable to asymmetrical-type warfare. No one is going to attack the U.S. Army's 18th Airborne Corps in the field. The outcome is a self-evident truth.

Student: You said before that we need to sort of rethink the nature of warfare, but I'm still hearing "mass" and "center of gravity."

Sheehan: Part of the problem is the nature of our language.

Student: So, the new terminology hasn't been invented?

Sheehan: When I talk about "center of gravity," center of gravity isn't necessarily an Article V focus. The etymology comes from that vocabulary, but, for example, the center of gravity in the U.S. military is the political will of the Congress to continue the conflict. So, when you talk to potential adversaries, the strategy that most of your adversaries are talking about is to kill as many Americans as early as possible, and fight the war out on the Internet, or on global information systems, because the Congress of the United States will guarantee that money will be withdrawn or some other political event.

Student: So, the concepts of center of gravity and mass are still valid, but their faces—how they appear—have changed.

Sheehan: The texture of what's in them has changed.

Oettinger: By the way, I think there is a lot of literature and loose talk about Clausewitz being dead and so on, which assumes that some of those concepts ...

Sheehan: He is!

Oettinger: Well, yes, he is literally, but I mean his ideas. It's like "Shakespeare is dead," but the ideas get reinterpreted. It seems to me that what I hear General Sheehan saying is a reinterpretation of the ideas of center of gravity, mass, and so on.

Sheehan: Friction is a different concept. Friction changes decision cycles, and what you don't want is hierarchical organizations that cause friction to take place bureaucratically. There is in this process what is referred to as an information-to-force ratio. The more precision the force requires for political or strategic causes, the more information requirements there are, because you have multiple echelons of command that are participating in the decision process. But if they've done their campaign planning correctly, you should minimize some of that cycle. So, the conclusion is that our current organization theory, from the NSC secretariat, et cetera, is too slow in this kind of process.

Student: Do you have specific prescriptions for how new structures could be implemented? Could you address that?

Sheehan: The issue becomes: Don't build the structure until after you have the policy piece in place. Organizations come from the policy process, and then you build the organization after you develop the policy.

Let me give you an example. Remember the generic campaign plan that I described. The problem we have in Washington today is the discontinuities. By law in the United States, there are certain organizations that can perform covert action. There is a whole congressional oversight process associated with that, and the preapproval requires personal intervention by the President of the United States. Then there are the traditional military activities that the Department of Defense guards very jealously. At the OSD (Office of the Secretary of Defense) management level, they spend time prebriefing the Congress on events, and the Congress then makes sure that the events don't take place, because the covert organizations and the military are bureaucratically banging each other's heads about budgetary issues. That includes the Congress of the United States. The Foreign Relations and Armed Services Committees still haven't figured out what the division of labor is. So, you should start from a policy perspective, and then build your organizational theory and the bureaucratic process.

Student: One of the things implied by your talk is that there has to be completely different thought about how foreign relations, the State Department, the intelligence community, all of those different disciplines, work together and build up problem-solving communities. That's really a tough thing to break.

Sheehan: Again, it gets back to your policy outcome. I'm sorry I didn't bring my most favored nation status chart on China, but I would argue that economics has driven congressional approval of most-favored nation status to China faster than our foreign policy did. It had everything to do with job share in the United States. For example, Toyota has three plants in three states of the United States, and one in Canada. They have more political leverage than the State Department does, because 28 percent of Toyotas are built in the United States. It's jobs. To protect 6,000 jobs in Germany, Siemens AG has been forced to put German foreign direct investment in a place like Taiwan, contrary to what the German government wants to do from a policy perspective relative to a two-China policy.

It's the same as I said before the break. Bibi Netanyahu's policy will be modified because the American Jewish community is getting more and more upset with his policies. He will have to modify his policy. It doesn't mean that American Jews are going to be anti State of Israel; it's just that Bibi Netanyahu is outliving his welcome by the American Jewish community. It's economics. It's like Tom Friedman says, "The global information systems in a global market tend to lead you on a superhighway to the supermarket, or you end up as roadkill." A lot of these actors are going to end up as roadkill, because economies will not go where there are insecurities.

Student: Because in a certain sense you are giving us a view of moving away from kinetic solutions and on to solutions that are based on information operations, what do you think of the idea that in order to maintain peacetime, we beef up our covert actions using some of these new technologies?

Sheehan: It depends what you want to do in covert action.

Student: Covert action in order to prevent crisis and war development.

Sheehan: There will be more and more of that because the major technology will be in the black world. It has to be.

Student: Could you explain your meaning?

Sheehan: The black world is essentially the covert world, in which there is a very small group of knowledgeable people. The technologies for this are very, very sophisticated, and to use them requires decisions at the highest level.

Student: So do you think that's going to be a trend in the United States? That there will be an increase in covert action in order to prevent situations from developing?

Sheehan: I don't know if you and I are using the term "covert action" in the same sense. I think you're using "covert action" in the legal sense of the term, in which a Presidential finding and congressional oversight are required. I use it in a much broader sense.

Student: You're saying it's the pursuit of any foreign policy goals by clandestine means?

Sheehan: By not overt means. It's like "good is the absence of evil," in this particular case.

Student: All right. Let's use your definition.

Sheehan: In that sense of the term, yes.

Student: And it would be more dependent upon the human connection.

Sheehan: Yes. As the world becomes more and more globally interdependent, you'll find more and more of a requirement that nations will compete. Some of your nonlethal covert

activity will be economic. This in turn requires the human element.

Student: Which means it may or probably will be taking place in, as you put it, nonbeligent states or even friendly states.

Sheehan: Yes.

Oettinger: There's a long history of this. You've heard people in the seminar talking about the extent to which you're likely to be bugged on a French airplane or in a French hotel room, and they're our friends. So you can imagine what our enemies would do.

Student: General, taking this view, how do you feel about the "two-MRC" (major regional conflict) concept? Is that a thing of the past? Should we hold on to that? Should we shift priorities to something else?

Sheehan: You're not going to have any choice. It's a bankrupt strategy. Let me see if I can demonstrate that for you. Let me give you a kind of Economics 101.

Do you know what Hechinger is? It's like Home Depot. It's a large department store that sells hardware. When you go in and buy a washing machine, they give you a seven-year guarantee, and the theory is that at the end of seven years you go out and buy yourself a new washing machine.

The two-MRC force has an inventory value. Now, since this is all hardware, all hardware is designed to do certain kinds of things—fly for 2,000 hours, steam for 30 years, drive so many miles—and then you've got to do something. You can make policy decisions to use it less, put it in a warehouse, or do product improvement, but all those kinds of things are what I call marginal change. They amount to savings of about 2 to 3 percent of value.

So we just took the two-MRC force that was built in the 1980s and we said, "Okay, it's got a total replacement value of \$2.9 trillion." In order to replace it on its scheduled basis, we need to be spending \$108 billion a year on procurement. How much are we spending a year on procurement? About \$40 billion. So you're behind the power curve.

Pete Domenici, senator from New Mexico, just announced, a month or two ago, a balanced budget process. You know how they balanced the budget? The U.S. economy was doing so well that there's around \$142 billion available to balance the budget. It really isn't balanced, because for the first time in six years we've increased federal spending. If you really think the U.S. economy is going to continue growing at its current rate for the next 15 years, it should be okay. But I wouldn't go to the bank with that kind of assumption.

The other part of the dynamic is the baby boomers who are moving through the system. They will start to retire somewhere around 2002, and what happens to this entire entitlement program? The birth rates in developed countries are under 2 percent. This is true in the U.K. This is true in France. This is true in spades in Germany. And so, if you don't do something right now, by 2002 you're talking about a \$400 billion debt.

Your two-MRC force needs \$108 billion per year and you're spending \$40 billion. It is simple math. You've got a train wreck on the horizon somewhere. Which stop it is and what year it is, we don't know. It's going to happen. The same problem is going to happen in France.

Student: As I read current literature on information operations, command and control warfare, information assurance, et cetera, one term that keeps coming up is "information superiority." It seems that the CNO (chief of naval operations) likes to use that term, the chairman of the JCS likes to use that term, the people in OSD like to use that term, but I keep trying to figure out what that term is and what it really means. I noticed that you don't use that at all in your presentation.

Sheehan: Right, on purpose.

Student: Why don't you use it, and do you have a particular meaning that you think is appropriate?

Sheehan: I don't use it because I don't know what it means. I know why other people use it: because it sounds good. But I don't know how the hell to do it.

Let me see if I can give you the definitions that we currently have. The definitions in DOD Directive 3600.1 are definitions that took us two years to develop. They are the only definitions that currently exist. The other parts are all kind of what I call temporal buzzwords. There are just a couple of useful things. One is that our vocabulary doesn't fit this new mental construct. Two, most people in the Pentagon, who are trying to come to grips with this issue, are doing it for budgetary reasons. They're not doing it for conceptual work. They're doing it because they're trying to capture some share of the budget.

Most of you should have seen the NDP⁴. Everyone says that the Department of Defense has shrunk. What the NDP says is that last year we had 851 generals and admirals. This year we have 880. So when people tell you that the Defense Department has shrunk, they're lying to you.

There is a British historian called C. Northcote Parkinson, who wrote a history of the British navy.⁵

Oettinger: Is this the same Parkinson who wrote *Parkinson's Law*?⁶

Sheehan: It's the same guy, but he also did a statistical analysis of the world of the navy. At the start of World War II, there were basically 39 sailors manning a desk for every ship that was afloat. At the end of World War II, there were 521 sailors per desk for an equal number of ships. Today, in the Royal Navy, there are more admirals than there are ships. There are more lieutenant generals and generals on active duty in the U.S. military today than there were in 1945 at the end of

World War II, and the force that we had was 10 times the size. That's not efficiency.

Oettinger: That sounds like Parkinson's Law: work expands to fill the available time.

Sheehan: Yes.

Student: You referred to the increase of the data transfer rate in future warfare, but the actual final decision makers are human beings with limited capacity, and I wonder how you divide the organizational structure between that intelligence activity and the actual final policy makers?

Sheehan: What book from Van Creveld are you going to have them read?

Oettinger: *Command in War*.⁷

Sheehan: A good book. It's interesting when you look at the number I mentioned before, the 1.5 trillion bits of information. We just did a study on Force XXI, and basically what happens is that if you give the battlefield commander all the sensors that he needs, he can migrate from the corps to the division, or the division to the brigade, or the brigade to the battalion—orders of magnitude of battlefield maneuverability—which allows him to be as battlefield aware as he needs to be, and do the same thing the next echelon command used to be able to do. What's missing from this is the organizational theory that says you flatten organizations. You have less hierarchical organizations, and you empower people to make decisions.

Again, one of the reasons why I went to Israel and the IDF (Israeli Defense Force) was this whole concept of how you migrate down to a tactical unit commander. The RPV (remotely piloted vehicle) sensory information allows him to use a smaller, more mobile, more lethal battle force more easily and more flexibly on the battlefield. That's tough to do, because our culture is hierarchical, Napoleonic, as opposed to the battlefield of the future—smaller numbers of people, more autonomous decision making, more dis-

⁴ Report of the National Defense Panel to the U.S. Secretary of Defense. *Transforming Defense: National Security in the 21st Century*. Arlington, VA: December 1997.

⁵ C. Northcote Parkinson, *Britannia Rules: The Classic Age of Naval History, 1793–1815*. London: Weidenfeld and Nicolson, 1977; reissued, Stroud: Alan Sutton, 1994.

⁶ C. Northcote Parkinson, *Parkinson's Law, and Other Studies in Administration*. Boston, MA: Houghton Mifflin, 1957.

⁷ Martin L. Van Creveld, *Command in War*. Cambridge, MA: Harvard University Press, 1985.

persed units and more independent activity—all coherently focused, strategy centralized, but decentralized in terms of execution.

Oettinger: In that vein, could you comment on your own personal views about *FMFM-1*, the Marine Corps doctrine manual on war-fighting, both in terms of its spirit and whether it bears any relationship to actuality in Marine Corps practice? Do you have any personal views on its merits, both as a document and as a reflection of reality on the ground?

Sheehan: Has the class read it?

Oettinger: I've recommended it. I don't know if they've read it.

Sheehan: The whole premise behind it is to teach people to think. Right now we're raising a generation of people who don't know how to think. They're so busy synchronizing the battlefield that your decision cycle is, by definition, slow, because you're orchestrating different pieces. *FMFM-1* is designed to allow people to think. You give them the commander's intent and freedom of action to do things within certain parameters which then allows them to make decisions. It's when you constrain local commanders that you lose the tactical initiative, and that's what the issue is.

Oettinger: Is it honored in practice or only in spirit?

Sheehan: Certain commanders are more comfortable with it. Major General Mike Myatt, for example, who ran the First Marine Division that went through the trench lines and was in Kuwait City two days later, is a practitioner of maneuver warfare and *FMFM-1*. In the Corps, General Franks⁸ was not a maneuver warfare practitioner, but a synchronization guy, and it took him two-and-one-half days to get organized.

Student: Your answer to my earlier question was based on the current view of struc-

ture. In the future, there may be many occasions where the United States will have to fight a war along with coalition members. In view of the difficulty within the U.S. military, how do you envision interoperability with the other coalition members?

Sheehan: Well, first off, you have to have a system. "Here's your system; for \$100, I'll sell it to you." At SHAPE (Supreme Headquarters, Allied Powers, Europe), the system is a NATO/Secret WAN (wide area network), which feeds into a multilevel security (MLS) server. That in turn goes into a coalition WAN that serves NATO plus Australia and New Zealand. Between that and the U.S. Secret network is another MLS server. This is hard! This has everything to do with commercial proprietary interests. Certain companies own certain software, but the interesting part of this is that most of the command and control architecture in Bosnia was commercial. It cost us \$33 million to put it in, because the NATO structure wouldn't work. That tells you something after 50 years! And so, what you have to have is a process that allows you to get to this point. This is what J-6 ought to be working on. Take notes!

Student: We've passed that to NSA.

Sheehan: This is not an NSA issue.

Student: Doesn't it deal with MLS? That's what I was thinking.

Sheehan: Yes, multilevel security is what he's talking about. But until the coalition partners (in this particular case, it starts with an organization like NATO) move toward this kind of world from a policy perspective, coalition operations will be very, very difficult. Hopefully, if we go to a Java-based software system, it will make it a lot easier. We've spent about a year and a half to two years working on this. This is hard work, because we have too many people in the National Security Agency and other organizations who would love to protect stuff, especially in the intelligence world.

Oettinger: Let me add something to that, and suggest to those of you who are inter-

⁸ LTG Frederick Franks, USA, VII Corps commander in Desert Storm.

ested in that topic that there's a lot more in the past sessions of this seminar about NATO interoperability. To tie it to some comments that General Sheehan made about the relationship of all this to politics, internal and external and so on, one of the chief reasons for difficulties in NATO interoperability, among many reasons, was that whenever push came to shove (and you see this documented in the seminar by people from a variety of NATO members), favoring a national manufacturer and doing the economic thing proved more important than having one sector to the left or the right of the Fulda Gap communicate with the other. This is the reason for his comment that after 40 years, NATO interoperability remains a pipe dream, and the only thing that was lucky was that it never had to be exercised.

Sheehan: NATO's budget is the reason. How much has NATO spent on real C³I, information operations, or information capability? About \$100,000. Security investment in Cold War infrastructure—airfields, bunkers, headquarters, people—accounts for 46 percent of the budget. There's an 8 percent expenditure for NATO's civilian work force—inflation is guaranteed there. If you do nothing about this budget, by the year 2015 there will be more civilians in NATO than there will be in the military. Seven percent of the budget goes for science and technology, which is mostly kind of conferences and meetings. Pure information systems is \$100,000.

This is a failed budget process, but it has everything to do with fair share. We are still putting money into a pipeline system in Europe that runs east and west, or north and south, depending on what your focus of activity is. Those are jobs.

Student: General, while you're on NATO, how do you feel about the combined joint task force (CJTF) concept?

Sheehan: It's a great idea—if it works. The reason I told you about NATO's interoperability structure is that it is the command and control architecture for interoperability that we're building for a CJTF. As CINC U.S. Atlantic Command, I provided the maritime

CJTF for NATO. We're doing it in spite of the bureaucracy. That's the saving grace. That will allow many of the Partnership for Peace nations to come into NATO on a plug-and-play basis as long as it's a commercial architecture. We're purposely building commercial architecture, on an open architecture system.

Student: You talked about having a process that establishes the goals or the agenda. Presidential Decision Memorandum 56 of the United States establishes an organization that purports to do that. Do you have any comments on that? It's at the deputies level. When a crisis actually occurs, is that organization going to be functional, or is it going to be held at the principals level, and they're going to be making the decisions independently?

Sheehan: Having sat in a number of deputies and principals meetings, they're mostly debating clubs. They sound like a Harvard seminar. No reflection.

Oettinger: I figure that was a compliment.

Sheehan: High-quality work, no outcome.

Oettinger: We wouldn't want you to miss your airplane. But I want to get back for a moment to your comments about processes, and this last crack about commissions and committees and so forth. Let me make a statement and see how you react.

We've been looking at the history of air power and, more specifically, strategic bombing in the period between World War I and World War II. I hear in what you're saying an eerie resemblance to what happened during that period, which was mostly nothing. There were many commissions and much teeth gnashing and so forth, and most of what was put in place was worthless ... with one exception. Out of the process, and out of the arguments and the teeth gnashing and so on, came the generation of leaders who then ended up winning World War II. They were among the debaters and were more or less able to surface at the right time, and do what was appropriate for the period. We'll never be able to look at the alternative,

but my guess is that there was sufficient variety in the debate that some other folks might have surfaced had the situation been somewhat different. I'm asking you first if that is a reasonable reading of history. Second, if it is, do you have any confidence that there is enough variety in the debates today so that, no matter what is sort of in the ascendancy when actual chips fall, there are folks around who have thought through enough varieties of schemes that there's the chance of a snowball in hell of responding appropriately?

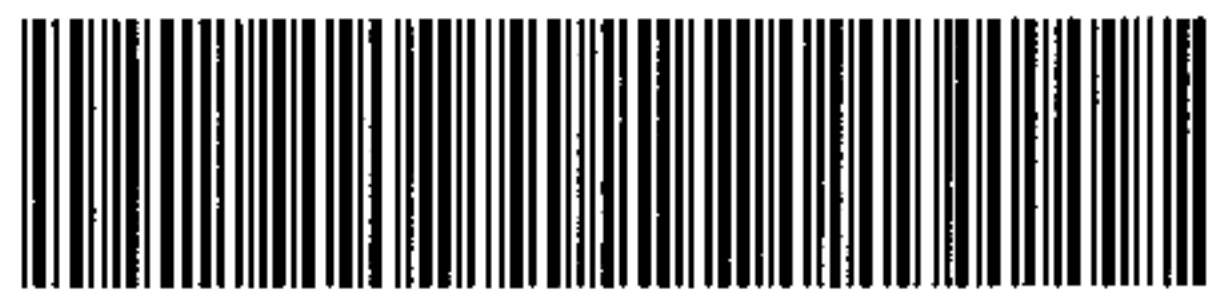
Sheehan: I think you're generically correct in the sense that during an interwar period, the system produces conformists. Whether you're talking about U.S. forces or British forces, it always takes a catastrophe—whether it's the Kasserine Pass or what have you—that then causes the system to look for somebody nonlinear to inject the ideas that they have thought through. It could be Ellis in the Pacific, or Arnold and the air power people, or people like Guderian,⁹ who thought through maneuver warfare. Unfortunately, because of politics during

interwar periods, conformity is more important than original thought, and so seminars like this, where debates take place, are absolutely essential. That's why the whole NDP was a good idea, but it failed in execution, because it didn't produce anything. It produced the lowest possible denominator.

Let me pick on the Germans. That's a country that has to go through a catharsis. Ever since it joined NATO, its foreign policy and security policy became NATO's policy. Now Germany is the economic center of gravity of Europe, and has a policy process requirement. They need to think their way through the use of force as a policy instrument. You can keep hiding under whatever you want to hide under, but at some point in time in the not-too-distant future, that debate is going to have to take place. It's the same thing in Japan. Japan cannot hide behind history much longer.

Oettinger: On that note, sir, may we give you a large hand and a small token of our appreciation.

⁹ Major Earl Hancock "Pete" Ellis, USMC, sometimes considered the "father" of amphibious warfare; Col. Henry H. (Hap) Arnold, USA, air power theorist between the World Wars; Gen. Heinz Guderian, German Panzer Corps commander in World War II.



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ISBN-1-879716-54-2