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**C³ During Desert Shield and Desert Storm
Roscoe M. Cougill**

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C³ During Desert Shield and Desert Storm

Roscoe M. Cougill

Brigadier General Cougill is director of the Command, Control, Communications and Computer Systems Directorate, U.S. Central Command. He entered the Air Force in 1964, and received his commission upon graduation from Officer Training School. Upon completion of the communications staff officer course at Keesler Air Force Base, he assumed command of the 2052nd Communications Squadron. Later he was assigned as an action officer responsible for European plans, Office of the Deputy Chief of Staff for Plans. After graduating from Air Command and Staff College, General Cougill was assigned to Headquarters U.S. Air Force, Washington, D.C. He served as an action officer for mobile communications and war plans, then as executive officer in the Directorate of Command, Control and Telecommunications. He graduated from the Army War College in 1981 and assumed command of the 2179th Communications Group. In 1983 he became executive officer of the Command, Control and Communications Division, International Military Staff, Headquarters NATO, Brussels, Belgium. He returned to the United States as deputy director for plans, policy and programming, assistant chief of staff, information systems, Air Force headquarters, and later became director. In 1986 he was assigned as chief of staff, Headquarters Air Force Communications Command. In 1988 he became deputy assistant chief of staff, systems for command, control, communications, and computers, Air Force headquarters. General Cougill has been awarded several military awards and decorations. He was promoted to brigadier general September 1989.

Oettinger: You've all had a chance to see General Cougill's biography. I will just inform you that, which is not obvious from his initials, that he goes by Dan and not anything derived from either the R or the M, but being curious about it, I asked him, and he said, "It's from McDaniel. It's from the M." So having revealed that deep secret, I'll leave the rest of his biography and just introduce him to you. So, let's get started. It's a pleasure to have you with us, General Dan Cougill.

Cougill: What I've done today is structured my presentation around the Desert Shield-Desert Storm experience, almost like a day in the life of the J6 at CENTCOM. The slides will be kind of a guide for

me as I speak, but I would like you to interrupt me at any time with questions you may have. I didn't really know what to address here. Obviously there are command and control lessons and issues that you might have some special interest in.

Student: I'm not familiar with this "J6" terminology.

Cougill: Let me walk really quickly through the Js. The J means you're on a joint staff. A G means you're at a component like Army staff, Air Force staff or something. The J1 is the personnel director; the J2 is the intelligence director; the J3 is the operations director; J4 is logistics; J5 is the plans; J6

is the communications/computer support guy.
Okay?

Oettinger: JCS is Joint Chiefs of Staff.

Cougill: Yes, and I'll get to that in just a minute. Really quickly, you all know what happened in the first week of August. That same first week of August, the Chairman [of the Joint Chiefs of Staff] came down to visit MacDill [Air Force Base] and sat down with Schwarzkopf,* me, the J5 and the J2 (figure 1). His objective was to find out, "What do we know about what's going on?"

Oettinger: Excuse me, Dan, can I back off just a moment? You are the J6 of CENTCOM (U.S. Central Command) whose role is such-and-such, and therefore in Desert Storm had yea responsibilities. Use that as a stage-setting.

Cougill: All right, let me back up and do that. As the J6, my title is "Director of Command, Control, Communications, and Computer Systems." What that really means is that I provide the communications and computer systems that provide the support to the command and control that both the CINC and all the other Js needed in order to perform their function. I was responsible for designing and installing the communications and computer systems.

Okay, now back to August. The chairman came down, we briefed him, and J2 told him what we knew about what was going on, which was that the Iraqis were on the Saudi border in Kuwait. The J5 told him what our current planning was, which was basically zero. We didn't have a plan to address an Iraqi invasion of Kuwait with a subsequent possible goal of going into Saudi. CENTCOM's previous plan had been looking toward the Soviet Union, and a Soviet attack through Iran toward the Persian Gulf, with the subsequent goal of coming across the Gulf and taking the oil fields in Saudi Arabia. Obviously we were pointed totally in the wrong direction and had developed a plan that was really nonworkable.

Schwarzkopf had seen that in 1990 or 1989 and had the staff starting to think about a new plan. In July 1990, just before the invasion, we tested the concept, which says, "Here's how we would react," but it doesn't get into the specifics of how would we build a comm system; how would we do the command and control; how many airplanes we would

Saddam's invasion

Briefed CJCS

- No Communications
- No JCEOI
- But working on them

Augmentation

JCS/J6 and Dir/DCA support

—————
"Surely he will retreat"

Figure 1
First Week of August 1990

really use. It just says we would use "air initially," or we would use "amphibious forces."

During the briefing, I basically told the Chairman I didn't have any comm at all. There was nothing to support command and control in the theater. The JCEOI in figure 1 is Joint Communications Electronics Operating Instructions. For Army guys that's a bible. It tells them how to go to war; what frequencies to use; what call signs to use; it's a very critical document. We had never had one at CENTCOM and part of the reason why we never had one is the CENTCOM J6, the communicator, had always been an Air Force guy, and the Air Force doesn't have those things. So we had never stressed the development of a JCEOI.

Oettinger: Can I just stop you here, because it boggles the mind. I understand the Air Force and the Navy's own internal practices, but within this particular joint combatant command, why would it not cross the mind of a J6 coming out of any service that he was the J6 for a joint command? I mean, how far does service parochialism go?

Cougill: I don't think it's a matter of parochialism. It's a matter of not understanding how complex the document is. I think the idea was always, "Well, if it happens, I can build one overnight," and you can't. It's a document that you have to have on the shelf and it takes a long time to create and build, and then you need to play with it, which I didn't know and none of my predecessors did.

* General Norman Schwarzkopf, Commander in Chief, U.S. Central Command.

Student: When you say, “have to build it,” do you mean for the scenario or do you mean for the services for any contingency?

Cougill: You really build it for the scenario.

Student: So you could, in fact, have one on the shelf to be modified for a scenario.

Cougill: Which is what we’re doing, which is what we had to do.

McLaughlin: Let me pursue that, only because I find it fascinating. It seems to me that CENTCOM is one of the “hollow” commands (tell me if I’m wrong). My assumption for years has been that the Army component of first order is 18th Airborne Corps.

Cougill: Okay, you can say that’s assumed.

McLaughlin: Okay. I guess what I was going to ask is, isn’t there some point where someone from CENTCOM and someone from the 18th Airborne Corps sat down and said, “If we’re going to get chopped over to you guys, this is what we need in terms of a communications plan.”

Cougill: No. That’s a good point. Let me talk to why that probably didn’t happen. By the time you get to the 18th Airborne Corps, you’ve got CENTCOM where the CINCCENT box is shown in figure 18, and you’ve got all the services down below that are component commands, and over here (figure 18) is the commander of ARCENT (the Army component of Central Command), who sits at Fort McPherson and is dual-hatted as 3rd Army, which is kind of a paper army to begin with. All of our dealings are with his staff, and he really has no assigned forces under him in peacetime, they’re all forces who have been chopped to him. Now granted, in our previous planning, the 18th Airborne Corps was an element of the plan that said the Russians are coming through Iran, but for us to reach down and touch these people is a no-no. I’ve got to work with his staff. So what the 18th had done (see the block below the ARCENT block in figure 18) and what they did for Desert Shield, was bring their training JCEOI, as did everybody else, and were able to utilize it at least for a period of time until I published a formal JCEOI for the theater. Their training JCEOI is just that, and it only addresses their internal relationships. It doesn’t take into account that I’ve got Air Force, Marines, and Navy, and I’ve got to draw all those together.

McLaughlin: Is there a 6 at ARCENT?

Cougill: Yes, there’s a G6 at ARCENT. Each service, then, has a G6 (see ARCENT, CENTAF, NAVCENT, MARCENT line in figure 18). Now you’re talking about the capabilities of people and this was probably the weakest component we had in that the emphasis of the Army, as in all the services, was very much toward the central region and “who the hell is ever going to fight in the Persian Gulf,” which was what CINCCENT’s job was.

McLaughlin: All right, I didn’t mean to take you too far off track.

Cougill: That’s all right. Well, the key one on here was the bottom bullet (see figure 1). I’m sure you’ve studied the Goldwater-Nichols Act. This is where I took advantage of Goldwater-Nichols. On the second of August the Chairman came down; on the third of August I talked to Schwarzkopf and I said, “I’m going to make two phone calls: one to the director of J6 on the Joint Staff, General Cassity,* and one to the director of Defense Communications Agency, General Rodgers,** and tell those two gentlemen that I’ve got a problem in an area of the world and that I have to be the one person in charge. I have to be the one who validates. I have to be the one who allocates. There isn’t going to be any comm unless I say, “That’s okay.” Schwarzkopf said, “You’re right on.” So I called them, and both of those guys totally agreed with me. In that regard I was extremely fortunate to have those two gentlemen in the positions they were in. They enforced it totally. I had total control of both the deployment of communications, the allocation of resources, and the subsequent employment in the theater of all the services’ assets that were in the theater.

Oettinger: If I may, just for the record, and also for the enlightenment of some of our students, put an explanatory note to that; correct me if I get the story wrong. The U.S. armed forces are organized in a way where the services — the Army, the Air Force, the Navy, and the Marines — may provide the forces but a combatant command, in this case CENTCOM, and its commander are the people who actually go out and fight, who execute a particular mission. The Goldwater-Nichols Act of 1986 is a law that essentially strengthened the relative power of the Joint Chiefs of Staff and of the combatant commanders relative to each of the services. It gave

*Lt. Gen. James S. Cassity, Jr. (USAF).

**Lt. Gen. Thurman D. Rodgers (USA).

them some authority and some teeth for doing what you've just described, which is essentially saying to part of the suppliers of the combined machinery — in this case the JCS/J6 and the Defense Communications Agency — that I, the combatant commander, want you, as the joint element, to make sure that anything that happens with these various folks, whose job it is to provision things, happens through me because this is my show. Is that a reasonable translation of what you just said? The significance of citing Goldwater-Nichols here is that before 1986, what you described, which sounds like a very sensible thing, would have been very difficult, if not impossible, to do.

Cougill: That's right. Well, to say it another way, the JCS/J6, really kind of informally, is in my chain of command above me, but once Schwarzkopf was identified as the *supported* CINC, this guy became a *supporting* component and he was to support me in my responsibilities as Schwarzkopf's J6. So rank and peacetime structure have been kind of thrown away the minute you start identifying supported CINC and supporting CINCs and supporting services. That's clearly defined in the tasking order that comes out.

Student: Just for clarification, that means that a combatant commander has military power only in crisis management?

Cougill: Yes. If I understand your question right. What happens is in peacetime you don't have a supported commander. You don't need one. There's no crisis. The minute you have a crisis, you decide, "Am I going to respond? How am I going to respond?" and you identify the supported commander — one person.

Oettinger: A small detail: before the Goldwater-Nichols Act, if an officer under the supported commander did not do his job properly, the supported commander would not have had the authority to cause a court martial to happen. He would have had to go to the chief of the service from whom that officer came and make a complaint and who knows when anything would happen. Under Goldwater-Nichols, the supported commander has the authority during the operation to court martial an officer. It's a small point, but it illustrates the shift in the balance of power that changing the law enabled under crisis situations.

Cougill: Okay. I'm not going to get all of them, but if you've got any questions, feel free to ask them.

In the second week we started our deployment (figure 2). My job is to provide the means with which the CINC can command and control. He basically said to me, "You've got to put out in the desert exactly what I have here at MacDill before I will go to the desert," which bounded my task. We started the airlift, and a point I want to make on the airlift is that too many — t-o-o — many people on the support side of the house think that their resources should have the same priority as shooters and killers and that's a wrong track to get into. It was an easy decision for me, but it was one of the hardest from the standpoint of the components calling me constantly, beating me up because I was not supporting them in getting communications equipment on airplanes. The argument I gave them was, a communicator on the ground is worthless and probably going to be shot unless you have a shooter on the ground to protect him. So let's get some shooters there first and then we'll worry about getting all the communicators on the ground. So the priority went to the shooters.

The Air Force was the worst one. The Air Force had a big problem understanding that I could not send all the communications they wanted early on.

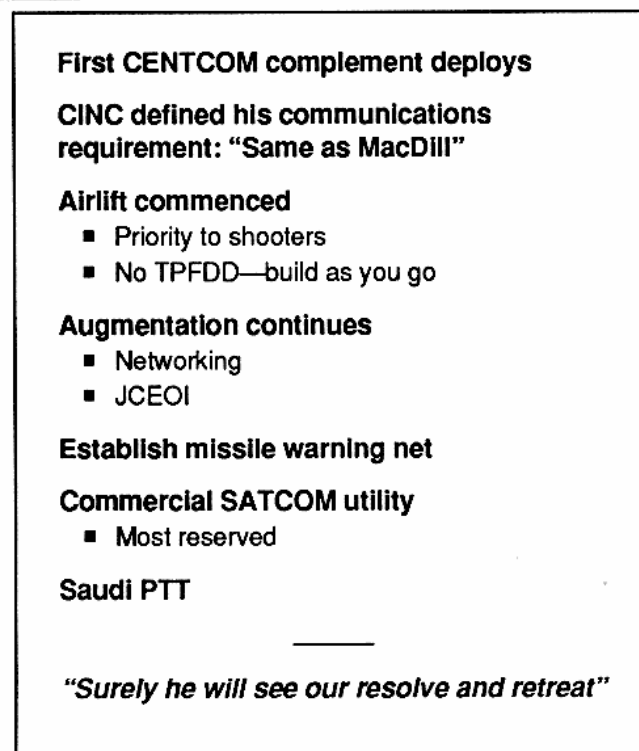


Figure 2
Second Week of August 1990

Schwarzkopf and I had lots of discussions about that. What he told me was, "Build me the minimum command and control structure so I can execute the forces that I have." Then he trusted my judgment to build that minimum structure, and anytime I wanted to go above that, he forced me to justify why I needed to take airlift away from war fighters to support anything above that minimum structure I defined.

Student: Excuse me, sir. So the plan was to get this basic element on the ground to control the shooters, not just send the shooters out with enemy, and have the follow-on command and control come later?

Cougill: The plan was to provide the minimum level of command and control so that Schwarzkopf would be able to get feedback from the theater and be able to give guidance to the theater — granted that it was a thin line, it was fragile, it was dangerously weak — and then follow up with a robust network that would ensure that I had more than one way to talk to someone. Example: in the intelligence side of the house, early on we would say, "We have a photo back here that shows that there is a massing of troops at grid coordinate so-and-so." What the man on the ground really wanted was the photo. Early on I couldn't give him the photo because I didn't have the communications channels to do that. Eventually, we flowed in the comm channels that would allow us to send the photo to him. How much of the data can you give to the guy early on? A little bit. How much did I grow to? A lot. But how do you do that? You start small, then grow big.

Student: Did you actually end up the same as MacDill?

Cougill: Yes. And I'll talk to that a little bit as I go through some of the things that we did. I augmented my staff an awful lot. I knew I was going to have to create a lot of networking and I wanted to do what hadn't been done in Vietnam, and that was build a joint system. I didn't want an Air Force system, an Army system, a Navy system, a Marine system; I wanted it to be joint and I wanted everybody to share, to maximize the capability of the minimal, limited resources I had.

Oettinger: Just to get in a quick footnote if I may. This whole J6, this unified job, did not exist at the time of Vietnam. For those of you who are interested in its history, we have a record in the proceedings of this seminar of every incumbent in the Joint Staff version of this job, so you can get a picture of

the growth of this function, whose role was precisely to try to do what he just said. It sounds so simple to have something that would work for all the services and not piecemeal.

McLaughlin: Dan, for the record, TPFDD?

Cougill: Time Phased Force Deployment Data. That's when you take a plan, when you finally get down to writing all the nitty-gritties: how the logistician is going to do his work; how the supply guy is going to do his work; and so on and so forth, then you say, "Okay, now I'm going to deploy my force and what day do I want to start deploying which piece of my force? When do I want it to leave? When do I want it to arrive?" That's what the TPFDD is.

Student: Along those lines, if the CINC has operational authority in a crisis situation, but it seems that the priority for airlift, for instance, is joint, and you have to make a trade-off in airlift and sealift between ground equipment and air equipment and other stuff, are there provisions for working out the trade-offs involved there?

Cougill: Yes, and, again, the CINC is the guy who decides. Now, in this particular exercise, we didn't have this document that said, "Here's what we plan to send on what day." So what we were doing was building the TPFDD on a daily basis as we went along, but the CINC was the final approving authority for everything that was going out en route to the theater. Granted, he didn't get down into every airplane, but what he would say was, "Okay, I want the 18th Airborne Corps to go from day three to day five and I want all airlift to go to the 18th Airborne Corps until those guys are in theater." So he was making macro decisions. The peons running around were sort of filling in the squares.

We had never gone to war where we had a tactical missile threat, and suddenly we had one — the SCUD — and we needed some way of warning the troops in the field that it was time either to put on your chemical gear or not put on your chemical gear. So we had something that no one ever thought of: we had to establish a missile warning net.

Commercial SATCOM (satellite communications) utility is critical. I knew early on that I was going to need a lot more capacity than the Defense Satellite Communication System (DSCS) provided. So I called General Cassity (I talked to Don Rodgers) and I said I need to put a chip mark on the table for INTELSAT or COMSAT commercial capability. He said, "Right on," and that he'd give

me a call right back. He called me back and there was one T-1, and that's about 24 telephone lines, roughly. One T-1 left on all the commercial satellites in the world. The commercial networks, CBS, ABC, NBC, CNN, and all those other wonderful people had already put their chips on the table because this was going to be the video war. It was going to be brought to every living room. That created an interesting issue in the Joint Staff, and that was, "Oh, oh, have we made provisions to take national and international assets and reserve capacity for a defense requirement?" There was a lot of scurrying around. General Cassity got involved and the bottom line was the war did not commence within the first 72 hours, so most of the major networks — CBS, NBC, and ABC — lost interest in it. It didn't have any commercial value, so they backed out. More importantly, Cassity was able to work through the Federal Communications Commission and with some international organizations and we were able to get access to these commercial satellites. There is a provision now where for national defense purposes, we can get access; we can take commercial networks and users off the air to use this resource.

When we first got there, as I already told you, I didn't have any communications, only the public telephone and telegraph that served the telephone system in Saudi. It's a fairly decent system, but very limited as to where it went. When you look at the country, you've basically got four big towns: Jiddah, Bahrain, Riyadh, and Al Jubayl. Getting beyond that was a spot out in the desert that didn't have any telephone, so we did use a lot of the Saudi PTT system.

Quickly, the third week (figure 3). You can only stand face-to-face with Schwarzkopf a certain amount of time, and then you have to get the hell out of town. You just can't stand it any longer. He's a tough guy. By that point in time, we had beaten down the Air Force. The Army was very quick to move. They had already put all their tropospheric scatter and microwave systems, which are big consumers of airlift on ships and started them across the ocean. I forced the Air Force into doing one basic thing. I put all the SATCOM terminals on air and had Schwarzkopf's approval to fly all those in by air as well as the telephone switches and message switches.

I flew over there, and when I got there I said, "Oh my God, I'm in deep kimchee." I haven't got the slightest idea why we had to learn this lesson, because Eisenhower did not stay out in the trenches with his troops, and neither did McLellan and those

I've had enough face time

Assets are flowing

- SATCOM (UHF and SHF) and switches by air
- Tropo/MW by sea

Eye opener upon arrival

- No tent city
- Limited space

Need secure voice with coalition partners

Communications in yet?

Gimme!

—————
"Now that J6 is here, surely Saddam will retreat"

Figure 3

Third Week of August 1990

boys. We have to learn it every damn time. We had built a tactical comm system that works beautifully if you've got a 27-square mile field to work in, but we went in and set up our command center in downtown Riyadh, where you've got streets, roads, and buildings and all kinds of neat things and you can't lay cable wherever you want to lay cable. You have to figure out a different way of trying to string your communications together. This was a big problem, and we were out buying commercial microwave systems to shoot between buildings and try to lash up the communications structure.

Also, once I got over there, I found out that our coalition partners, and initially it was the Saudis, had no secure voice communications at all and we were already starting to talk in the third week about how are we going to defend the kingdom of Saudi Arabia. We would talk in the headquarters building; we were having big secret sessions for our discussions; and then the Saudis would go out, get on the telephone, and call their buddies up in wherever and tell them everything that went on in the secret sessions. So I said, "Gee, we can't have that happening. We've got to have some kind of secure voice." I was able to work with NSA and we created a secure voice system that I was able to loan to them.

Oettinger: A footnote, if I may: the person in NSA, the National Security Agency, responsible for secure systems of the type that he's talking about will be our guest next week. So if you want to pursue some of that further, Jim Hearn is the person to pursue it with.

Cougill: You can tell him that what I want — and I already told him this — is a telephone that has a dial on it so that I can say, "I want to go secure with this country, with this country, with this country, with this country," and he'll laugh because you can't do that.

Student: When you said you had to create one with NSA, I'm sure it wasn't an off-the-shelf part. Was it something that they had or was it just put together?

Cougill: What they ended up giving me was a mixture of off-the-shelf and not off-the-shelf. It's not off-the-shelf in the truest sense: that we just picked it off the shelf and took it. But they utilized a Motorola secure voice instrument, very much like the STU-III (secure telephone unit), which is what we have in the military now for our secure voice system. It's called a 2400. It starts out with just basically a Data Encryption Standard (DES), but it's not really a secure system. It's more like an industrial security-type system. It has that already in it. What NSA did was enhance the algorithm that was in there so it would meet U.S. secret secure-voice standards.

Student: I asked you because of the timing.

Cougill: From the day that I called them to the time that the first ones arrived in theater took 11 days.

Oettinger: Another footnote on that, because the way things fit together, apparently by chance or by planning, and so on, is kind of complicated. I happened to be present at the birth of the kinds of systems that he is talking about a decade or so ago, where there were huge arguments over whether that kind of secure voice system should be broadband, meaning that it would require special capabilities, or whether it should be designed so that you could operate over ordinary telephone channels. There was an enormous fight over that. Ultimately, the notion of doing it over ordinary voice channels paid off and because of that, the decision was made to bifurcate the thing so that there would be a military but also a commercial, albeit somewhat less secure, thing. One could say in retrospect that was very smart. All the decisions that were made that weren't

so smart don't get remembered, but you've got to keep in mind that this leveraged off stuff that happened ten years before and that at this time was, in fact, ready and could be used widely. But, you could talk about lead times of a decade.

Cougill: Not to lessen what he just said, but normally to get a secure voice system that could do what I needed to have done would probably have taken six or nine months to a year. So the responsiveness of all the supporting commands, the supporting agencies, was just phenomenal.

Oettinger: And there was a lot of this stuff around cheap.

Student: May I ask you to back up for one second? I was a little bit out of my element when you were talking about the capability that you thought the commanders needed versus what they actually needed. You actually thought they were going to be out in the field and they wound up being downtown in Riyadh?

Cougill: No, no. All of us — the Army, the Air Force primarily, and the Marines — had designed our systems to accommodate the establishment of a joint task force headquarters and/or its components out in the field. When you do that . . . it's hard to describe, but let me try to draw a picture of what I'm talking about (figure 4). If you've got a tent set here, and over here you've got this big satellite dish that's shooting up coming down into a van, that goes to another van, which maybe has the telephone system in it. The way we have built these systems is that we bring a big cable out of the side of this van into another little box that can lie on the ground, and then you split it out, lay it on the ground, and go to all the other little tents, and we bring another cable over here and set a box and we run all the wires out to go in here. Well that's fine when you're out in the desert, but when you go into a town, and you're trying to find a place to put your satellite terminal, this guy is no longer in a tent: he's in the third basement of the Ministry of Defense and Aviation building in downtown Riyadh, you don't run cable and just drop it down into the building.

Student: The last part of that is, how did you solve that? Not necessarily how you did it in Riyadh; how did you solve it for the future?

Cougill: I became a great fan of a thing called "TSSR" and I don't know what the hell TSSR stands for. I think it's tropo satellite support radio, or something like that, which makes no sense —

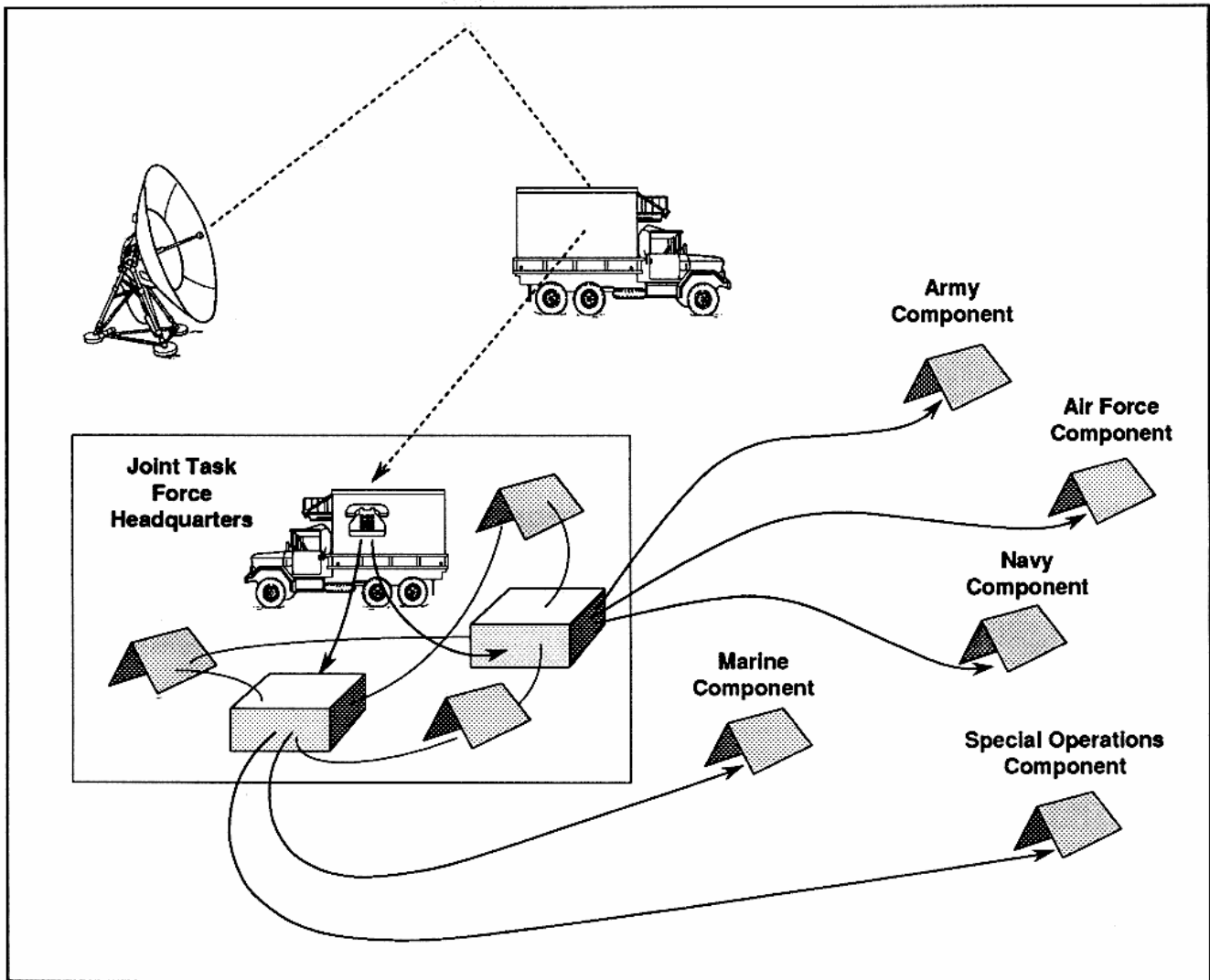


Figure 4
Field Communications

typical military words. It is a small microwave system, and you can basically put the whole system on a mast. It's got a dish about 12–14 inches in diameter. It's designed for short distances and you can pump a very nice wideband stream about anywhere up to nine megabits between these two.

Student: Five miles?

Cougill: Easily five miles. You can go up to 11 miles. The Air Force had a handful, I had to buy a bunch more, again, fortunately, off-the-shelf. I brought a bunch to the theater to do downtown Riyadh.

Student: So everything going out was encrypted?

Cougill: Yes. I added the encryption KG-84.

When I got there in the third week of August (figure 3), the next morning I received a phone call from Schwarzkopf asking me if I had all the comm in yet. I said, "Jesus Christ!" And then the "Gimme"; that goes back to the Goldwater-Nichols. Every component was screaming "Gimme." The Army, the 18th Airborne Corps, as a matter of fact, was the absolute worst of all. They have learned to address all of their requests through the Chairman of the Joint Chiefs of Staff (CJCS), so I would get phone calls from the JCS asking, "Why can't you

support the 18th Airborne Corps? They need . . .” You’ve got to remember (see figure 18): here’s the JCS; here’s Schwarzkopf; here’s ARCENT; and then down here somewhere is the 18th Airborne Corps. But even below that was some battalion commander, way down here, writing a message that goes all the way up to CJCS and then it comes back down through CINCCENT to me. And Schwarzkopf is beating me up because the Chairman’s calling him asking why the hell can’t I support below ARCENT? A dumb way to do business, absolutely. We finally got to the point where Schwarzkopf told Colin Powell (CJCS), “If we need your help, we’ll let you know.” And Powell was amenable to that and said, “Yeah, you got it.” This drove me crazy.

McLaughlin: So General Schwarzkopf counseled with some other Army generals at that point?

Cougill: Yes, he counseled with them, but you’ve got to remember, within the Army the 18th Airborne Corps is known as the Imperial Corps and they get away with a lot of stuff.

I’ve already talked about 99 percent of what happened at the end of August (figure 5). The Defense Satellite Communications System was becoming saturated. I used a lot of commercial comm: the first time we’d ever really done that in a conflict. Lesson learned: we are putting it in our plans; we are using commercial COMSAT, INTELSAT. We’ve already got DECCO, which is a contracting organization within the defense communications world prepared. They’re writing contingency plans to go to the contractors to bring up the commercial satellites to support us in future contingencies.

McLaughlin: Dan, a question there: doesn’t that also depend upon the nature of the conflict?

Cougill: Sure.

McLaughlin: I mean in the sense that, as I recall the story, we had access to INTELSAT because the United Nations agreed? Is that true?

Cougill: Yes, you’re right. There are two parts to this. The first part is, this was a worldwide-agreed conflict. So INTELSAT had no problem in supporting us, neither did COMSAT. Everybody else agreed to support us. So there’s that piece that you have to worry about. There are those people who say, “Well, gosh, Cougill, you used commercial satellites, why the hell do we need to have a Defense Satellite Communications System? Why do we need a Milstar?” Well you need it for just what

Deployment continues

- DSCS becoming saturated/need more commercial
- UHF WB channels saturated
- More Saudi PTT

Thin-line not good enough—need redundancy

Frequency management

Start writing defensive OPLAN

CINC arrives

JCS and NAVCENT Communications

AFRTS

ARCENT move

Flag officers move

—————
“Saddam Isn’t retreating”

Figure 5

Last Week of August 1990

you talked about, and one argument is: “What if we ever have to go again where we don’t have consensus of the world that we ought to do something?” The other piece is, in Riyadh we weren’t going to move the headquarters; we knew it was in the third basement of the Ministry building. In Dhahran, we had a couple of headquarters, and we knew they weren’t going to move. But when I got out there, the maneuver elements of the Army were going to move all over the place, and a commercial satellite cannot adjust quickly enough to support a maneuver element. I was using the DSCS and I was constantly restructuring the network to support all the maneuver elements off of the DSCS. Most of my fixed facilities were being supported off either INTELSAT or COMSAT, and that included many of the Air Force bases. We were getting their support on the commercial side of the house. I reserved DSCS for my maneuver elements so they could move around the theater very quickly, tear down, and set up, which commercial guys just can’t do very rapidly.

Student: Is there now a legal way, in the event that it isn't internationally sanctioned or not popular domestically, to compel use of domestic satellites?

Cougill: There's an avenue, and I'm not sure what it is.

Student: What if it's an international, for instance, a joint American-French venture? Are there arrangements for that?

Cougill: I'm not sure what all the words are, but there are lots of agreements that allow access to the commercial networks to support a defense organization. Some of them, obviously, get into, "Is it a multinational-agreed response, or is it bilateral, or is it just the U.S. responding; how much access can I get, or can we get any access?" I'm just not privy to those.

Frequency Management (figure 5) is little-known: nobody worries about frequencies except now Johnny Grimes, in C³I at the Office of the Secretary of Defense, is starting to worry big time. People have awakened to the fact that we haven't prepared ourselves very well for the future of the frequency spectrum. Frequency spectrum is a limited bucket. There are only so many frequencies in the sky, and we are rapidly approaching total saturation of that frequency spectrum. When we got over to the war, in essence, in that area of the world there was zero management of the frequencies. The Saudis had no idea what frequencies they were using other than HF (high frequency) and then they had some vague idea. They gave us three or four lists, none of which agreed. I became the frequency manager on the Arabian Peninsula. General Khalid talked to the rest of the Arab countries and agreed that the J6 of the CENTCOM should be the frequency manager. We picked up and managed 35,000 frequencies during the conflict, working with all the coalition partners and all the nations in the Persian Gulf.

Oettlinger: If I may get in another footnote, this is an issue that's going to get worse because the commercial side of the world is nowadays talking about personal communication systems and other goodies, which are making a lot of dollar signs light up in entrepreneurial eyes. There are two effects. Many of them have their eyes on what they regard as underutilized military frequencies globally and other government reserved frequencies. Second, regardless of how that particular battle comes out, those things are going to be all over the spectrum and will then create other management problems because of possible interference and so on. This

will be a much worse problem than it was in this particular instance.

Cougill: Yes, it's just going to get more congested than it has been.

Here's where we started (figure 5). When we first got over there, to be honest with you, we really didn't worry too much about coalition command and control. We were in a defensive mode. We were just trying to make sure that we put up a posture that would, hopefully, deter Saddam from coming on south. He would see that there were Americans involved and there was some resolution to our commitment. Then we got notified that the French were coming (figure 6), and now we had to start worrying about how we were going to build this coalition, and who's going to be in charge, and what are the command and control lines, and who needs to communicate with whom, and that became a big issue in the first week of September. We needed more equipment. We were moving things all over the place. Every time a new guy would come in, he liked a different room better, so we'd move the war room.

In the second and third week of September (figure 7), one thing really started to worry us. The question out of Washington was, "What war? It's fiscal year close-out time." We had to put the war to one side and wait for the close-out of the fiscal year — absolutely mind-boggling! We started worrying about morale calls, which was an interesting phe-

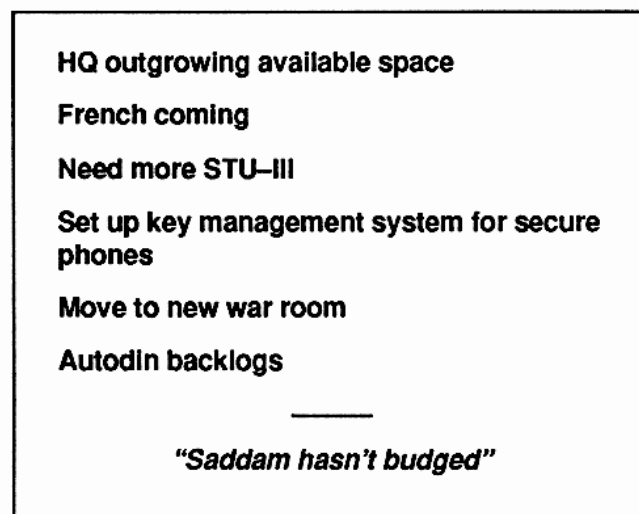


Figure 6
First Week of September 1990

What war? Need to work fiscal year close out!

Morale calls

Egyptians arriving

Coalition war room

Computer virus

Theater COMSEC distribution

Implement minimize

Need more SHF

Brits arrive

Desert fax

CSAF visit

"Saddam reinforcing"

Figure 7

Second and Third Weeks of September 1990

nomenon that I became aware of. The young people in America don't care about the kinds of things that I cared about when I went to Vietnam, which was, "Give me a good cold beer and a little raunchy music," and I was happy. These kids all wanted to call back and talk to mom and the kids, and if they couldn't do that, there were morale problems. So we were setting up morale calls back to the states. Now we had the Egyptians arriving. That created even more of a problem with command and control. "Who the hell is going to be in charge of them, and how do you back them into the whole process?"

We had our first computer virus. First a word about computer viruses. I had beaten up the headquarters staff at MacDill with scanners and would do spot checks for unauthorized software. We'd even gotten the chief of staff to do an article 15, which is a type of punishment, on an officer because he brought unauthorized software into the building. It worked for my headquarters. My components hadn't done the same thing. Well, what I ended up with, with the luck of war, was that we were all in the same area. They started bringing over all their computer games or whatever else and putting them

on our computers and the next thing I know we had viruses running all over the place. The worst of which was a virus (I can't remember the name of it) that rode the virus scanner. My guys found it and were able to fix it, along with a guy out in California who owns the thing, and we were able to institute it in the theater. It made believers out of the components. They had rampant viruses running all over their systems.

The French, the Egyptians, and the Brits were the three major components that joined us that created command and control problems on how you fit them in. Then we started getting all of our visitors. By now, you know, it's September. This was going to be another Korea in their minds. We had end-of-year close-out that people started to worry about. "Your bottom line's really the thing." "A stalemate for how long?" "Are we going to be in another Korea?" "What is this?" "How long are we going to be over here?"

So now we started worrying about rotation policy (figure 8). When should the guys go home? Nobody could agree. The Air Force thinks that you ought to be able to fly people home with airplanes for three weeks so they can see their wives and kids and then bring them back over a bit later. The Army thinks, "No, that's too expensive, we'll leave them there for nine months." The Navy figured a six-month rotation. The Marines are willing to send a guy off to war and leave him for 22 years. Out of that came some things like the Army talking about building base camps (that smells like Vietnam) so we can have entertainment for the troops. They can come back off of the front and have a beer or whatever they want.

Rotation policy

First major outage

Army base camps?

Early Bird

"Stalemate? For how long?"

Figure 8

Last Week of September 1990

The *Early Bird* is a collection of articles out of all the major newspapers in the United States. It's published in the Pentagon and given to the senior leaders every morning, bright and early. We would get that about two hours before the Pentagon got it because we were eight hours ahead of the Pentagon, but by the time the Pentagon got it — and the reason we had to start worrying about it, and I had to put in a system to get that damn thing over there, was we would start getting phone calls. The phone call would be, "Have you seen page five of the *Early Bird*? What do you guys think about that?" Now the CINC needed to respond to those because now we're worrying about public opinion within the United States to support the war effort and we had reporters going rampant with wild stories about things that were going on. So we were responding to wild journalism back in the United States, hopefully in as close to real time as we could.

There were more visits (figure 9). All the congressional delegations in the world had to come over. Their whole objective was to go out into the field, find somebody who was in their home town, put their arm around him, and get a photo taken, and get the hell out of town. They really didn't care anything about the war.

McLaughlin: Dan, you didn't mention the Chief of Staff Air Force visit.

Cougill: And then he got fired.

McLaughlin: I thought, in the context Goldwater-Nichols, we might have gotten a mention of it.

Cougill: He really didn't need to come over there, and neither did the Chief of Staff of the Army, to be

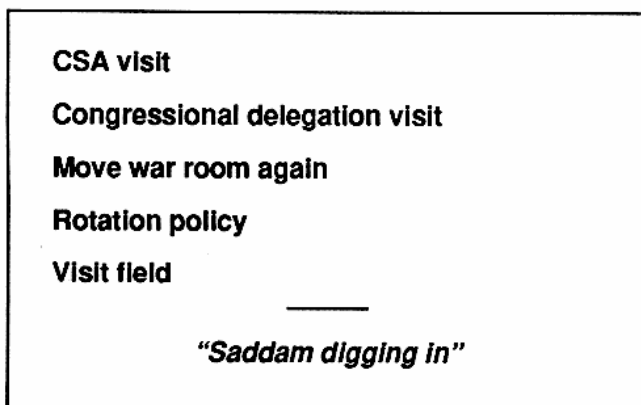


Figure 9

First and Second Weeks of October 1990

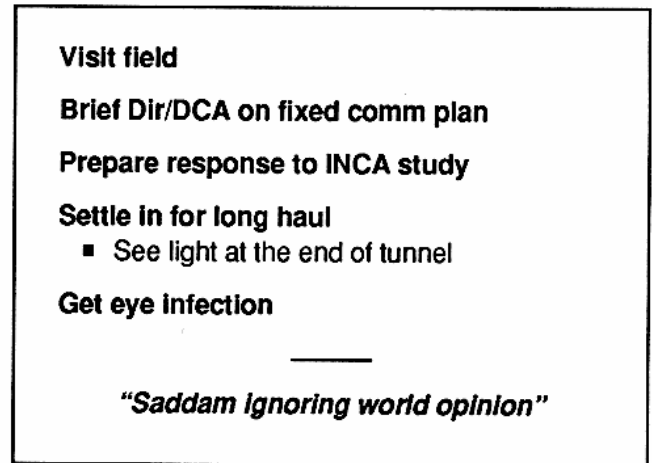


Figure 10

Third and Fourth Weeks of October 1990

honest. None of them needed to come over and visit, but you know, "My troops are there, so I've got to come see what my troops are doing."

About that time I started worrying that we might be there a long time. You remember figure 8, where I said, "Stalemate? For how long?" Tactical comm equipment isn't designed to last forever and I thought, "Jesus, if we are going to be here for a long time, I'd better start worrying about a fixed communications system." In late October (figure 10), I briefed General Rodgers and talked with General Cassity on the phone, put together a very quick mission-needs statement, sent it back to the Joint Staff, got it validated the first week of November, to start installing a fixed-comm system to replace some of the tactical systems, i.e., the TSSRs, the microwave shots, and all that stuff that we were putting all over the place.

On my first trip back to the States after the war I ticked off half of the Washington community when I gave my first presentation. INCA works all the intelligence communications. It stands for Intelligence Communications Architecture. It's a group of people who look at communications to support intelligence systems. They wrote a study in the blind, from Washington, that basically said, the reason the intelligence is bad is because the communicator hasn't given us the comm. I had to respond to that in the middle of the war. Congress got their hands on this thing and demanded a response, so I had to take three people off of preparing for war to respond to a stupid report that didn't make sense to

begin with. This was in the October time frame, and is just dumber than dirt. The bottom line of that report, by the way, should have been, and now is, it's hard for the communicator to provide communications for the intelligence system if there is no intelligence architecture. First you need an intelligence architecture, then you can hand that to the communicator and he can provide you the communications support. It did not come to that conclusion. It does now.

By this time I had gotten most of the robustness in. I had gotten the other systems in, so we had two or three different ways of communicating between points. I felt very comfortable that sabotage or whatever else would not have destroyed my system, I felt we had a fairly comfortable system, so I was seeing the light at the end of the tunnel . . . this is just a little humor . . . and I got an eye infection. Because of the eye infection Schwarzkopf said, "Get your butt back to the States and get your eye fixed, you little horrible-looking mess," at which point the Air Force took my gallbladder out (figure 11). Don't go to an Air Force eye surgeon! But they really did. Two weeks later I got back over to the theater.

I was talking about morale calls (if you want to know about the gallbladder attack, I'll tell you). I was using the Autovon system, the official telephone system, and I had created a time frame, which was a little tough to do because you are 8 to 11 hours different from normal operating hours, so I had about a four-hour window where the guys could use it to call back home. That just wasn't hacking it, especially for the guys out in the desert. The CINC beat up on my deputy while I was back in the States doing the gallbladder routine and said, "We've got to figure out some way of getting phones out to the troops in the desert." The bottom line was we finally got it all straightened out. AT&T, MCI, and several other companies came up with satellite terminals with phone banks, and put them on airplanes that I provided. The most interesting one was: I had a phone bank and satellite terminal on an Aeroflot airplane that landed at Riyadh air base to be trucked by an Egyptian Het up to the place where we were going to install it for the American troops. Talk about coalition warfare! We put those in, and the troops then could sit out in the desert. As a matter of fact, when we got done with Iraq, two of these went right along with the troops and were set up in Iraq, so once the war was over they called home and said, "The war's over, Mom." That creates an OPSEC (operations security) problem, though. Now you've got to say, "How in the hell am I going to control

Stateside

- Diagnose/treat eye infection
- Remove gall bladder

DJ6 directed to get phones out to troops

Start planning for offensive OPLAN

Receive additional corps

- Light went out at the end of tunnel

Start move of additional DSCS satellite

Joint Staff approves fixed communications plan

AF offers VTC

—

"Is Saddam listening?"

Figure 11
November 1990

those guys from saying on a clear telephone line, "Hey, honey, I'm at so-and-so location." What we ended up doing was putting the biggest and ugliest sergeant-major right behind the guys who would listen and threaten them with their lives if they talked about where they were.

Oettinger: That's sophisticated.

Coughll: It worked! But that's what we have to worry about, because the troops are going to demand this; we've done it now. I've set a precedent and I tell all the communicators, "Folks, I set a bad precedent for you because this is going to happen in the next war. Those phones are going to go out and you are going to have to worry about OPSEC."

In November we got the additional 7th Corps out of Europe, if you recall. The light went out at the end of the tunnel. The whole damn system was affected because they were coming in. We had to put in additional DSCS. We moved a DSCS satellite from the western Pacific into the Indian Ocean to support the additional troops coming in. I'd been eating up all the bandwidth in the world, so I was already worried about bandwidth, and the Air Force wanted to put in video teleconferencing which sucks up bandwidth fiercely. The only thing you gain is,

instead of being able to hear me when I'm talking to you, I can now see you when I'm talking to you. Fortunately Schwarzkopf said it was dumber than dirt.

I'll tell you how important "Phone Home" was (figure 12). This was the commercial system out in the desert. On the 18th of December, with Schwarzkopf's blessing, I had Patriots taken off of a C-5 in Delaware to put a Phone Home system on and get it to the troops before Christmas. Phone Home, a commercial, morale phone call system, replaced Patriots on a C-5 at Delaware. It's big-time stuff, let me tell you.

COMMEX is a good one, and I'm going to talk about my Marine Corps buddies. My chief of staff, a Marine Corps guy, said, "Okay, now we've built this system, and we've got a coalition warfare room, but what we need to know is if that hummer's going to work when we go to war, so Cougill, I want you to do a COMMEX (communications exercise) to test the coalition C²." Now, for those of you who have been studying that, that's a total dichotomy. You don't do a communications exercise to find out

if the guys can do command and control. We had a lot of interesting discussions. We never did really do the test because what I said was, "I will do it, and I know my comm will work, but when the message arrives, what you need to do is log it in. Log it out when the response is made." That's how you test command and control. Does the other guy have the capability to take intelligence and respond to it? And how long is it going to take him to do that? They wouldn't measure that period of time, so we never did the test. I did do COMMEXs, but only to prove that yes, I could talk to everybody, not to prove that the C² worked.

A lot of my peers would like to say that the J6 is not in the job of prioritizing command and control systems. They're smoking grass! You've got to do it. You've got to be in bed with the war fighters, you've got to know what their requirements are, because they're going to turn to you and say, "You're out of UHF tactical satellite capability. Everybody wants more. You tell me" And that's what Schwarzkopf said to me: "Cougill, you tell me who ought to have support and who shouldn't have support." It really should have been either Schwarzkopf or the J3 deciding who got what priority, but they'll look to the J6 to do that. So you've got to be in bed with them to know how to do that. We got the additional satellite; we were restructuring the network like mad.

EUCOM (European Command) gets back to Goldwater-Nichols again. If you remember, initially all the forces were going into the Arabian Peninsula, the Red Sea, and the Arabian Sea. Right before the war started, in the December time frame, we were starting to build up and prepare to go to war in case they didn't back out of Kuwait. We created in Turkey, with the Turkish government's approval, a task force to support us by hitting some of the locations up in northern Iraq. It was easier to do that from Turkey than it was to come from the south up.

Now you've got to go back to the very beginning, which said, "Schwarzkopf, you are the supported commander. All you other guys are supporting commanders." EUCOM came along and we tasked EUCOM to provide us with the resources in Turkey to support this operation. What EUCOM wanted to do was retain all the command and control of all these forces, and the way that came to light was they came to me with massive requests for communications. I went to Schwarzkopf and said, "We've got a big problem: (1) I can't support them, and (2) I think you need to talk to CINCEUR (Commander in Chief, European Command) because he wants to

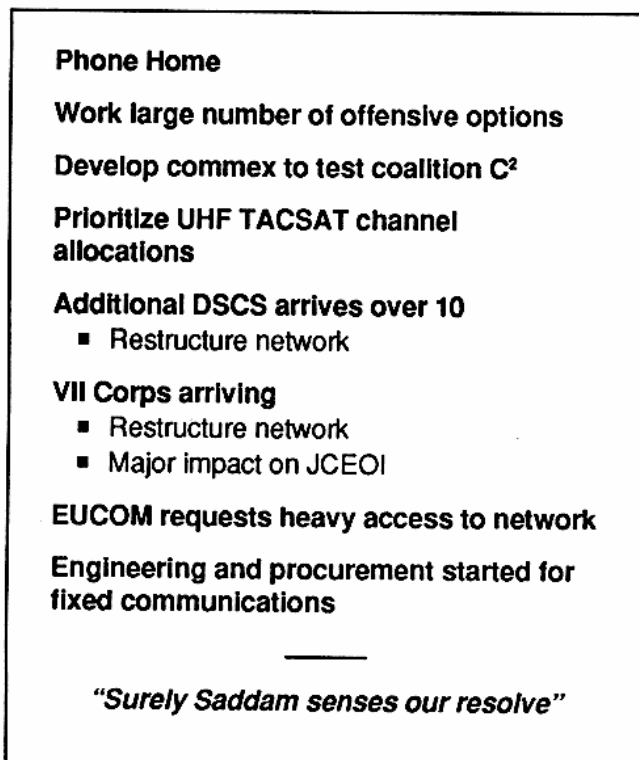


Figure 12
December 1990

command and control those resources in Turkey.” He did talk to him. There was an interesting discussion. Then the EUCOM J6 called me and chewed me out for getting his pants ripped off. They did not have command and control. We provided them with some logistics circuits because the forces that went to Turkey came from Germany, England, and so on and they did need logistics lines. I provided logistics lines but I did not provide command and control lines. And then we started to fix their comm system.

Oettinger: So, they got their tasking orders and so forth out of Riyadh.

Cougill: They got their tasking orders out of Riyadh, and they reported their status and their capabilities back into Riyadh.

Student: What was their plan? Did they think that they were going to run some of this C² system?

Cougill: Yes.

Student: How could they possibly have thought that?

Oettinger: Very easily. That was the norm.

McLaughlin: It certainly happened in Vietnam.

Student: Yes, I know, but now we’re in a different era.

Cougill: Well, we’re not quite there yet. I was telling these guys that I’ve read General Herres’ paper that he presented here in 1989. That’s good to read because at that time General Herres was saying it’s going to take at least two or three years or maybe longer to really implement Goldwater-Nichols.

Student: Did you mean CINCEUR, or SAC?

Cougill: CINCEUR. In Germany? In Stuttgart? Yes.

Oettinger: Well, it’s not all that crazy. That’s who ran the Marines in Lebanon and so forth, X years ago. All of that was commanded so he was just doing what came naturally. In fact, it was a disaster then.

Student: Don’t the forces in Turkey normally come under CINCEUR?

Cougill: Yes. The forces in Turkey do, but these forces weren’t always in Turkey. They were forces that had augmented and flown into Turkey. They were going to use Turkey as a base to strike in CENTCOM’s AOR (area of responsibility), and they had chopped to CENTCOM.

Student: So they were no longer a part of EUR. That’s what strikes me as strange: that they thought Europe’s still in control, even though they had chopped to CENTCOM.

McLaughlin: They gave it the old college try.

Student: That’s exactly what Europe did, by the way, in previous problems that they had, for example, in Teheran. When the embassy fell, CINCEUR did the same thing — the “I’m in charge” syndrome. And they were unchallenged at those times.

Cougill: Maybe now is as good a time as any to say they were unchallenged at the time. I think my advantage in being a J6 at this time was having George Bush as President, who would define a mission clearly and give it to his military and stay out of the way. Dick Cheney would take that mission, augment it a little bit so we could clearly understand it, and then get the hell out of our way. Colin Powell was willing to fight all the battles that we needed fought back here in the States. Schwarzkopf had you-know-whats big enough to take on anybody he wanted to take on, including CINCEUR, who was a god in previous eras. Having those people in those positions at this point in time made Goldwater-Nichols a reality. If you’d have taken any one of those and changed it a little bit, it may have turned into an absolute fiasco. But these guys were strong enough to force Goldwater-Nichols to grow up, probably a lot faster than Robert Herres ever thought that it would grow up.

Student: So now, for instance, when it came to combat, the Air Force planes flying out of Incirlik air base in Turkey, were under the control of CENTCOM? But the NATO-hatted forces, or the resident forces, were still under the EUCOM hat, right?

Cougill: Yes!

Student: Now, had SCUDs been fired into Turkey, or had it become a two-front war, then the defense of Turkey would have come under the EUCOM aegis? Or had there been provisions for that?

^{*}General Robert T. Herres, “The Role of the Joint Chiefs After the 1986 Defense Reorganization Act,” *Seminar on Command, Control, Communications and Intelligence: Guest Presentations, Spring 1989*. Program on Information Resources Policy, Harvard University, Cambridge, MA, August 1990.

Cougill: That was a squirrely one. That was talked about an awful lot. What happens if SCUDs go into Turkey? That was one problem. What happens if SCUDs go into Israel? That became the other problem. Where, then, does EUCOM fit into this thing; should they then become a supported CINC? The decision was made, "No, we can't have two supported CINCs in the same geographic area at the same given point in time, so CENTCOM will stay the supported CINC, and EUCOM would still be the supporting CINC, but because EUCOM owns both of those other two countries — Turkey and Israel — we would probably, at that point in time, augment the CENTCOM staff with some EUCOM people who were smart in those two areas.

Oettinger: Sometimes it looks worse than it actually is. You'll find in our record some interesting accounts, especially by General Cushman,* of command arrangements in Korea where problems like this occasionally got solved, essentially, by multihatting.

Student: Does it work?

Cougill: Multihatting doesn't work very well.

Oettinger: It seemed to work in the Korean time.

Cougill: The problem with multihatting is your staffs then become fragmented. You have a staff that tends to want to do this hat and a staff that wants to do that hat and if you're the guy with the multihat, you're constantly trying to bring your staff together because you've got them running off in different directions.

McLaughlin: And frequently the multihats involve one that's a wartime hat and one that's a peacetime hat, and they don't work well together.

Student: Was the Navy 6th Fleet under CENTCOM?

Cougill: NAVCENT (the Navy component of Central Command), yes. We did establish logistics-type communications and command and control into Turkey from CENTCOM.

During the war, if you remember, Somalia went into rebellion and we had to perform because Somalia is in CENTCOM's AOR, so we were the CINCs responsible for doing the NEO (noncombatant evacuation and operations) of all the U.S.

citizens in Somalia. That happened in the first two weeks of January (figure 13). As a matter of fact, it really happened eight days before the air war was scheduled to start, and we were worrying about trying to get citizens out of Somalia and the CINC had to have constant communications with the forces going in. We moved a Marine ship with Marines on board around through the Arabian Sea over to Somalia to pick these people up with helicopters and fly them back out to the ship.

All I will say about video teleconferencing is that the moon was shining full, because right after the Air Force tried to give me video teleconferencing, the Army came in and wanted to give me video teleconferencing, and I didn't need either one of them.

Then Desert Storm began (figure 14). The previous class got a pitch by the director of DCA about message-precedence systems and so on and so forth. I did have message backlogs when the war started, mainly in the priority and routine areas and mainly with the United States Navy, which was still locked somewhere in the 17th century with its communications. They had a lot of old Teletype systems and we had high-speed Air Force PC-to-PC stuff going smack into a switch and then having to go out at 75

Most of VII Corps communications up

- Restructure network

Establish northern tier log bases

- Restructure network

Somalia NEO

- Constant communications for CINC

Establish communications to Turkey

Fixed communications cable project in full swing

Establish alternate CENTCOM CP

Army offers VTC

—————

"Maybe Saddam is really crazy"

Figure 13

First Two Weeks of January 1991

*Lt. Gen. John H. Cushman, USA (Ret.), "C³ and the Commander: Responsibility and Accountability," *Seminar on Command, Control, Communications and Intelligence, Spring 1981. Program on Information Resources Policy, Harvard University, Cambridge, MA, 1982.*

Desert Storm begins with air strikes

Message backlog grew

- 15,000 priority/routines
- VCJCS message regarding message discipline

EUCOM needs more access

- Sorry

GSC-52 site and 400 foot MW tower underway

Secure HF for Saudis

—
"Now he must react"

Figure 14

Last Two Weeks of January 1991

words per minute to a ship and that's where we created the bulk of these backlogs. The Vice Chairman went out with a message that also said, "Hey, ding-dongs, we don't need you sending messages telling John that Mary is okay, and you just went by to see her last night. We need operational messages only in the system." That cleaned a lot of stuff up. Then Jerry Tuttle* sent a special team of people out to the Navy Communications Facilities just to sit down and manually read messages and throw them in the waste can, and that's how he cleaned up a lot of this backlog. EUCOM tried one more time and they got, "Sorry, you can't have more communications," and we started getting our fixed comm systems installed.

You've all seen the maps of how the war went (figure 15). This is Kuwait. Up until the first week in February, all the coalition forces were massed under Kuwait with a small group that went down through here of Pan-Arab Forces. This is only about 50 clicks from here to here. All the American forces, all the British forces, all the French forces, were massed in the east and during the first two weeks or first three weeks in February, all these

American forces shifted west. The 18th Corps moved about 375 miles. The 7th Corps moved in preparation to do what Schwarzkopf called the end run. The Pan-Arab Forces did some shifting. The Marines moved. The Brits moved from 18th Corps relationship to 7th Corps relationship and joined up with the 7th Corps. The French, who were back in reserve, moved over further west and went with the 18th Corps to do the western-most end run.

Now, for a provider of the systems to support command and control, that was just an absolute nightmare. One, they were changing where things were, and secondly, they were changing the relationships. Suddenly the French were talking to the 18th Corps instead of the 7th Corps and on and on. This was a very interesting few weeks in February.

In the last week of February we started the ground campaign (figure 16). Those are some gee-whiz numbers, just thrown in there to impress people who understand that stuff. I'll put that 118 GMF terminals in perspective: the most we had ever modeled in the United States was 25. The most we had ever deployed was 17. GMF is the ground mobile forces terminals, SHF (super-high-frequency) satellite terminals. The TTC-39 is a voice switch. It's like a small telephone exchange for a city of about 5,000 people. And there's the message switch and then the 35,000 frequencies. Thirty-one of those GMF terminals were in Iraq 100 hours later, supporting the maneuver forces, with one in Safwan put in there for the negotiations between Schwarzkopf and the Iraqis. That's a good one to talk about.

You asked a question, "Did I put in comm that was equivalent to MacDill?" The answer is yes. We have a red phone, which is a 56 kilobit, wideband, secure voice, voice recognition device. At MacDill that was extended over to the theater. We used the switch from MacDill put on a wideband link back to the States. That same instrument was taken up to Safwan, and as soon as the negotiations were complete, Schwarzkopf came out of the negotiating tent into another tent, picked up his red phone, called the President with his autodial, and told the President what the results of the discussion were. That was the only thing that Schwarzkopf would use. Cougill was a dead man if he didn't do that.

I have stressed this (figure 17) all the way through, so I don't need to go over it anymore. It was absolutely essential that I had total control of the validation process of all communications for anybody going into the theater. Otherwise, I think it would have been chaos. One of the earliest-in forces, and I already talked about the 18th Corps,

*Vice Admiral Jerry O. Tuttle, USN, Director, C³, JCS.

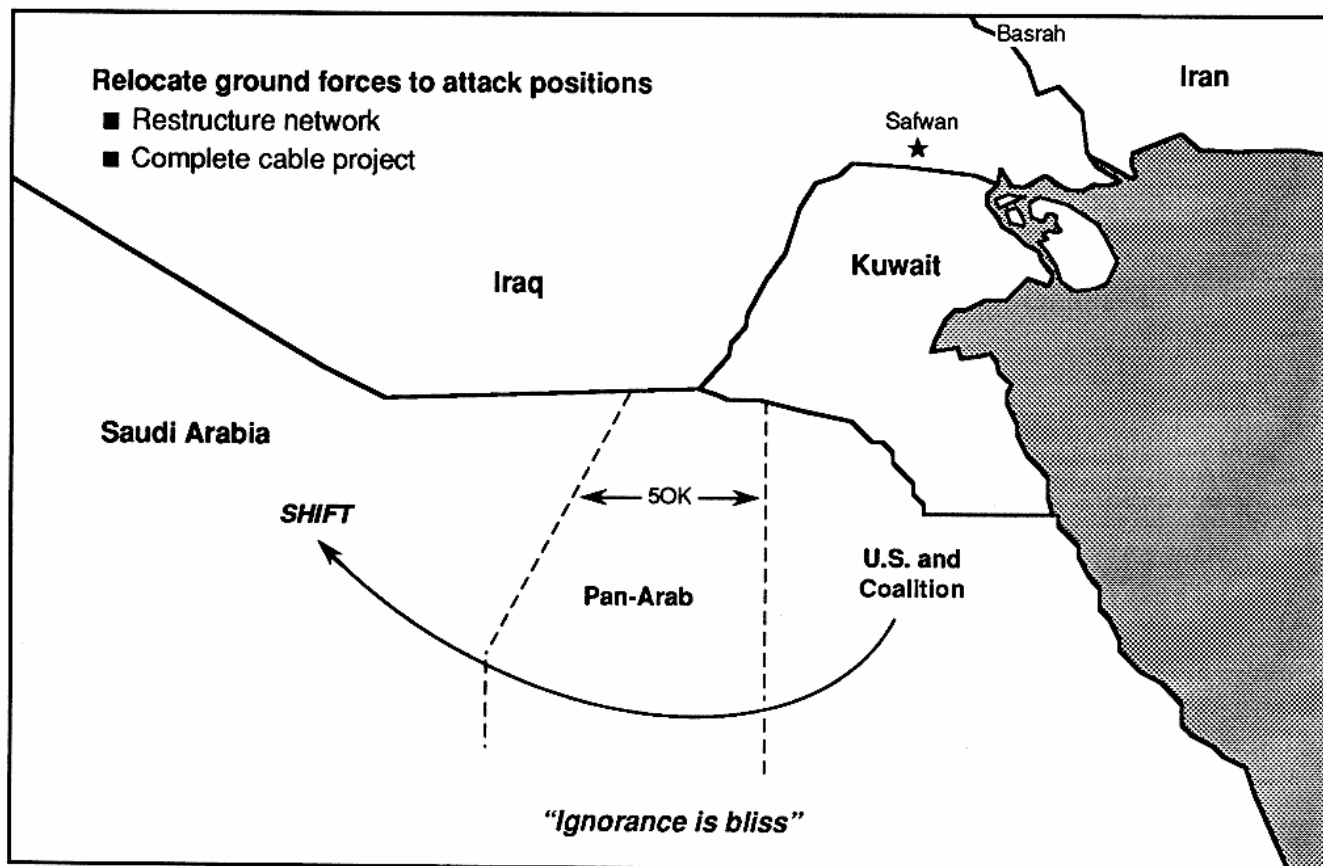


Figure 15
First Three Weeks of February 1991

would have used up all of the capacity of the satellite that was available and would have used up every UHF frequency that was in the spectrum had I not said no. That gets to the second point, and the bottom line was it was an absolute success because for the first time ever we had joint circuits. We not only had one, we had 2,500 joint circuits.

That's the end of the formal briefing, but let me throw one thing out that you guys haven't asked about. Here's the Desert Shield organizational relationship (figure 18). You've got to remember, Desert Shield is the portion from August 1990 to January 17, 1991. This is the preparation, the build-up, the defensive stage, before the air war started. There were about 304 before this one, as forces were coming in and shifting hither and yon, but this was the mature structure. I've already talked about the UK forces. You can see that the UK forces didn't fall under anybody over there, nor did the French forces on the formal organizational chart.

They retained their direct relationship back to their national command authority in the UK and in France, with a dotted line for OPCON, from the UK forces down to the 6th Division, and you can see that they don't attach to anybody. They're just kind of hanging out there, which was the only relationship they would accept, and it was the same with the Foreign Legion, except they did have a dotted line into General Khalid, which was a very, very faint dotted line. They preferred not to use that at all.

We had three war rooms. Schwarzkopf had a war room. He provided command and control of the forces. Under him, Khalid had a war room for his forces. And then we created this monster in between called the Command, Control, Coordination, and Integration Center (C³IC).

Oettinger: That's the one that Schwartz* ran, I believe.

*Major General Paul R. Schwartz, USA (Ret.).

Cougill: That's right. I'll give you the best example of the command and control concept for the Saudis. They gave us their war room and they created a new one for Khalid. Khalid and Schwartz asked me to come over and tell them how they could fix this thing up so it does about as well as Schwarzkopf's. He walked me in and the first thing I see on the commander's desk, is the biggest damn telephone I've ever seen in my life. It was *this* long, and about *that* deep, and it had about 150 buttons on it. The bottom line is that it's a hotline — point-to-point — and those lines did not show up anywhere else in that war room. It was the communications between the commander and his subordinates. I asked, "What if five guys call in at once?" "Well, four will have to wait." I said, "No one else can answer those four other guys?" "Nope, because they won't want to talk to anybody else. They just want to talk to the commander." Well, that's what we started with in the war room: all these hotlines. What we installed was an awful lot of American systems and that funny secure voice thing that we talked about earlier. We used American liaison teams. We took American systems out to set up with the Saudi forces up around Hafr el Batin and then up in the other area to provide secure communications from Riyadh to Khalid's other sector centers so that Khalid could talk to his forces with voice security as well as talking computer secure.

Desert Storm ground campaign starts

- Largest tactical network ever
 - 118 GMF terminals
 - 50 TTC-39 circuit/voice switches
 - 20 TYC-39 message switches
 - 35,000 frequencies

31 GMF terminals north of Saudi

One at Safwan for negotiations

—————

"He retreated"

Figure 16
Last Week of February 1991

CENTCOM assumed control of validation

Without control, earliest-in forces would have consumed all available resources

Limited resources, satellite capacity and frequency spectrum, were vital to subsequent force deployments

2500 "joint circuits" sharing transmission and switching capacity of two or more services

Figure 17
Central Control of Resources

Oettinger: A footnote on that, if I may. Last June, General Schwartz made a presentation on the setup of the C³IC. It contains a full account of the setting up of that joint post.*

Cougill: Fortunately, the advantage that Paul Schwartz had was that he knew a lot of the Saudis and was able to work with them in trying to get that thing set up.

Now, here are the Desert Storm relationships (figure 19). You can see that now the Foreign Legion has moved. It's no longer under the French, although the French retained their NCA relationship. The Brits have changed their name from UK Forces to Commander British Forces Middle East, and now they have a line from the UK Forces, which didn't exist before, up to ARCENT, which is the Army component commander of Central Command, and the Foreign Legion came up to ARCENT and chopped over to that for their operational control, guidance, planning, direction, and so on. The rest of the chart, basically stayed the same. The GCC forces is the Gulf Cooperation Council. There was a small force, as you know, of about 10,000 men from Oman, the United Arab Emirates, and other countries, that participated as the GCC force. That was a very political decision. They couldn't be integrated with anybody else. They would stand out and be shown.

*Paul R. Schwartz, "Coalition Command and Control in Desert Shield/Desert Storm," *Seminar on Intelligence, Command, and Control: Guest Presentations, Spring 1991*. Program on Information Resources Policy, Harvard University, Cambridge, MA, 1993.

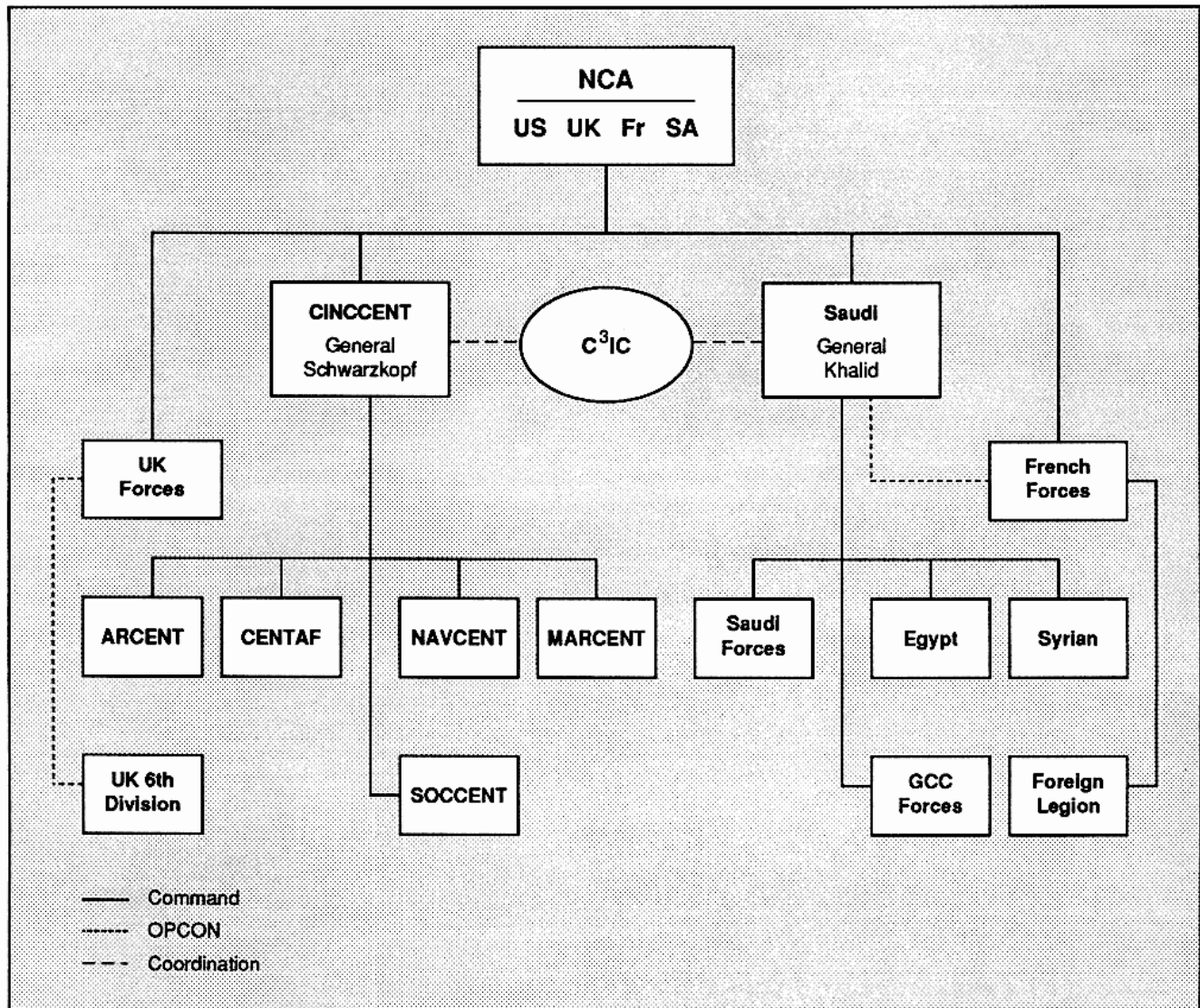


Figure 18
Command Relationships: Desert Shield

Student: Was there any concern with Syria being fully integrated into our communications, and was there any concern about including them in our communications equipment and procedures?

Cougill: Yes and no. We had liaison teams that went out and set up with the Syrians and operated our communications. Our communications would not in any way, shape, manner, or form operate with the Syrians. They were using Russian equipment. We sent liaison teams out. We gave them our communications equipment. We operated it and maintained it. We didn't let them have classified information, but we did share a lot of it with them.

At that point you got into the difference between strategic intelligence and tactical intelligence, which has a short life. We provided them but we didn't let them have access to them. Does that make sense?

Student: Yes.

Cougill: Any other questions on that one? All right, I quit. I'm out of charts, unless you want to see some gee-whiz that shows the size and how big the network was. Here's an interesting one (figure 20), and not many people really understand it. My guys took me at my word. I said just put Saudi Arabia on it, and that's what they did. They forgot about the

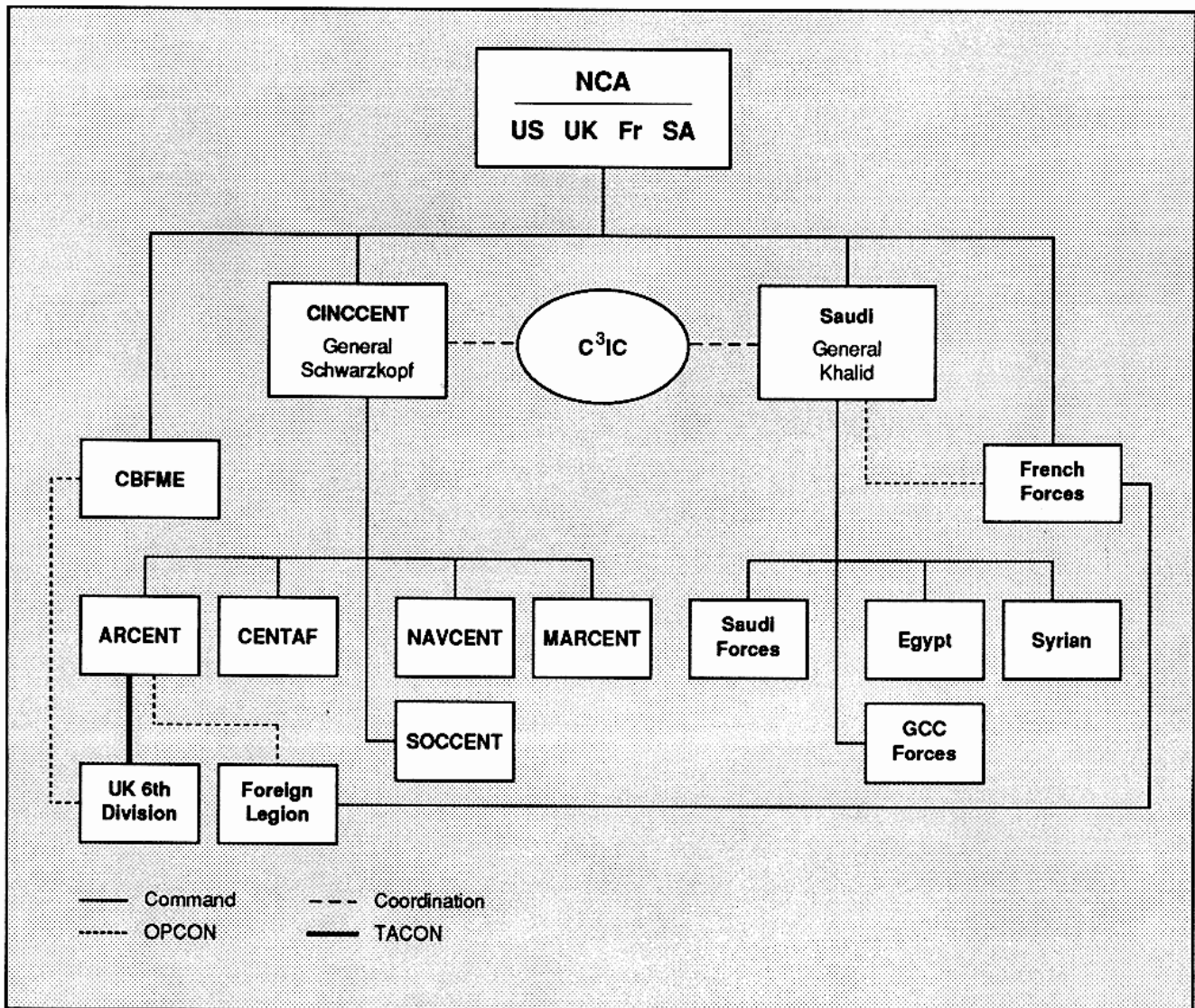


Figure 19
Command Relationships: Desert Storm

Red Sea, the Arabian Gulf, Oman, Yemen, and all those other countries. But it isn't a small area, it was a big area that the forces deployed into.

Student: You talked about the communications. Can you talk about the radar control? How did you do it or wasn't it under your jurisdiction?

CougIII: Another interesting part of Goldwater-Nichols that was implemented for the first time ever, was a thing called the Joint Forces Air Component Commander (JFACC). I didn't get involved with radar control because fortunately General Homer, the CENTAF (Air Force component of

Central Command) commander, was identified as the guy who was in charge of anything that went in the air. As part of that, he was also the air defense commander for the Arabian Peninsula. He, then, established all the connectivity for all the radars, and was able to tie our radar system, the Tactical Air Control System, and all of its components into the Saudi air defense networks (what they did have), along with some of the other commercial, FAA-type, control capabilities.

Oettinger: Were the air traffic control and control for the radar tied together by a network that was yours or his?

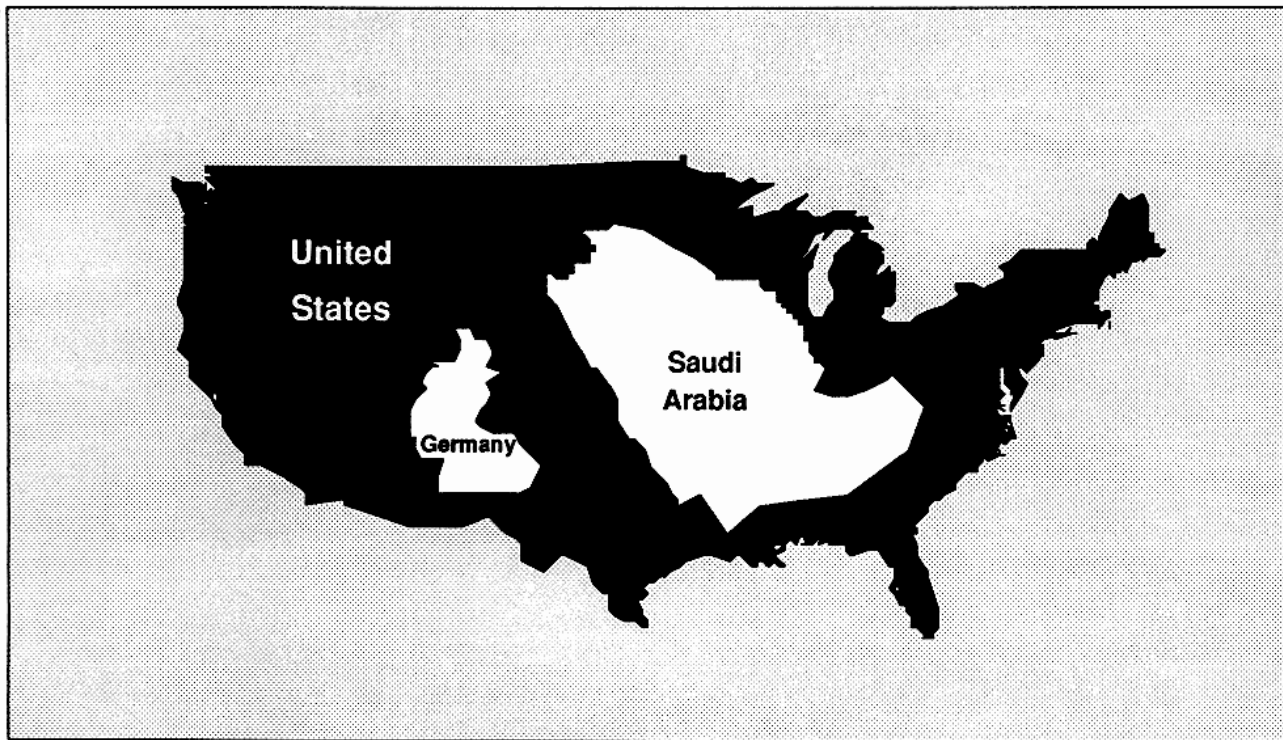


Figure 20

Size Comparison: The United States, Saudi Arabia, and Germany

Cougill: By a network that was his, but it utilized a lot of my circuits. It was his virtual network, and the Air Force ran that network. In many cases, if you're getting raw radar data, you don't need to have somebody out there, but for the commercial aspect, at some of the commercial air fields and things, we had American air traffic controllers go out and join the nationals who ran the facilities to be able to control the air traffic.

Student: What about the British and the French?

Cougill: The British and the French air worked under General Horner. Their air forces chopped to Horner, as well as the Navy and the Marines. However, the way we really did the Navy and the Marines, to be honest with you, was that the Navy were pretty well given a route from the carriers to target areas and they kind of stayed out of the way. They just said, "Well, there's your route." The Marines were given an area that went from where the aircraft were located at Sheik Issa air base in Dhahran and some up around Al Jubayl to just north of the FEBA (forward edge of battle) and what they were concerned with was just preparing the battle-

field, which was right in front of them in Kuwait. It was more control than anyone had ever had in a joint structure, but it wasn't total control, because we did almost what we had done in previous wars. We carved out areas and said, "Okay, Navy, that's yours; Marines, that's yours; and the rest of these guys will do whatever I tell them to do, at whatever altitude I tell them to do it."

There's a lot of discussion ongoing right now with regard to implementing and trying to institutionalize the JFACC doctrine. We're trying to straighten all that out because now, after the war, people are starting to dig their trenches and protect their turf. The Marines are fighting, saying we should never chop. The Navy is saying, wait a minute, you know, we've got a role to perform out here and protect the world. So there's a lot of fighting going on, and that will probably end up being worked in the Tank at the Joint Chiefs (it will get that high, I'm sure) to force people to do basically what we did during Desert Shield/Desert Storm, which they now don't want to acknowledge that we did. That more than answered your question, right?

Student: There was a story someplace that we introduced a virus into the Iraqi Strategic Air Command computer systems through a printer terminal.

Cougill: I have no idea. I read the same story you did.

Student: Well, you talked about viruses getting into our system: how big a threat is that?

Cougill: A big threat. I had beaten my people up and said, "Every once in a while, just run the scanner to make sure somebody hadn't introduced a virus on your computer." This thing was on the scanner, and as they would run the scanner, it would load it into the memory. We discovered the virus was counting something, I can't remember what, and when it reached a magic number, then it destroyed, not the files; it was worse than destroying the files. I want to say the operating system, but it didn't totally disable it, it just really messed it up, and made it an absolute chaos, so you couldn't just go in and reload the operating system. You basically had to set the system off to one side and get yourself a new one, because it fought downloading and reloading the operating system. So it was very nasty.

Student: That doesn't sound like the kind of a thing a hacker would do. Was that something that might have been a real military threat?

Cougill: It could have been. I don't know whether they ever found who was the source of that. I wasn't particularly interested at that point in time in finding out where it came from. I just wanted to get rid of it.

Oettinger: That's a question for next week. We'll be talking to the guy who worries about that for the U.S. He's in charge of communications and computer security.

Student: You've done a very good job explaining the strength and the robustness of our system. Can you offer any comment or elaborate on the relative weaknesses of the Iraqis' system — how we went about counteracting and degrading their communications capabilities?

Cougill: The weakness of the Iraqi's system gets very hard to explain, because it sounds like I'm downplaying Goldwater-Nichols. The weakness of the Iraqi system was their centralized control of everything. However, you've got to understand that their centralized control would not allow any initiative, any thoughts at all beyond Saddam, whereas ours just gives general guidance, and asks

for reports, and tries to maintain the status. That was their big weakness: their centralized control. The first thing we targeted was their command and control systems. Once you start taking their command and control systems out, then the legs don't know which way to turn because the brains are not talking to it anymore.

The other part is pure speculation; this is just Dan Cougill talking now. It was either the inability of their air force to respond, or the total collapse of that air force, or Saddam just didn't understand what he had in the way of an air force. Their air force did not really respond. The response was basically, "Get the hell out of the country! Go fly away somewhere!" We saw that happening; several planes did exit and went to Iran. We didn't know at that point in time if that was a sanctuary, if Saddam had an agreement with Rafsanjani to use those forces at a later date and come south into the Red Sea or the Persian Gulf. So we shut that off and then the air force just went "phew," and then nothing was flying, nothing was coming up.

Oettinger: Excuse me, one other footnote on this. Admiral Mike McConnell will be here and you can ask him some of your questions. From a somewhat different perspective, but similar chink, Admiral Macke, who is the Joint Chief's J6 whom Dan has referred to sometimes, will be our last speaker, so we can get a couple of other angles on this.

McLaughlin: Yes, but I think that substantively there is one other point. Last fall, I guess it was, General Cushman had written some piece about the effectiveness of targeting the Iraqi command and control and I'm not sure we'll ever have the answer to that, because command and control in the absence of any intelligence leaves a lot to be desired too. As best as we can tell, Iraq was certainly blind from the beginning of the air war. Where you command troops to go, or why you would bother to control them if you have no idea what the hell is going on around you, is another piece of the chain. So I'm not sure we'll ever know whether we effectively crippled their command and control, because we don't know if they had any intelligence upon which to operate.

Cougill: I wouldn't argue with that, but let me say it a little differently. The first thing we hit was their air defense. We took out their air defense capability so that piece of intelligence went away. They lost their eyes; they couldn't see where the air was coming from; so that aspect I'm sure helped their air

force make some decisions that they were making about whether they wanted to hang around or not. Then we started taking out the control part of the air force, not the intelligence part.

Student: It sounds like our method of interdicting communications involved blowing things up a lot. Is that the upshot of it?

Cougill: What, blowing up things?

Student: Yes, as opposed to jamming.

Oettinger: You can't jam fiber optics, for example.

Student: And they had fiber optics that belonged to oil company rights of way.

Oettinger: But it does run under bridges, so there's a correlation there. You don't go do it on the streets, they're hard to find, but if they go across bridges, it's a good place to cut fiber but you can't jam it.

Student: Did the Russians sort of equipment have any success in interfering with communications?

Cougill: For some reason, he elected not to utilize his Russian jammers. Whether he planned to and was thwarted, I don't know, but there was no attempt at any sabotage down around either Riyadh, Dhahran or areas that I know of.

Oettinger: We will escort you out so as to guarantee you catch your airplane and we want to thank you very much.

McLaughlin: We also have a little token of our esteem. If it puzzles you, that's the Kennedy School of Government crest on it.

Cougill: This is to say, if I ever come back, please wear a damn tie. Thank you very much.

Oettinger: It was our pleasure.



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