

***INCIDENTAL PAPER***

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

**Coalition Command and Control  
in Desert Shield/Desert Storm  
Paul R. Schwartz**

**Guest Presentations, Spring 1991**

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# Coalition Command and Control in Desert Shield/Desert Storm

Paul R. Schwartz

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General Schwartz addressed a post-seminar lunch on 1 June, following his return from the Gulf.

**Schwartz:** I just want to go through this with you very quickly, to refresh your memories. You, like all of us over there, watched television coverage continually during Desert Storm. So this beginning part is not going to be new, but it'll recap a sequence of events. It'll set the stage. About halfway through these slides, I'm going to get into the coalition and how the coalition was built, what mechanisms we used to put it together, and how the gears meshed or didn't mesh, as the case may be. Then I'll close it off with some lessons learned, most of which you've probably seen or read or intuitively know about. I think the highlight, for your purposes, will be the center part of the pitch, which talks about the interfaces between General Norman Schwarzkopf and King Khalid, and how that drove the battle plan which was put together to capitalize on the lamination of forces.

The invasion started on the second of August, with Saddam Hussein's invasion of Kuwait. Within ten days I came to be the co-director of C<sup>3</sup>I, which was the Coalition Coordination, Communication and Integration Center (figure 1). You will notice with all those "C"s in there — there are three of them — that nowhere is there "command." We were not the "command" center, and we very meticu-

lously crafted that title to exclude command. John Yeosock, the Army Component Commander — a three-star general — and I made up this title. There was no textbook to go to and no after action report of previous operations to use as a guide. We crafted this thing from scratch and set up the mechanism you are about to see. It was, as you see by the flags represented, a U.S./Saudi control center, and it included options to integrate additional allied forces as they arrived.

A quick picture (figure 2) shows the geography: you are familiar with that. I think the main point here is the relative size of the participating nations: a reminder that the fourth largest military force in the world invaded one of the smaller countries of the world — Kuwait. The size of Kuwait is best seen on this schematic: about 100 miles wide and about 150 miles north to south. The heavy black lines are paved roads in the area of operations, and this slide captures the entire area of combat operations on the ground. Of course, the air war went far to the north, and the logistics war was far to the south, and over to the west on the Red Sea in Yanbu all of the Syrian, Egyptian, and French forces arrived, and drove across the peninsula into the theater of operations. Everybody else came in primarily at the Dhahran ports.

I think a key point on this slide is a little bit of a feel for the area of operations. Those were the only



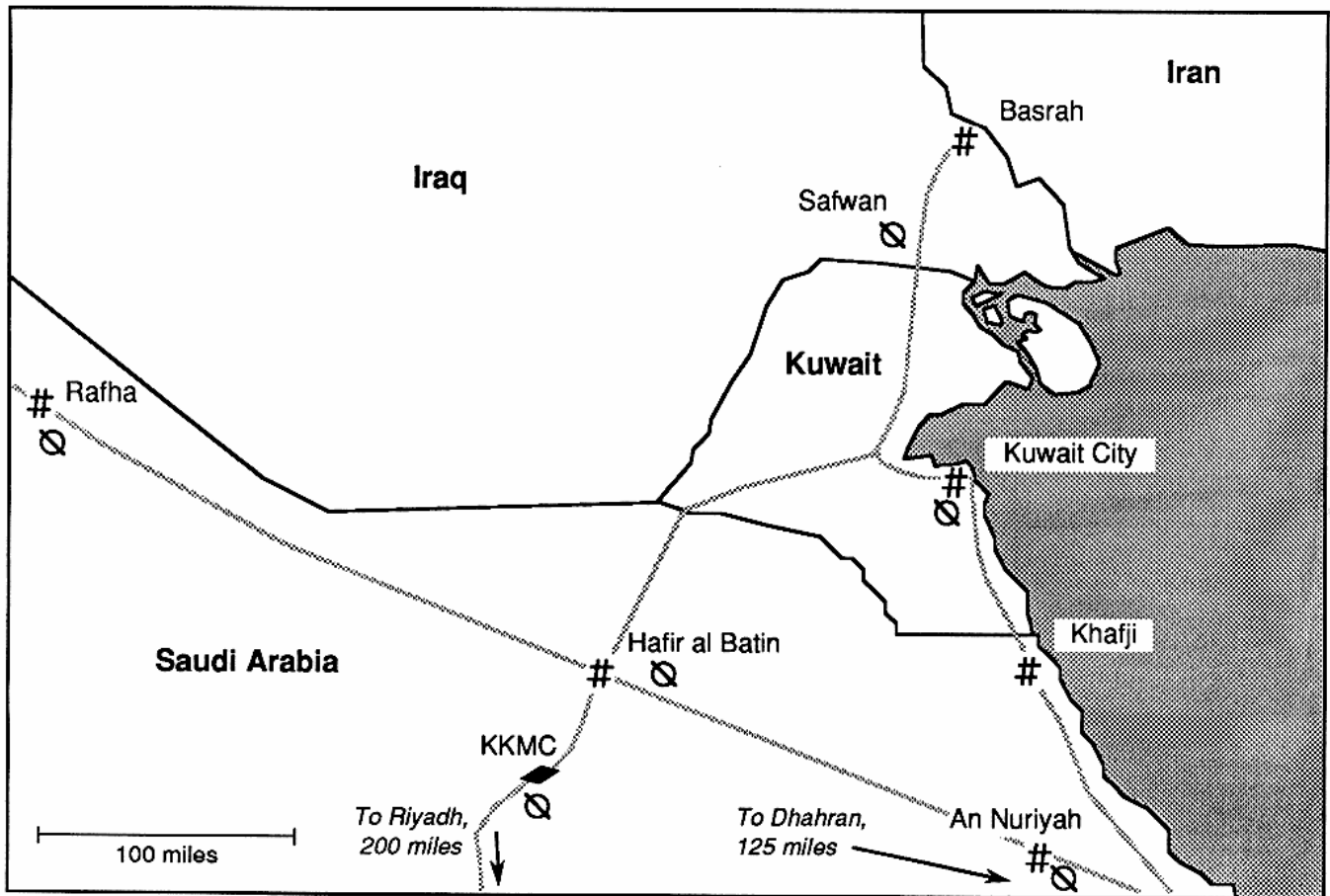
Figure 1  
Coalition Coordination, Communication and Integration Center

paved roads — the coastal road up through Khafji into Kuwait City north up into Basra, the famous tap line road running from east to west or southeast to northwest, all the way along the border, parallel to it. That's a paved road that probably saw more traffic in a six-month period than any other comparable paved road in history. That road had bumper-to-bumper traffic 24 hours a day, and an unfortunately large number of people were killed on that road from concentrated use and the lack of integration of driving habits. It was a deadly congested highway. Again, the small size of Kuwait as a refresher, and limited paved and congested roads are the main points.

On August 2 through 7, the invasion came by air, land, and sea (figure 3). Hussein reached Kuwait City by the second or third of August, within 25 hours, and then got down to the Saudi border by the fourth of August and, among the many mistakes he made, stopped here, paused and refueled. The dotted arrows coming up from the south are units in movement or units in progress, they're not completely in place. That second Saudi Arabian National Guard (SANG) Brigade came up immediately from a place called Hufuf, which is down near Dhahran. The second SANG Brigade had four battalions: each battalion had about 500 men in it

and was equipped with V150 wheeled armored cars, made in America, by Cadillac Gauge, very light-weight, about 15–18 years old, and very thin-skinned; not heavy at all. Those four battalions of Saudi Arabian National Guard were the only forces that were up there for the first several days. They arrived on about the fourth of August, and lined up right on the border, where the "4 August" sign is, from Khafji about 100 kilometers to the west. They were ready to fight and die in place. About every 100 meters there was a V150 armored car, and they were lined up in a straight line — little depth, just lined up to fight Saddam Hussein's T72 tanks. So, the question of the courage and the fighting ability of the Saudis was answered at the outset. The National Guard of Saudi Arabia and follow-on Saudi land forces demonstrated that they would fight in the defense of their nation.

During the battle of Khafji and for the final offense, eyewitness reports verified that the Saudis fought with distinction, and they fought and fought around the clock. They fired their weapons, maneuvered, and they did very, very well. A U.S. Army Major, Mike Taylor, was up there for that whole thing in Khafji, and he said they did a remarkably good job.



Dhahran → Rafha = 450 miles  
 Riyadh → Kuwait City = 340 miles

**Figure 2**  
**Kuwait Theater**

So, by the seventh of August, the National Guard was in place and those heavy brigades of the Saudi Army were moving from the south to the north, reinforced by KKMC [King Khalid Military City] and other Saudi unit locations to the south. The GCC (Gulf Cooperation Council) forces were up in there, but of course they were very small — a brigade size or less. They were spread out to the left of the National Guard, getting organized. On the eighth of August, the 82nd Airborne Division arrived in Dhahran with its lead elements, and the American flag was on the ground.

On the ninth of August, I called General Sullivan in the Pentagon at the same time General John Yeosock did from over there, and that got me moving. On the tenth of August I arrived in Riyadh,

and John Yeosock said, “Go to work with the Saudi National Command Center and help them set up.”

**Oettinger:** In July, before all this started, where were you?

**Schwartz:** I was in Fort Lewis, Washington, as the Deputy Commander of U.S. Army First Corps, with a Pacific orientation. First U.S. Army Corps has operations plans for the Pacific; however, I had previous experience in Saudi Arabia — I was in Riyadh for two-and-a-half years in 1985 and 1986 as the project manager for the Saudi Arabian National Guard modernization program. The guy before me was John Yeosock who went on to be promoted to three-star and was the Army Component Commander of Central Command. On the fifth

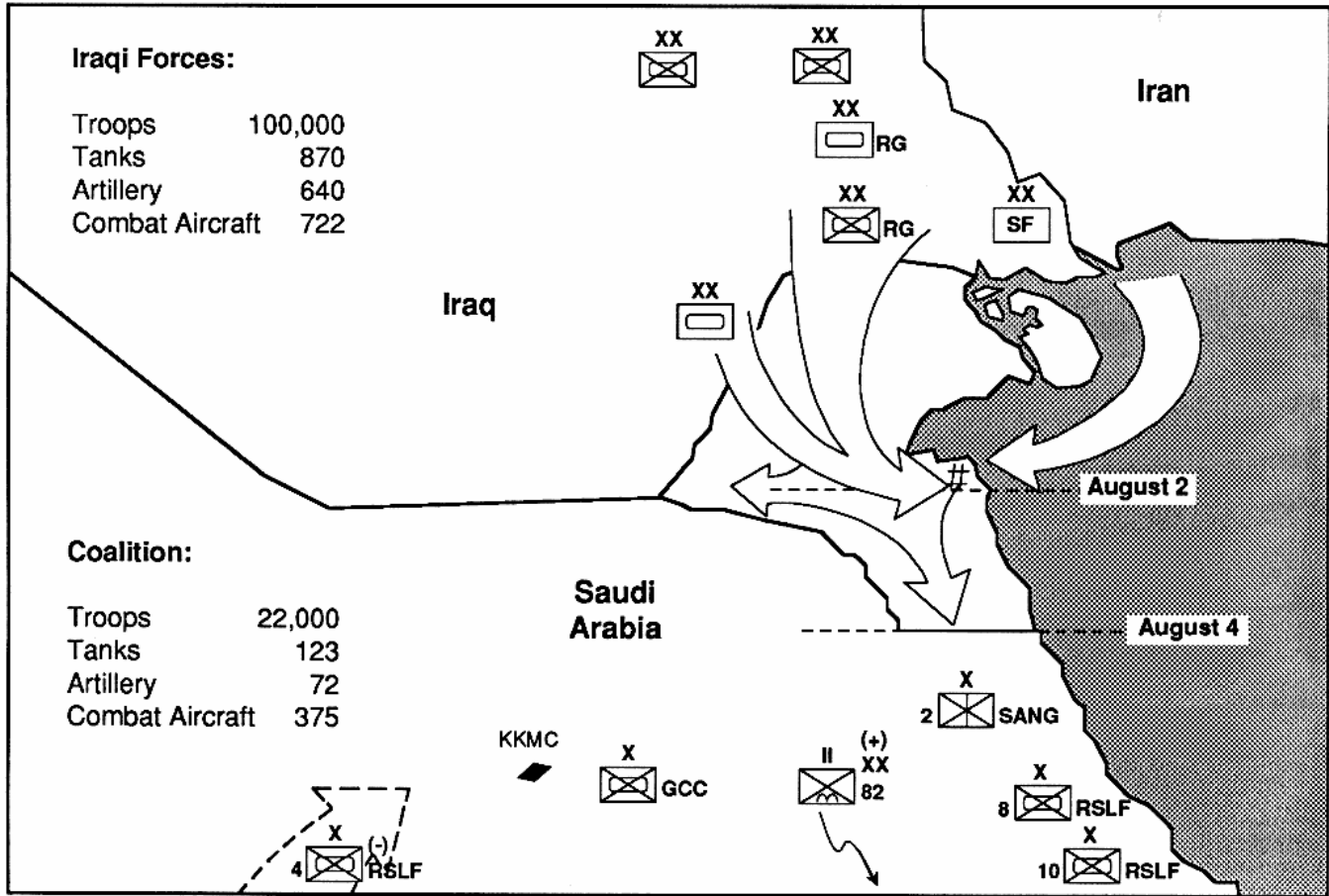


Figure 3  
2 - 7 August: Invasion

of August, he was with Secretary Dick Cheney in Riyadh when King Fahd asked for assistance. Secretary Cheney turned to John Yeosock and Lt. G. Chuck Horner, the U.S. Air Force Component Commander, and directed them to begin the U.S. build up. Secretary Cheney went back to Washington, leaving General Yeosock and General Horner as the first CENTCOM contingent over there — two three-star generals who started bringing people, equipment, and units into the theater. So that's when Lt. G. Yeosock called for me, since I had been there before in 1985 and 1986.

**Student:** Sorry to take you through the background, but is their National Guard like our Guard concept?

**Schwartz:** No. Their National Guard is made up of full-time soldiers. A better title is "Guardians of the Nation," because the National Guard of Saudi Arabia originated from the Bedouin tribes. Several

loyal Bedouin tribes rode with King Abdul Aziz when the Nation was formed, about 80 years ago. He had a series of skirmishes and wars with different Bedouin tribes. He conquered the peninsula militarily, and these loyal Bedouins are the primary tribes that now make up the National Guard of Saudi Arabia. The mission of the Saudi National Guard is internal security. That is why they are like a light armored cavalry unit. The SANG exists primarily to maintain internal stability and to fight against external threat, if required. So they are full time, just becoming modernized, about 15 years into the modernization process.

The "Big Army" of Saudi Arabia is the Ministry of Defense and Aviation, Saudi Arabian Land Forces, or SALF. That's about a two or two-and-a-half division equivalent of separate brigades. A challenge for this war was how do you put the brigades together to fight as divisions, to fight as corps, to put in the staff sections, the commanders,

the communications, that will employ these large forces. So, on the ninth or tenth of August when I arrived, we set out to assist in establishing command and control above brigade level and integrate follow-on Arab forces into the Saudi command structure and coordinate Arab and U.S. CENTCOM operations and intelligence.

I think the most important part of this picture (figure 4) is that during the buildup of August, September, October, November, December, the border along Kuwait and into Iraq was manned by Arab/Islamic forces. The Saudi flag represents that. The U.S., French, and British were well to the south, and the buildup of Western allied forces occurred from south to north for those months while the

Saudis, Egyptians, Syrians, and the GCC were up along the border facing Saddam's army, allowing the Western coalition to build up its combat power. The press didn't quite portray that because they had limited access to the forward deployed units. But if the war would have broken out, if Saddam would have come into an offensive phase before we started the air campaign in January, he would have had to fight through a coalition of Arab forces in order to engage Americans. The coalition air war would have started the minute Saddam crossed the border, but the ground forces would have had to fight through Arab forces. That was set up on purpose, by everybody's agreement: not to put U.S. forces up along the border in the event Saddam did a continu-

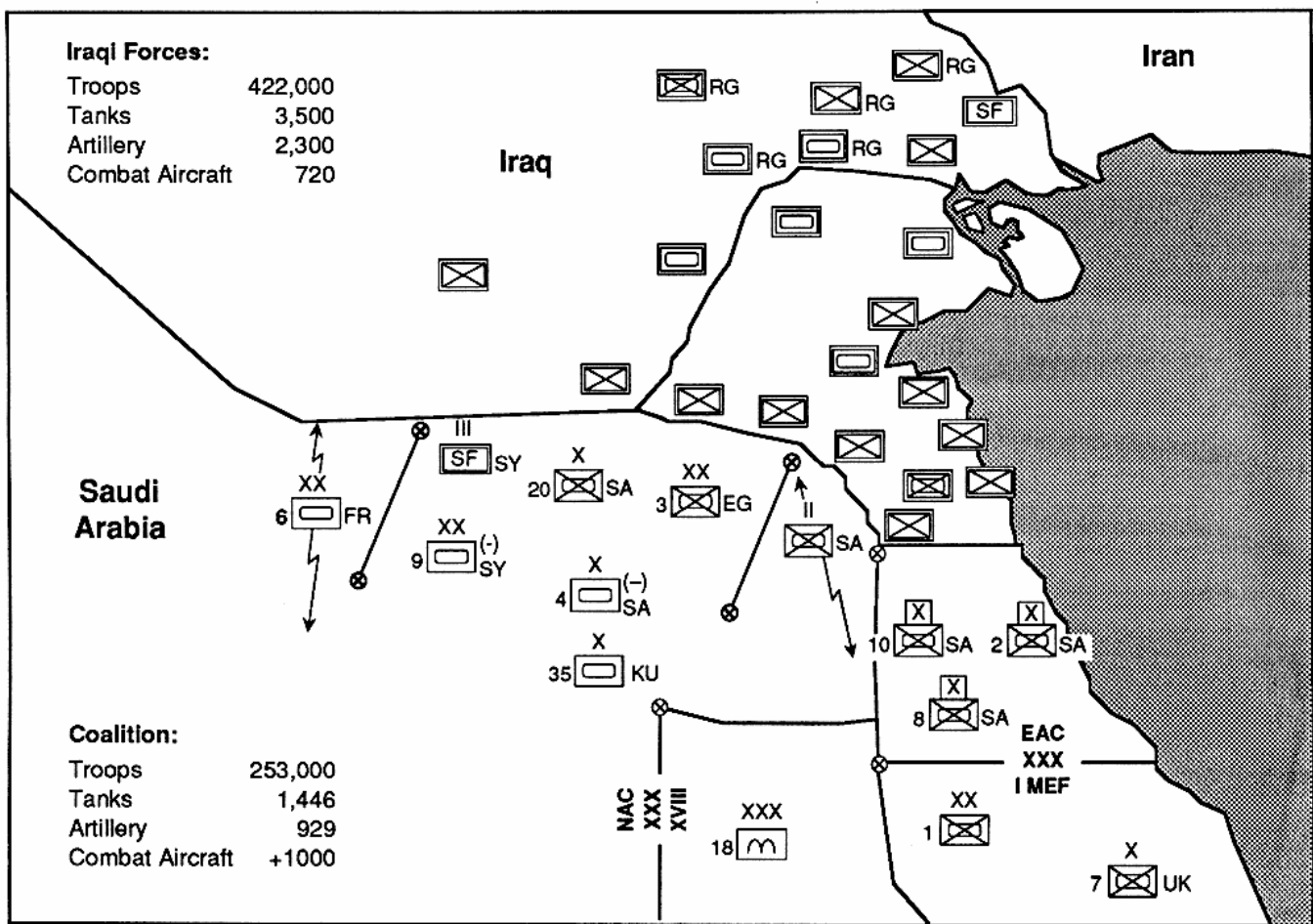


Figure 4  
10 November: Allied Defensive Posture

ation of the attack into Saudi Arabia. Until the U.S. Seventh Corps came in, we were very vulnerable. It wasn't until October that there was any semblance of a cohesive defense. Until then, Dhahran, Riyadh, and the entire peninsula was at extremely high risk.

**Student:** Sir, did we ever have the thought that we would orient our defense to the protection of assets, such as oil wells?

**Schwartz:** Yes, critical sites were included in defensive planning but were not limited to oil wells. Airfields, ports, desalination plants, and communications centers also were defended.

**Student:** That was our initial focus?

**Schwartz:** The initial focus was to set up a bridge-head around Dhahran to keep the port protected so that we could bring in more forces. Somewhere around the August–September time frame the defenses started going around the oil production and other facilities. There were Saudi battalions that were not up on the border whose sole job was to guard pumping stations, and oil production capability, and other critical sites.

**Student:** Is that one of the Guard's traditional missions?

**Schwartz:** Vital facilities, they're called. Not only oil fields, but also radio and communications, and the government.

**Student:** I was talking to a friend of mine who was there during some of the unrest, particularly in the Shiite villages and so forth, and I guess the Guard was used rather aggressively in some cases to keep some of the unhappy Shiites calm.

**Schwartz:** The Shiites, as you well know, live and work in the oil fields. They are mostly in the Dhahran area and north along the Gulf. The key point here is that in the early stages, Arab forces were up along the border while the Western allied forces were building up to the south.

Now, this shows the lineup (figure 5). Note here the way that the forces were put in. On the right-hand side, there were two Saudi brigades and the GCC countries with several battalion size units and lower. That was about a division equivalent, all Arab/Islamic forces straight north along the coast. To their left is the U.S. Marine Corps, two divisions on the ground.

The dotted arrow coming in from the Gulf with the ships is the feint; until about three days before

the ground war, very few senior staff and commanders knew that that wasn't going to happen. It was a secret extremely well kept by General Schwarzkopf. The Navy didn't know it wasn't going to happen. The Marines were not sure it wasn't going to happen. It was ready to go, but General Schwarzkopf never intended to do it because of the tremendous coastal defenses and the lives it would have cost to do the amphibious operation.

To the left of the Marine divisions is the Northern Area Command. That was two Saudi brigades, two Egyptian divisions, a Syrian division, two Kuwaiti brigades — one a reasonably good brigade, the other made up of remnants that straggled in out of Kuwait.

Then there were the British in the main attack and to their left the U.S. Army VIIth Corps. Then the U.S. XVIIIth Corps on the left, and the French division on the far left doing the left flank guard and screening mission. The Iraqi forces thinned out, of course, as you went to the left (west) but that flank had to be secured.

We talked earlier about the French, and there may be the impression that the French never really got into the fight. They were simply screening out there to the left. But obviously somebody had to do that. There had to be a specific unit earmarked to do that job — and they did it extremely well because of the nature of their forces, which were very fast moving. They had attack helicopters, reconnaissance helicopters, they had very fast-moving ground vehicles. They were perfectly suited equipment-wise and doctrine-wise to carry out that mission, that's the type of forces that they had.

I think that a key point here is this theme of "laminated forces." They were spread so that in the offensive operation everybody had to go. It was like a piece of plywood. When the offensive took place, coalition forces were so arranged that there was a momentum that just took everything with it. That was a specific objective: to put the forces where they could best do what they were capable of doing, and then there was the fact that the Arab forces went into Kuwait and not deep into Iraq. Arab forces went into Kuwait to liberate Kuwait. Western forces went deep into Iraq to destroy mobile Iraqi forces to keep them from counterattacking into Kuwait. If it had been the other way around, (U.S. into Kuwait, Arab forces into Iraq) there would have been a real potential problem sorting things out and getting people to go home. So, force disposition was just as you see here.







**Oettinger:** Explicit or stumbled into?

**Schwartz:** No, explicit. On purpose. Schwarzkopf did that.

**Student:** Sir, was there an actual Arab/pan-Arab command center?

**Schwartz:** I will talk about that. The C<sup>3</sup>I is where the Arab coalition command occurred.

These forces on the right were called the Eastern Area Command. We established a two-star Saudi general up there to command that division-sized force. He picked up an ad hoc staff. There were no tactical communications systems for ground forces of that size. So the Saudis created a commander, a staff, and gave him communications. The Saudis were buying communications systems and sending them to the field without very much success. General Yeosock, to his credit, saw the need to put strong U.S. liaison and communications teams with those forward forces. So on the right (east) there was a two-star command, Eastern Area Command. It was directly subordinate to us in C<sup>3</sup>I. That was our field commander. In the center, left of the U.S. Marines, was the Northern Area Command which had a two star field commander and an ad hoc staff. In each case a 30-man U.S. advisory liaison and communications contingent headed by two U.S. colonels — Colonel Jack Petri on the right and Colonel Joe Molinari on the left.

**Guest:** Joe Molinari was in Damascus with me.

**Schwartz:** Joe's an armor officer, Jack's a mechanized infantry officer. They were perfectly suited by background and by temperament; you couldn't have picked two better guys. Those were the ones I talked to 24 hours a day to find out what was going on out there, to issue the orders and coordinating instructions. The Saudis would issue orders and instructions to their two-star commanders and I would back it up to the U.S. liaison/communication teams. So we had these American communications advisors, intelligence and operations — that's what those 30-man teams did — and we asked them to pattern themselves after what we did at C<sup>3</sup>I. The teams were invaluable to command and control.

Let me digress a minute. In Riyadh, when I got there on the tenth, General Yeosock said, "Go over to the National Command Center and help them set up their ops center." So I went in there and they have a huge National Command Center. It looks like ours in the Pentagon: a huge room, three/four stories tall, with desks, chairs, tables, and huge sliding map boards. I had about four U.S. Army majors and

lieutenant colonels and a Colonel Holloway whom General Yeosock gave me. My counterpart, Major General Saleh el Garza, a U.S. Army War College graduate, got half a dozen Saudi officers. We started posting maps on acetate representing unit locations and dispositions. It reminded me of a battalion ops center. We started setting up a reporting system, coming to recognize that there was a huge gap between what we were doing and what was out on the ground at brigade level. We started talking about forming division headquarters to get some major generals up there to form these staffs. Saleh and I sat on the floor of the war room. We consciously set out to create a collegial, cooperative partnership.

The two of us set this thing up and we sat physically close together every day, 18 hours a day, seven days a week, and we talked. I gave him tips, we discussed, he asked questions, he gave me tips, we personally got along extremely well. Every time we'd see, as happens inevitably, that the U.S. officers would cluster with each other, and the Saudi officers would cluster, he'd jump into the Saudis, I'd jump into the Americans, and the symbol we did was like this (alternating fingers of one hand with fingers of the other hand) — Saudi/U.S./Saudi/U.S./Saudi/U.S. — and we said, "When you guys sit down I want to see a Saudi, an American, a Saudi, an American, and don't gravitate toward the easy way, interact, share and work together."

The Saudis agreed to do the operations center in English. That was a common understanding. They agreed. They all could speak English. We arranged the seating arrangement the same way and we sat for the length of the war with our desks touching each other, and I was a shift officer, 18 hours a day, seven days a week, building this command and control center as was M. G. Saleh al Garza.

When Lt. G. Yeosock brought in his 30-man liaison teams, we said to them, "When you go forward, out to the Northern and Eastern Commands, you do the same thing we're doing here. Get up there and be in the right-hand pocket of that major general. Be with him all his waking hours." So they did that with great success in Eastern Area Command, but with more limited success in Northern Area Command, a function of personality and pride. So that was kind of the operational principle with which we set up in the C<sup>3</sup>I.

**Oettinger:** Before you move on, I infer from what you said that you and your counterpart whom you sat next to communicated rather well partly because he'd been schooled in the West.

**Schwartz:** Absolutely.

**Oettinger:** What proportion of the rest of the folks had been in the West? You say that many of them spoke English. Does that mean that many of them also had been to the United States, at one of the war colleges or something? Or that they just happened to pick up English in some other circumstances?

**Schwartz:** Most of them had been to one or more schools in the United States. Some had been to civilian universities in the United States, so they had a western orientation and a western familiarization, which was vitally important because virtually no one on the U.S. side had been in Saudi Arabia before.

One U.S. Navy officer had to be replaced. He was a screamer. He'd get on the phone and lose control of his temper. The Saudis got very uncomfortable with that, so I quietly asked him to leave. They noticed that and quietly appreciated it.

The Western orientation of the Saudis that worked in there was very helpful. The fact they agreed to do it in English was essential — otherwise, we never would have gotten it done. My point in this business of working together and talking together is that had I not been over there earlier for two-and-a-half years, I think I would have gone through what most Americans go through: uncertainty through unfamiliarity with their customs. Early on, you are reluctant to ask a Saudi to do anything, because of your perceptions. But after working over there, like anywhere else, familiarity breeds comfort, familiarity breeds confidence, and from the first day I got there I was very confident with the Saudis. If things are sticky, I know how to work through them, and if things are rolling, how to reinforce that.

**Oettinger:** Did you volunteer for this assignment, or did they find you?

**Schwartz:** I called the Vice Chief of Staff of the Army, whom I happened to know, and I said "I'm ready and able to go, this thing may drag out for a while, you might need me over there." He said, "Stand by." An hour later, General Yeosock called from Riyadh, and asked for me by name. So then the Vice Chief called back within an hour and said, "Leave tomorrow."

**Oettinger:** So Yeosock's call was independent of your volunteering?

**Schwartz:** That's right. We came together within an hour. I volunteered, and he called for me, within

an hour. And we both called General Sullivan, the Vice Chief of Staff of the Army.

**Oettinger:** I'm asking that because I can't help myself, I make generalizations whenever I can. I keep hearing anecdotes that suggest that both of those things kept happening. It's almost as if there were an enormous amount of volunteering and at the same time people remembering that they had seen so-and-so, and things coming together. Not the slightest inkling in any of the anecdotes of a plan, but a tremendous amount of this spontaneous — from both sides — hey, maybe I can do something, or maybe Joe is the guy we ought to get. It's fascinating.

**Schwartz:** It was a tremendously creative process. People who are not familiar with the military will stand on the outside and say, "It's so easy to be in the Army, it's a robot sort of an existence." That's the furthest thing from the truth in this case. This was one of the most creative and exciting things, creating a structure largely out of intuition and some experience, and putting this thing together and building it and making it work.

**Oettinger:** We had contractor guys jumping up and calling and saying, "I built yea and yea," and they start appearing out of the woodwork with intel and plans. It's interesting.

**Student:** Sir, there is one other force, that pan-Arab force. You didn't mention them, particularly the Syrians and others.

**Schwartz:** That's a very interesting point. The Saudi major general I mentioned who was originally my colleague, my co-director of C<sup>3</sup>I, went on to be a brigade commander in the Eastern Area Command, there on the right-hand side. He still is commander of the 8th Brigade today. That side was pretty solid and pretty proficient. The one that was difficult was the Northern Area Command, on the left side of the Marines. That was commanded by a Saudi two-star general with this ad hoc staff who was the equivalent of a division commander. Under him he had two Egyptian divisions. The Egyptians also sent a corps headquarters over and, of course, the Egyptians would have been very pleased to have commanded that entire sector, but it was a Saudi Arabian national structure in the defense of Saudi Arabia. The Egyptians arrived with equipment shortages that they asked the Saudis to fill. The Saudis tried very hard and did spend a lot of money filling and rounding out the Egyptian equipment

shortages. So there was a matter of who's paying the bill, whose country is it anyway, and the realities of sovereignty. So, General Schwarzkopf and General Khalid agreed that the Saudis would command.

So the pan-Arab forces in the center were commanded by the Saudi two-star — the strongest force being the Egyptians, and then there were the Syrians in that force. The Syrians were the least integrated of the forces and up until the final hour they didn't welcome U.S. Special Forces (SF) liaison teams or air control parties. Twenty-four hours before the offense they asked for air control parties to come in, and Special Forces teams to come in, and we sent them in. And they were needed.

**Oettinger:** You've mentioned Special Forces, and your earlier mention of the U.S. people with the Saudis and so forth suggests that the bulk, if not all, of the interfaces were people, and that, essentially, communication was through some American head at the site and thereafter through U.S. systems into U.S. headquarters and so on. We're not talking technical interfaces.

**Schwartz:** No, the electronic and automated communications interfaces between nations did not function very well at all.

**Student:** What were they, primarily electronic countermeasures (ECM) or high frequency (HF)?

**Schwartz:** The one that worked best was the single channel, single TACSAT. KY-68 is the name of the instrument on the desk. That thing is absolutely worth its weight in gold. It can move, it's got a mobile dish with it. It's reliable, it's the best thing I've ever seen. The TACSAT is single channel, single sideband.

I think your point is well taken. The communications structure below the national level on the Arab side functioned successfully because of the U.S. communication and liaison teams down to the division level, and below that level there were U.S. Special Forces detachments down to battalion level with the Arab forces. Their radios, through the SF channels, would come together. That system was plugged into the U.S. team I was talking about, so we were able to keep track of where the coalition battalions were, and that was the single best method. It was absolutely essential for our SF to provide information of coalition units. They really played a vital role in that.

**Student:** General, maybe this is difficult, but can you comment on the role of Special Operations during the Gulf War?

**Schwartz:** I would prefer to limit my comments to the fine job the SF did in providing communication links to coalition units. I cannot confirm what they did beyond that. This communications link I talked about and the training advisory role that I didn't talk about, were very valuable and that participation was priceless. That was down with the battalion units of the Arab forces. The SF were very, very good in that regard.

Going back to the slide, I guess I've painted a laminated sort of force here, Arabs on the right, Marines, Arabs, U.S. on the left.

**Student:** There are some Arabs who are missing, who I guess intentionally were put away on the left, the Pakistanis. Did you have anything to do with the Pakistani brigade?

**Schwartz:** No. Where did you have them?

**Student:** I had thought they were put way up on the northwest or the western frontier, almost to the Jordanian border.

**Schwartz:** Oh, yeah. They were up, in a town where an armor depot is. This was the Pakistani brigade that did not get down into the war. Some years ago there was a Pakistani brigade in Saudi Arabia. It came back in for this war and they picked up the equipment that had been left in storage. Without maintenance and climate controls, all that equipment had to be refurbished. It did not get completed in time to participate in the offensive operation.

**Student:** So that wasn't a political decision to put them up there on the northwest?

**Schwartz:** Oh, I think there was a concern over that sector up there, so the Saudis wanted a military force up there as a deterrent.

**Student:** There seems to be within Pakistan a tremendous debate on the war itself. There's lot of political changes within the country and I just wonder if that was a factor.

**Schwartz:** It could have been. There was a lot of dialogue between the Saudis and these other forces that I was not aware of. There were a lot of unilateral deliberations. I was not in on all of that. There could very well have been some agreements on where they were positioned. On occasion units would show up, and we would not know it until they were on the road coming into the AO (area of operations).

This map (figure 6) shows where all of the units wound up in February 28.

**Student:** There is an obvious logic relating where everything seems to be to the commitment of the nation behind the force.

**Schwartz:** Yes. The positions were very well thought out. . . . Once the forces were introduced into the Kingdom, there was mature military judgment on where they went and what they did. Nobody was committed to something they couldn't do, and that worked out very well.

**Oettinger:** Any impression of where those judgments were made?

**Schwartz:** A combination of General Schwarzkopf and General Khalid, his counterpart, but more precisely Khalid's deputy, a Major General Abdul Aziz el Sheik, who knew a great deal about military operations and political interfaces. So, what I am saying is that the decision was made on the Saudi side in consultation with General Schwarzkopf and our C<sup>3</sup>I staff.

This slide shows a list of who participated in the air force (figure 7). The air force was clearly the best integrated military force. Pilots speak English, they have the equipment commonalities, the operational commonalities, and there was one target list, one air tasking order (ATO). The ATO was auto-

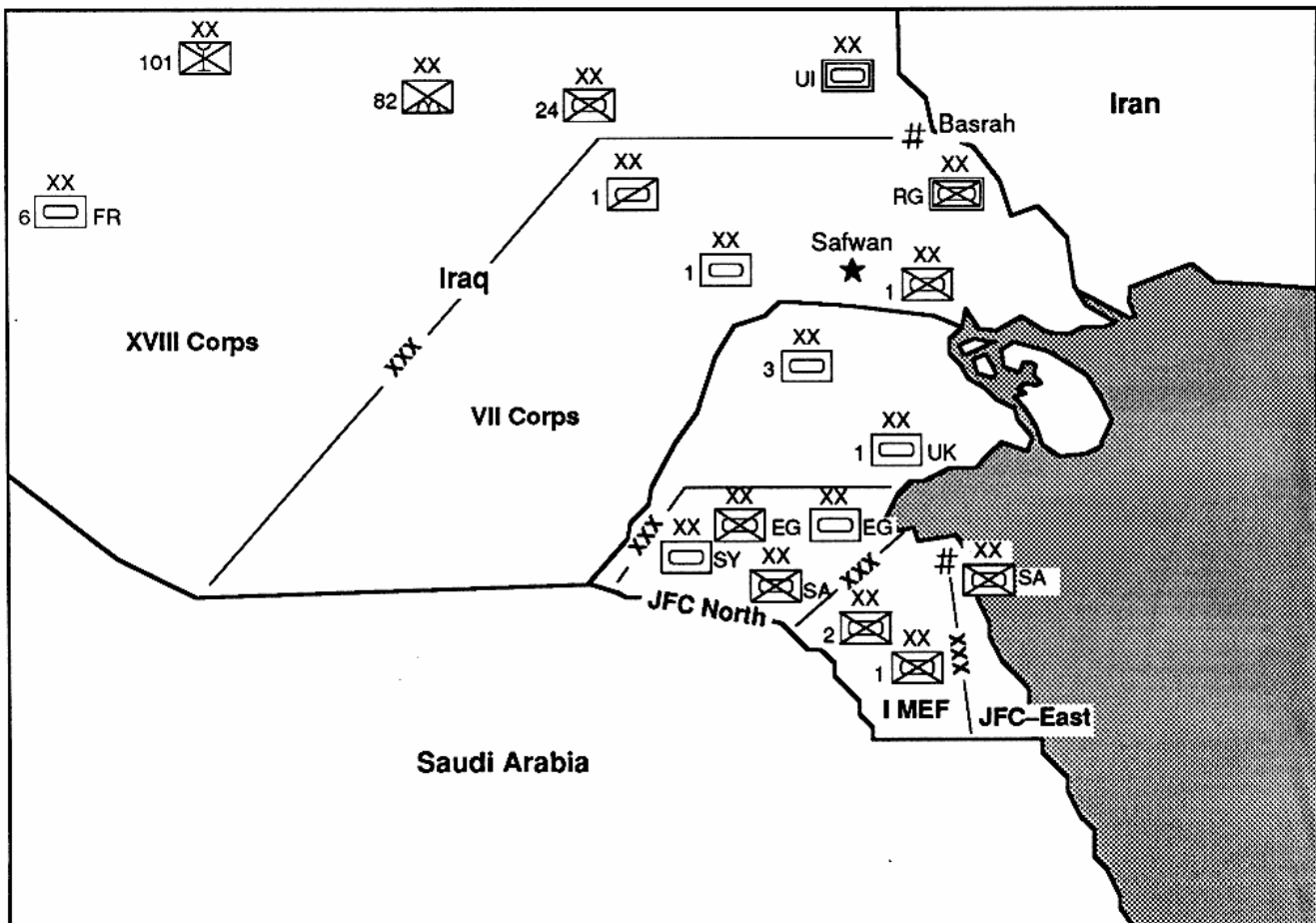


Figure 6  
28 February "Cease Fire"

C3IC: 12 Nations Total	
Saudi Arabia	Bahrain
United States	United Arab
United Kingdom	Emirates
Canada	Oman
France	Qatar
Italy	Kuwait
New Zealand	

**Figure 7**  
**Allied Air Forces**

mated and everybody played off that sheet of music. So that was a very integrated effort right there, and extremely effective, as you well know. There were 12 nations — here's what they did.

**Student:** To what do you attribute that? Is that because, if you take a look at those nations, almost all those pilots were, if not trained in the United States, at least trained in similar systems. Therefore they came up believing that that's the right way to fight. Is that a reasonable way to look at it?

**Schwartz:** Yes, I think it's a combination of standard doctrine, equipment commonality, the training commonality, the élan of being a fighter pilot, that mystique that kind of transcends nations — the brave man in the flying machine. There's a commonality of interest that is in a fairly narrow band of technical skill. I mean there is only one way to fly — there aren't very many variations on that theme, so you can kind of look at the world through a fairly focused opportunity.

**Student:** Was the United States Navy the hardest to bring on board in that air tasking order? I'd say they probably were.

**Schwartz:** Yes, I'd say while the air forces were the most integrated, the U.S. Navy fliers never really became fully integrated. I am sure that history, communications, and doctrine all played a part.

So these are the results (figure 8), and just look at them. The solid bar is the beginning of the air campaign, the shaded one is the beginning of the ground campaign. Five weeks of the air campaign brought the air defense down from 100 percent capability to that. The objective here, if you will recall, was 50 percent attrition. Now take a look.

Now, a darned good question for the intelligence guys is, how did you figure out the shaded bar? It wasn't easy. There were wide differences between what was coming out of Washington and what was coming out from in country. Washington was by far the more conservative. You absolutely had to have the tank with its turret blown off, lying upside down, before it was counted as a kill.

**Student:** Speaking of that, I don't see the category of ground forces that those tanks/artillery were coming against.

**Schwartz:** I'm glad you asked.

**Student:** Is this the Washington version?

**Schwartz:** This is a combination of both versions agreed to by Central Command. These are Central Command figures, a lot of input from Washington, D.C.

**Student:** So the tanks include those that we knocked out after the ground war was over. In other words, those include ones we just sort of popped off?

**Schwartz:** No, this shaded bar is G-day, the beginning of the ground campaign. These are the results of the air campaign. The ground campaign took the shaded one down considerably further.

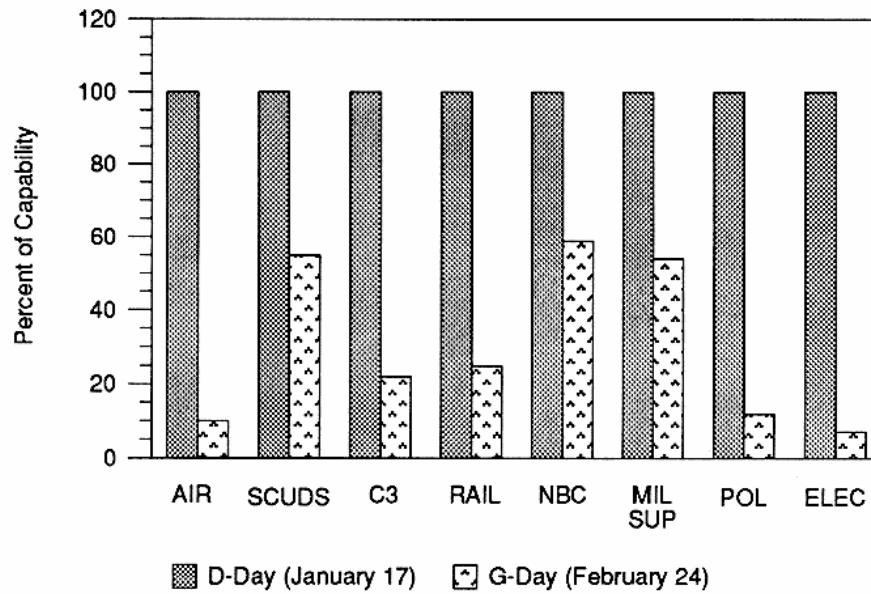
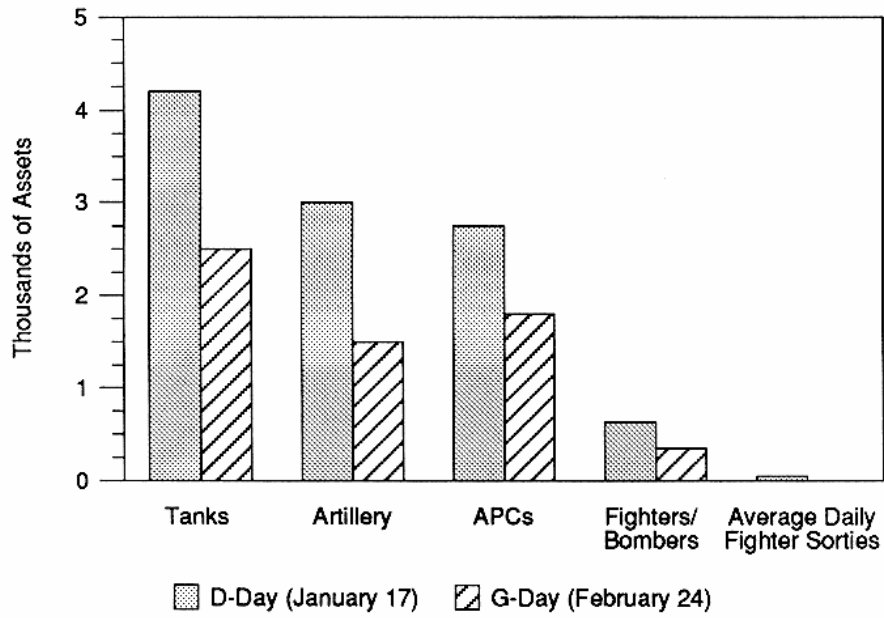
**Student:** Do you have a graph on the active ground campaign?

**Schwartz:** Final? I don't have it in chart form, but probably in my papers I've got it somewhere.

**Student:** There is a lot of debate on that right now, because of the numbers of tanks that still seem to be surviving in these insurrection situations.

**Schwartz:** So that's what the air did.

There's some question about whether the supplies ever got through or not. That's an article I cut out of a Saudi newspaper (figure 9). The Iraqis had a very uneven distribution of food and supplies. I'm not too sure whether some of them around the zoo were driven to do this or whether they just did it out of malice or because it's an exotic thing. In that part of the world, they still slaughter sheep and skin them



**Figure 8**  
**Iraqi Combat Assets and Capabilities**

and eat them and cook them as an everyday common event. And if you're a soldier in a zoo you might very well just do that on a lark because by and large the Iraqi units in Kuwait City ate very well. It's those that were outside of the city that had distribution problems with food.

This slide shows the navy (figure 10), with 15 countries. There were a total of 37 countries in the coalition altogether and, of course, some had air, some had navy, some had ground, some had all three. And here's what the navy did (figure 11).

**Student:** I have the impression that navy ship integration was very good; it was the naval air that was very difficult to integrate.

**Schwartz:** I would agree with that. I think the surface operations were very effective.

**Student:** Are you speaking of air operations or naval?

**Schwartz:** Naval surface operations were better. Naval air operations didn't even report for the first

## Iraqis eating zoo animals

LONDON, Sept. 15 (R) -- Iraqi troops have eaten nearly three quarters of the edible species in Kuwait zoo, an official of the World Society for the Protection of Animals told the *Times* newspaper.

The zoo's 40 staff fled soon after Iraq's Aug. 2 invasion of Kuwait, leaving 208 mammals, 493 birds and 34 reptiles to fend for themselves, the *Times* said today.

It quoted the society's director for the Middle East, Victor Watkins, as saying: "The latest information I have is that 70 percent of the edible animals have been eaten by soldiers, especially antelope and deer."

The animals suffered starvation and dehydration before being slaughtered by hungry troops.

Officials of the London zoo tried to contact colleagues at Bagdad zoo to persuade Iraqi veterinarians to rescue the animals but failed to get any response, the *Times* said.

There were fears that if conditions did not improve quickly the entire population of Kuwait zoo, which included rare species such as the soemmerings gazelle and the shoebill stork, would be wiped out.

Figure 9

Iraqis Eating Zoo Animals

Saudi Arabia	United Kingdom
United States	France
Canada	Belgium
Greece	Spain
Netherlands	Denmark
Norway	Italy
Australia	Argentina
Poland	

Figure 10  
Allied Naval Forces

week. Look at how many sorties they flew — 18,000 sorties. For the first several thousand of those sorties we didn't know where they were going in or when they were going. They were doing it off the ATO, but there was no mechanism to have any feedback on what the navy was accomplishing. That got fixed while it was in progress.

**Oettinger:** I am puzzled, how come nobody crashed massively while off the ATO.

**Schwartz:** There was a tendency for independent operation. I don't know how they split up their chores.

**Oettinger:** It was either the luckiest thing in the world, or some airspace coordination that you were not aware of, that they didn't get tangled up.

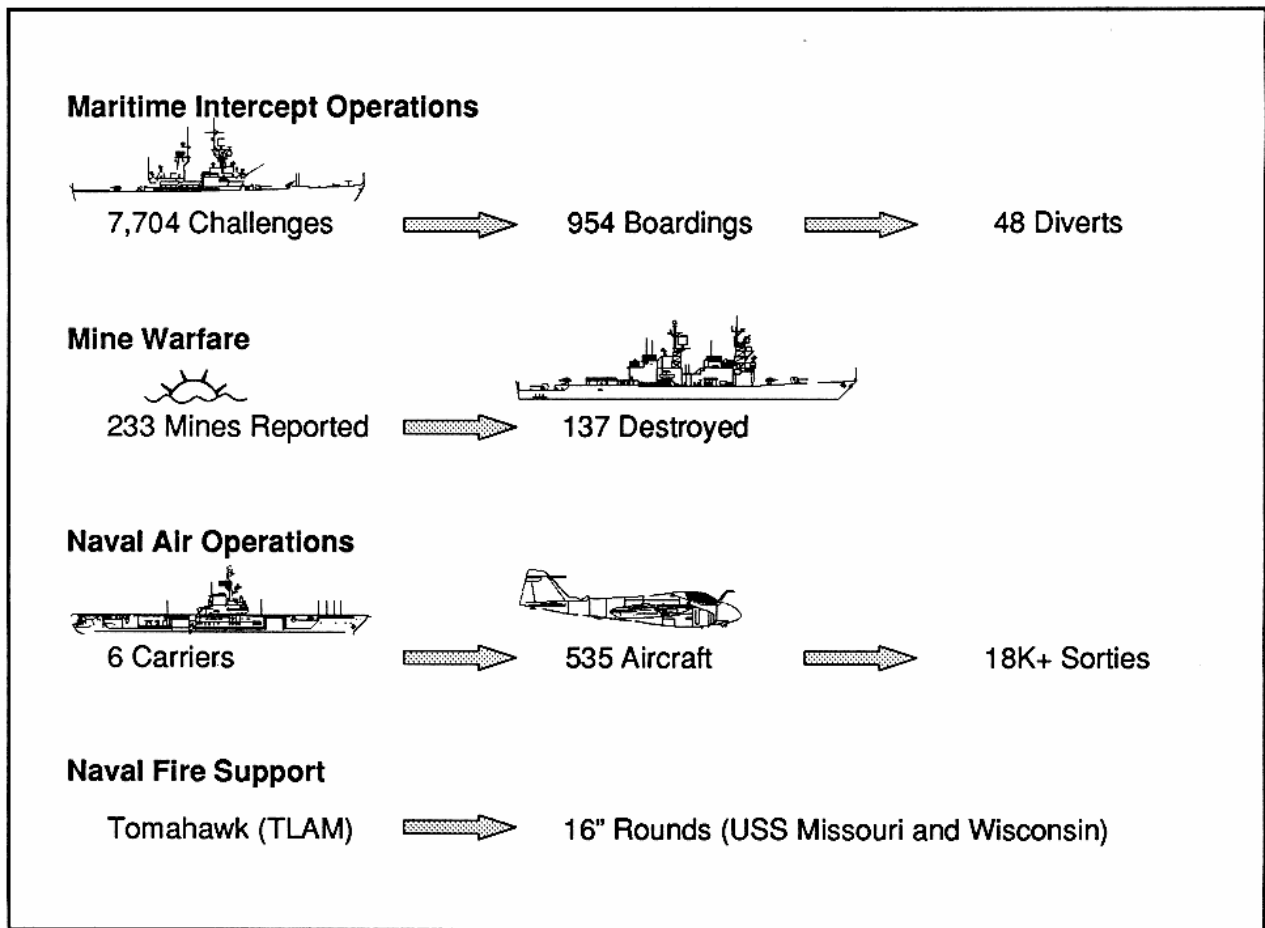
**Student:** That was on the ATO. The problem was, as I understand it, that there's a tremendous communication equipment problem in the Navy on reporting into the Air Force channel. They do not have equipment to get in and therefore for a period of time they didn't know how to tell the Air Force what they'd been doing.

**Schwartz:** What their BDA (Battle Damage Assessment) was. Yes.

**Student:** There's a reluctance to do that.

**Student:** And they don't particularly like to tell another service how well or badly they were doing. They like to keep a lot of that stuff in house.





**Figure 11**  
**7 August – 28 February "Naval Campaign"**

**Schwartz:** And of course they orient on targets that are a threat to the fleet, and they ran out of those very quickly, because the Iraqis didn't have a navy for all practical purposes. So they shot up what few Iraqi surface craft there were and then they shot up a tanker or two.

**Oettinger:** So the answer to my question is that this was an over-water operation?

**Schwartz:** No, they did land operations also. Later on, as I say, it got better integrated.

**Student:** Was this primarily a boundary operation that they used then?

**Schwartz:** I don't know. I'm not familiar with what the control procedures were.

**Student:** My understanding was that there were naval members of the targeting staff as well, who helped put out the ATO that in fact went out. The carriers knew what time they had to take off. They knew what their targets were. It was up to the crews to plan it. They would check in with the Airborne Warning and Control System (AWACS) on the way, so that helped deconflict in the air, all these kind of things. It was just that when they landed they couldn't tell anybody.

**Schwartz:** The debriefings didn't flow up initially to get what the bomb damage assessment was. It was not smoothly integrated.

**Student:** The Navy was very disappointed. Half their airplanes are F-14s, which they couldn't use,

and the other half have very little land attack capability.

**Oettinger:** And the wrong ammunition.

**Student:** Yes, they didn't have the right ordnance. I talked to Admiral Dunlevy and he was just ticked off at their capability. He said we have all the wrong stuff over there, and we don't have the right stuff for that kind of war.

**Schwartz:** And they had six carriers, too. I mean they had a lot of stuff.

**Student:** Some of the figures would indicate that of those 18,000 sorties, a very small percentage actually terminated over land ordnance. A lot of them were also refueling.

**Schwartz:** There were lots of hours on CAPs (Combat Air Patrols).

**Student:** They had a long way to go.

**Schwartz:** Let me just point out the gunfire down on the bottom there, a thousand rounds of 16-inch shells. The biggest impact of that was psychological: a battleship firing over the Iraqis or into the Iraqis. We'd receive radio transmissions that caused some concern, but nothing significant. It was great to have them out there and to see them and to hear them and all that. That was a big morale booster, but it had little practical effect on the ground, there were so many other capabilities that could be used.

**Student:** Same as in Vietnam.

**Schwartz:** Not so on the TLAM (Tactical Land Attack Missile, also called "Tomahawk"). The TLAM was absolutely devastating.

**Student:** It doesn't seem that a large number of TLAM were fired — 273?

**Schwartz:** I don't know what the total number was; somewhere near the figure of a thousand comes into my mind, or in that ballpark. So maybe that's a third or a fourth of them, I'm not sure.

Here's an interesting chart (figure 12). This was the ground forces, by far the largest number, but look at the strange bedfellows on there, with Czechoslovakia coming in with chemical surveillance and decontamination Bangladesh and Pakistan just happen to be on the list next to each other. I didn't put them that way, it just fell out, but what an interesting thing that was. Romania; who'd ever have thought of that? Hungary? Poland?

**Student:** Argentina is a classic case in their sea force structure.

**Schwartz:** So that was a historically unprecedented and interesting coalition.

This was what the ground forces did (figure 13). (IZ is the intelligence abbreviation for Iraq.) So the total for Kuwait and Iraq was 73,000 kilometers — most of it Iraq. They tell me about 22–23 percent of the southern part of Iraq was occupied. There is no question that the speed at which the conditions of peace were met was driven by the fact that the southern fourth of his country was being occupied by U.S. and British forces.

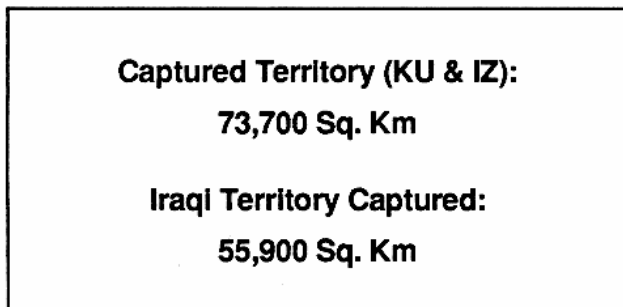
I also have a series of pictures of the area. [The photographs are not available.] There's one that shows the road going north up to Basra, with a ridge line on the skyline that was the bottleneck. The Iraqis all were fleeing north loaded with stolen goods. That's absolutely true. I've walked through all of that. I've seen it. There were stolen goods lying all over, and when they got to their own checkpoint in the defile, the Iraqis were stopping the traffic. It backed up almost all the way down to Kuwait City, and then the air forces came upon them and started a nonstop 48-hour pounding.

Saudi Arabia	Syria
United States	UAE
United Kingdom	Oman
France	Qatar
Kuwait	Bahrain
Egypt	Morocco
Bangladesh	Pakistan
Senegal	Niger
Czechoslovakia	Afghanistan
South Korea (M)	Poland (M)
Philippines (M)	Hungary (M)
Romania (M)	Sierra Leone (M)
Singapore (M)	Sweden (M)

*26 Countries Total*

(M) = Medical Units

**Figure 12**  
**Allied Ground Forces**



**Figure 13**  
**Territory Captured by Coalition Forces**  
**During the 100-Hour Ground War**

Vehicles tried to get out into the desert. They got out there and either got caught in the sand or got shot or they got up to the escarpment and couldn't get up it. And so there were hundreds and hundreds and hundreds of vehicles off the road where they tried to go north.

There was a cut through the escarpment and the Iraqis were at the top of that. They had their own checkpoint trying to stop their forces from fleeing. Their officers had abandoned their forces and left 24 hours earlier. The troops then made this mad dash. They stole any vehicle they could get their hands on. There were all kinds of vehicles filled with Iraqi soldiers. There were no civilians going. I saw school buses. I saw a fully operational fire engine in there. And of course the chaos was unbelievable, things just scurrying around, it was just horrendous. I drove up there with a Kuwaiti, and I said, "What you guys ought to do is put a huge sentry fence around about a kilometer of this road, because in the future at some point Iraqis will drive that road down into Kuwait. And so you ought to just make a memorial and a reminder out of this. Just like that old church in Berlin\*; you never go to Berlin without seeing that thing. Put up a fence, leave these vehicles in there."

**Student:** The problem with that, though, is the counter argument which will come up in another year or two.

**Schwartz:** What's that?

**Student:** That's the Middle Eastern sort of view.

**Student:** When Saddam has been rehabilitated.

**Schwartz:** Oh, I see what you mean, and validated.

**Student:** What's going to happen is that Kuwait is going to be tertiary and the issue of whether or not there was a need to kill all that many people sitting in the middle of the road is going to be the larger aspect of it, as other Arabs look at it in another five or ten years.

**Schwartz:** Usually when units met there was a fire fight at all levels. There'd be an exchange of fire that would last two to five minutes, and then there would be entire Iraqi units surrendering en masse.

**Student:** Excuse me, was it pretty uniform that the Iraqi officers left before their men?

**Schwartz:** Yes, the senior officers left about 24 hours earlier. I went into Kuwait City and while I didn't talk to any Iraqis, I did talk to Kuwaitis. Kuwaitis told me that the Iraqi leadership crumbled and fled, and then the soldiers all fled.

**Student:** Did they know that Saddam had bargained away Kuwait and agreed to pull out?

**Schwartz:** I don't know that for a fact, but because of the news media, and the news that was going into Kuwait — we had radios transmitting in Arabic, CNN was all over the place — I'm sure that the fact that he gave that land back was known. It could hardly be kept secret.

The actual figure reported in the EPW (Enemy Prisoner of War) system (figure 14) was 75,000. This was at this time at that date. But look what the Arab forces picked up. The Arabs lost more soldiers in proportion to what they had participating than any other nation. The question is: did we go over there and fight their war for them? Answer: no. We did not go over and fight their war for them. Clearly we were essential to the victory, but they paid their dues in many ways and part of it is shown here. They picked up a lot of the casualties.

Let me say a little bit about the terrain. There's a good road, but it might disappear tomorrow in a wind storm. The position locating devices, the satellite capability, the Global Positioning System (GPS), were absolutely essential. We couldn't move large units over great distances without it.

There is water in the desert here (along the Gulf coast). The water table along the coast was six to eight inches below the surface. There's a feature called a Subca (marsh), which is marked on maps. You have to be very careful. If you are not, your track vehicles break through. Some they were able to get out in a few hours. The Saudis sunk a tank up

\*Kaiser Wilhelms Gedächtniskirche.

Saudi Arabia	United Kingdom
United States	France
Canada	Belgium
Greece	Spain
Netherlands	Denmark
Norway	Italy
Australia	Argentina
Poland	

Figure 14  
Reported in the EPW

along the border. Reportedly, it took six weeks to get it out of the Subca. You can dig down with your hand and get to water — saltwater, brackish water. And when you look at it, if you're uninitiated, you can take your tank battalion across there and 100 percent of your tanks will get stuck. Terrain appreciation was vital.

**Student:** Like Hohenfels (U.S. Army training center in Germany)?

**Schwartz:** Yes, it's a very critical area. We put the Saudis in that area because they knew it, and even then they stuck. A few, not very many. The United States would have had many more tanks stuck in there, no doubt about it. So we didn't put U.S. forces or European forces in there.

Here's an interesting chart (figure 15). The left side is General Schwarzkopf. His DCINC was Lieutenant General Waller, who is coincidentally my boss out at Fort Lewis. I went in in August. General Schwarzkopf came over in late August after we set up the right side of this chart. His Chief of Staff was a Marine major general. He had the joint CENTCOM staff on the left, the joint operations center, joint intelligence center. It was by the book, SOP, what CENTCOM normally does, and then the service components down below them. That's Lieutenant General Horner as the Air Force commander. ARCENT was Lieutenant General Yeosock. The Navy was an admiral whose name escapes me, a great huge man. The U.S. Marine Corps component commander was Lieutenant General Walt Boomer, and Special Operations Command was an Army colonel. So that's doctri-

nally standard on the left side, the U.S. CENTCOM chain of command.

The right side was all invented for the war. The CINC Saudi is Lieutenant General Khalid, who, in peacetime, is the Air Defense Command Commander. Like the Soviets, their Air Defense is a coequal command to the Army, Navy and Air Force.

If you could see a top down view of the ops center, you would see the fingers together, Saudi/U.S./Saudi. Each little box represents an officer. We had ground in the middle of the horseshoe, and air was on the right side.

**Student:** Where'd you get your guys from?

**Schwartz:** Begged, borrowed, stole, mostly.

**Student:** Were there 20 FAOs (Foreign Area Officers) out there, combat arms, Middle East kind of guys, who said, "We're ready to go"?

**Schwartz:** There were about three of those. On the intel side there were some U.S. Mideast intelligence officers who came in. But the FAOs got siphoned off. They came in floods and waves at different times. Most of my people on the U.S. side were not FAOs. Saleh el Garza and I sat together as co-directors on that floor.

These are the meetings that held the coalition together (figure 16). We set up these meetings. In the morning at seven, Saleh and I would have an informal walk-through up in front of the maps and get briefed by air, ground and sea desk officers. At nine o'clock, General Schwarzkopf had an update with his staff. I would go to that.

**Oettinger:** Give me a feeling. You look at that, and in August it doesn't exist, while in February it's done its job.

**Schwartz:** Right.

**Oettinger:** Somewhere in between it begins to take shape and get to be routine and to work; before that there are problems. Would you give a sense of that?

**Schwartz:** Sure. August was chaos. August was spent getting C<sup>3</sup>I established, emphasizing the need for consistency, coherence, predictability. We needed to have an agenda, determine who was going to brief. What should the order of briefing be? What items of information should be briefed? We had to get furniture, word processors, we had to create interfaces with the CENTCOM staff and the Saudi Joint Staff.

The CENTCOM staff came in and wanted to move into the National Command Center. We were

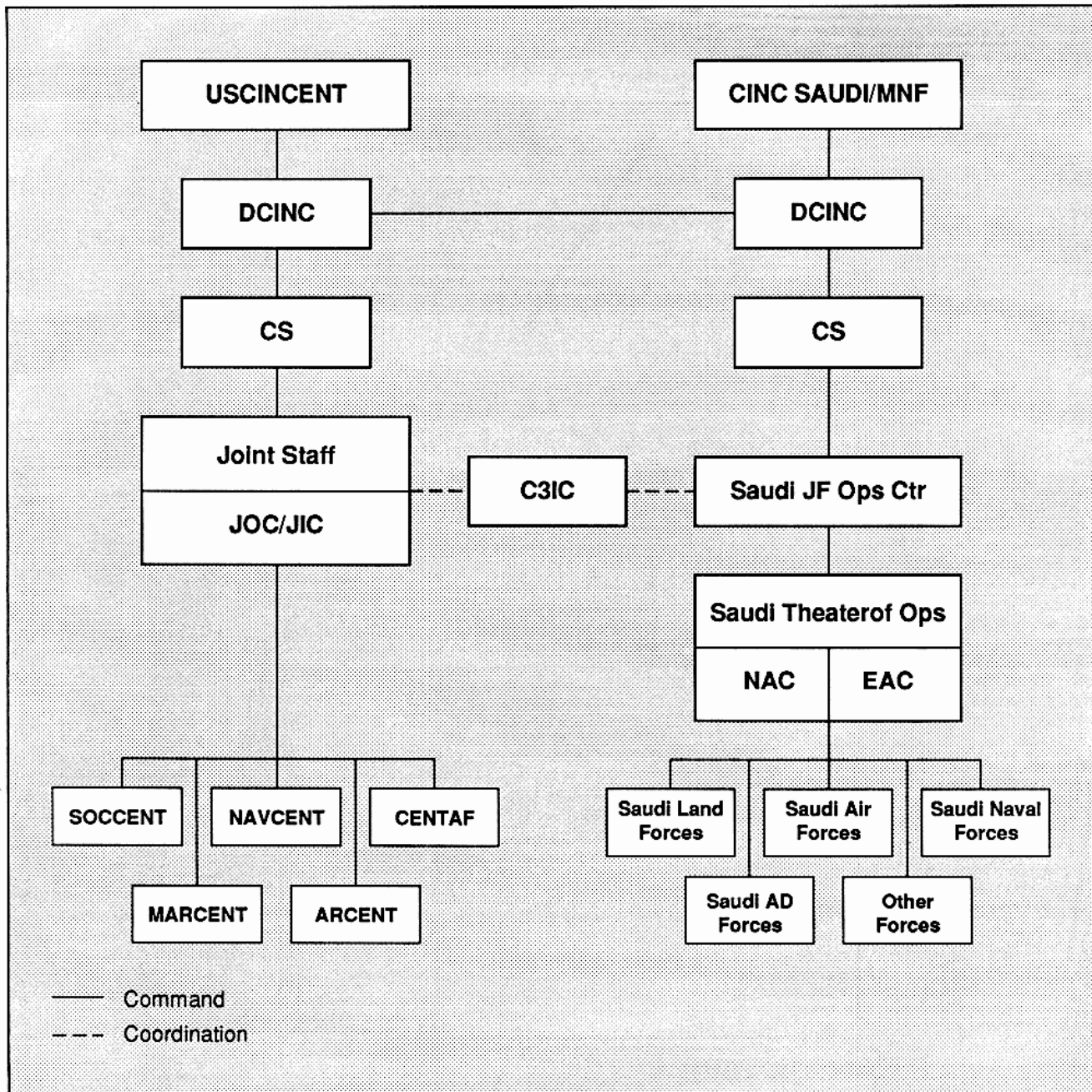


Figure 15  
Allied Command Structure

already set up in there, having established this U.S.-Saudi C<sup>3</sup>I that was up and running. CENTCOM staff came in about ten to twelve days later and wanted to take that over and move the Saudis out. It came close to creating a big fuss by asking the Saudis to leave. General Schwarzkopf came a few days later and he agreed with us and told his J-3 to go find

another place, which they did down the hall. It was a disappointment to the CENTCOM staff but the right thing to do.

So there were two war rooms set up: this C<sup>3</sup>I war room, and then the CENTCOM war room. We interfaced through these meetings. At seven in the morning, it was C<sup>3</sup>I that looked at the situation, and

0700 Hours	Morning Walk Through, C <sup>3</sup> IC Co-Directors
0900 Hours	CINC Update (Morning), C <sup>3</sup> IC US Co-Director
1100 Hours	Joint Military Commanders and Staff
1830 Hours	Evening Update
1900 Hours	CINC Update (Evening)
2330 Hours	Shift Change (C <sup>3</sup> IC Co-Director and Staff)

**Figure 16**  
**Scheduled Daily Briefings**

we would post the U.S. situation building up in the south. We'd get the Arab units posted and keep the Arab side informed of the U.S. and the U.S. side informed of the Arabs. At nine o'clock in the morning, I would attend General Schwarzkopf's update with his staff. At eleven o'clock, he, his J-3, and his chief of staff would meet with their counterparts on the Saudi side. At 6:30 there would be our C<sup>3</sup>I evening update. At seven o'clock at night there'd be an evening update with U.S. only down in General Schwarzkopf's war room. The war rooms were about 300 meters apart, in the basement of the Ministry of Defense and Aviation. At midnight we'd have a C<sup>3</sup>I shift change, and then that briefing cycle would repeat itself. It went seven days a week into March 1991.

**Oettinger:** But when roughly would you say that you were happy with this thing functioning?

**Schwartz:** By the end of September this was getting into a routine and a rhythm. It took about five weeks, any time during which we were very vulnerable if there was a continued attack. This was a very tense time, August and September.

This diagram is just a table (figure 17). There were huge meeting tables, and this is the CINC (Schwarzkopf) in the middle with Khalid on his right, and then the DCINCS (deputies) to the right

and left. The Chiefs of Staff and then the ops officers (J-3s) on the end. We (C<sup>3</sup>I) ran this briefing and we alternated, Saudi/U.S./Saudi/U.S. briefers, and then would alternate the service components every day also. So one day you had navy briefed by a Saudi, the next day you had navy briefed by the United States, the following day by a Saudi, the following day by the U.S. Air force, ground, and Special Ops were done the same way. Then along the back row you see the representatives of the U.S. and Saudi staffs. Not all of the allies attended, just the majors: the Egyptians, the Kuwaitis, the Syrians, French, and UK on the outside, and then only liaison officers, not the commanders.

This is a little diagram that I made up (figure 18). If you have a joint combined staff of countries with similar technical capabilities, you could come together inside that box, and you could make a joint combined staff. Through those efforts the orders and issues would be passed on down, and if your intelligence and operational capabilities and technical capabilities are similar, this might be the perfect, most efficient model. But because they're not, what we had is this interface organization of C<sup>3</sup>IC (figure 19), which gave and received orders down the Arabic side. We did not give orders to U.S. forces. We gave information to U.S. forces and received information from them, and kept the U.S.

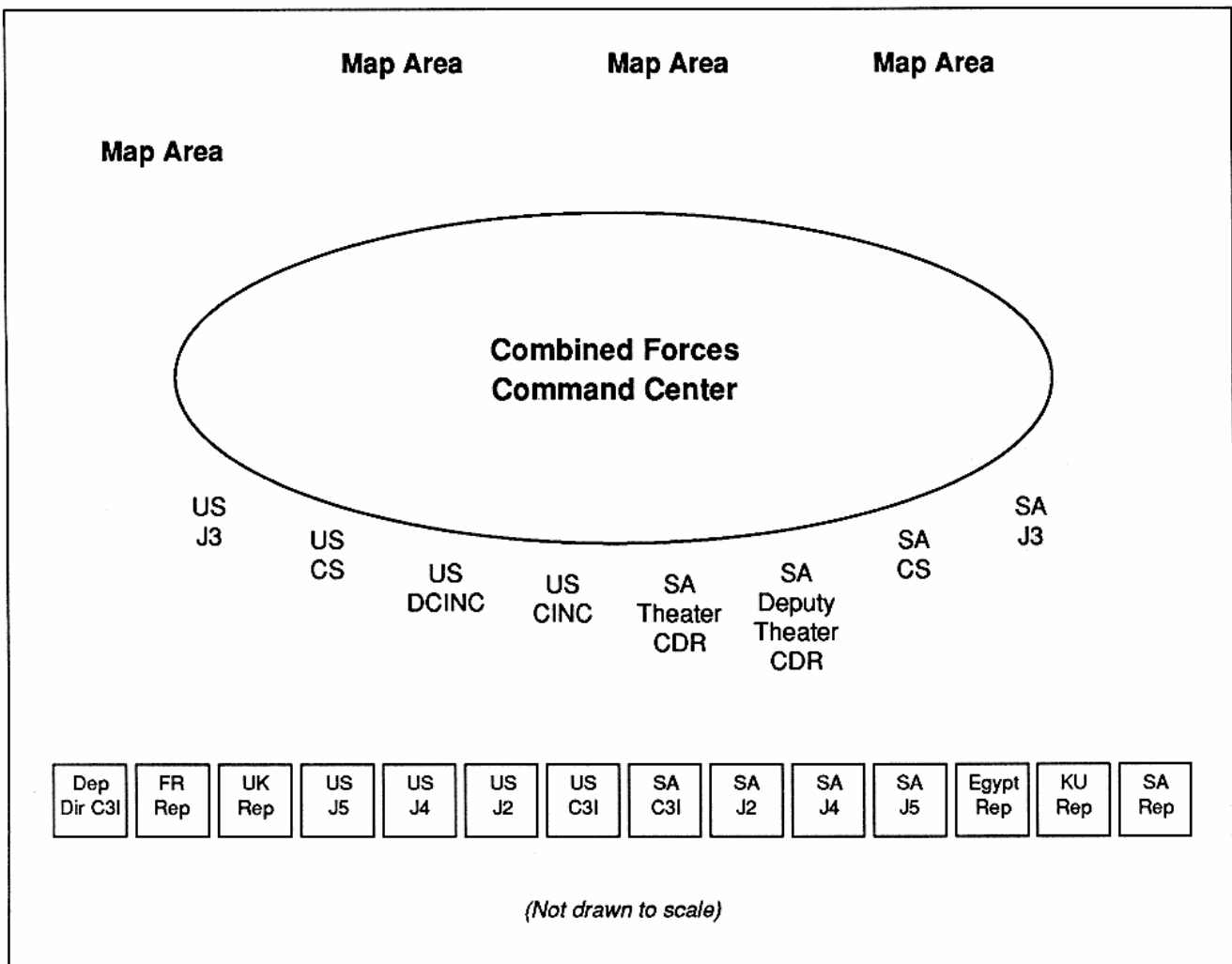
J-3 and commander informed, and orders then came down out of CENTCOM staff vertically out of the U.S. side. C<sup>3</sup>I became an interfacing headquarters.

**Oettinger:** Is that all so different, let's say, from looking at CINCLANT's setup, where you've got adjacent command rooms for the U.S., and NATO, etc.?

**Schwartz:** Are we that much different? I don't know, but I sure wished I would have had some kind of a C<sup>3</sup> book to help us. This is all after the fact. I think this portrays what happened over there on Desert Storm. But the diagrams were drawn after the organizations evolved.

**Student:** Early on there was some criticism in the press that indicated that General Schwarzkopf had gotten into a conflict with the Saudis over this command and control arrangement, and the way it reached this side of the ocean was that he wasn't getting along and the President had to step in.

**Schwartz:** That's not true. The press with no experience whatever, or a NATO model of limited experience, kept looking for problems in command and control. The press and the media dug and dug and dug, trying to make some big exposé that there were problems with command and control. There never was an operational problem. There never were



**Figure 17**  
**Meeting Table**



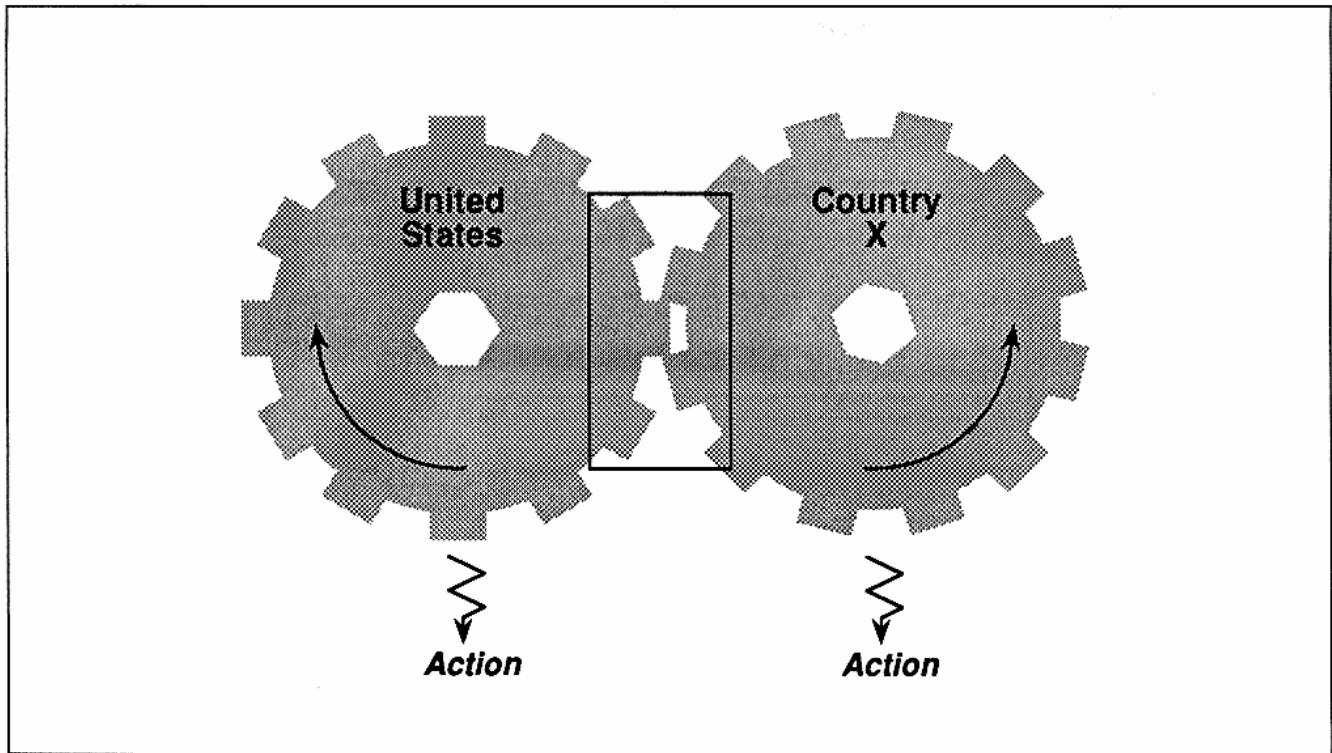


Figure 18

Joint Combined Staff C2 Direct Drive  
(Model #1 — Compatible Staff)

emotional arguments/disagreements. You're right, there was a sensitivity to this that something could go wrong because of 37 disparate nations. I think there were a lot of people who were curious and suspicious. Nobody quite knew the direction we were headed when we started. But it became very clear there wasn't going to be a U.S. command of Arab forces or an Arab command of western forces, and so then this C<sup>3</sup>I evolved with those parallel chains, with the bridge being the C<sup>3</sup>I organization. Clearly the higher technology countries set the pace, and drafted the plans, working with Saudi-U.S. J-5 planning staff. The lead was taken by nations that had the most experience in coalition matters. The draft plans came out of the CENTCOM staff and were coordinated and modified with Arabic input and influence.

**Student:** Did you ever feel any direction coming from the JCS that this is the way we want you to do it or that kind of thing?

**Schwartz:** No, I could not detect that. The JCS had a hand in C<sup>2</sup> in country between Gen. Schwarzkopf and other coalition forces. All of that was done in theater, in country, initially under the direction of General Yeosock. General Yeosock provided me all initial guidance and told me to go set up C<sup>3</sup>IC and make it a U.S.-Saudi integrated command, make it joint, and let's see where it goes from there.

**Oettinger:** I won't put words in your mouth, but I'm trying to integrate in my head some of the things you've said. Would this have worked as well if there hadn't been this long history of U.S. advisors attached to Saudi units, so that in the last analysis, no matter what happened at this joint center, you had a sense that what you were hearing came from reporting channels that you could trust from prior experience, because you knew where the hell they were, who the people were; you knew that they'd been there long enough so they knew what they were looking at? As distinct from having to set

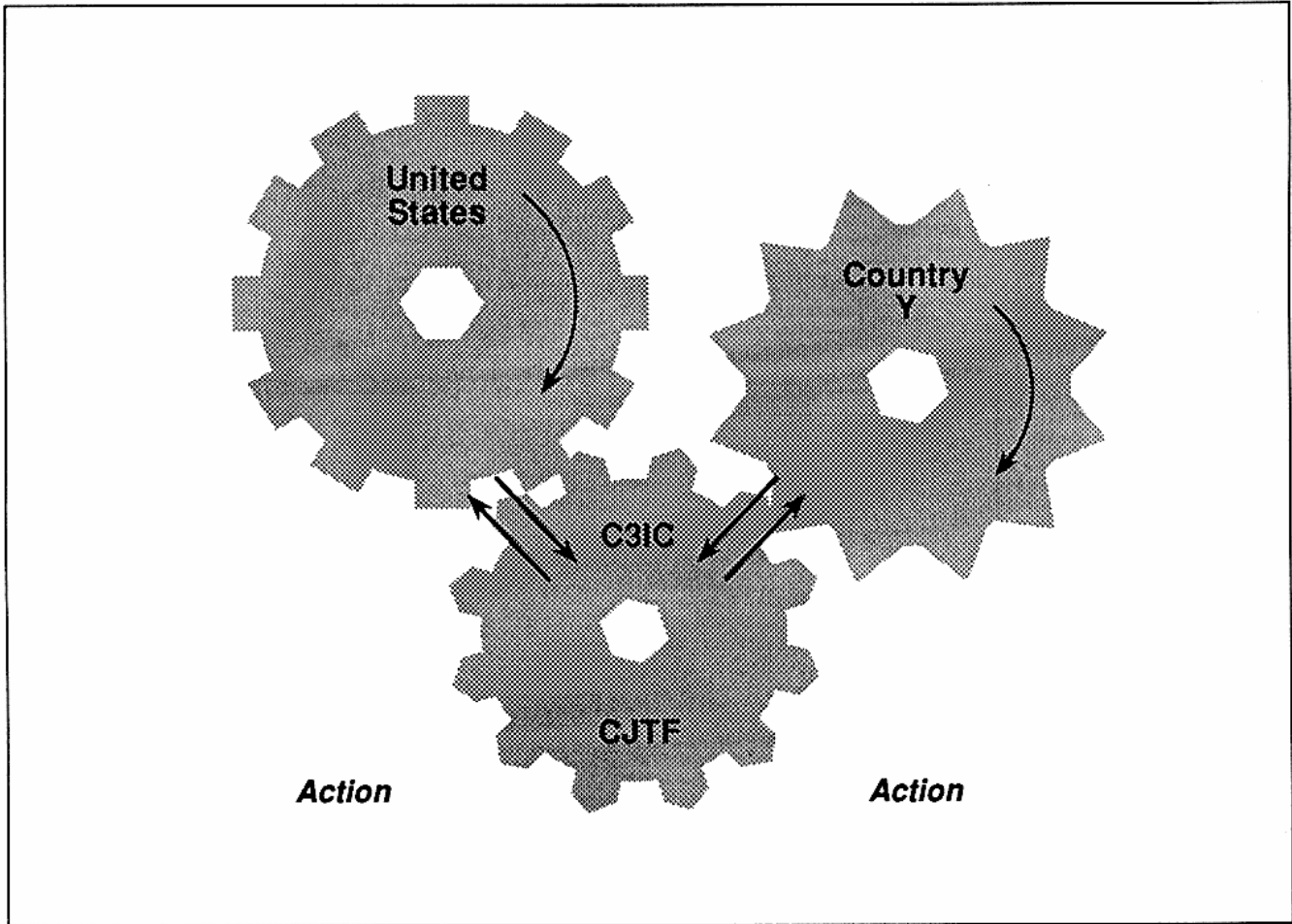


Figure 19

**Joint Combined Staff C2 Gear Reduction**

up something with a force, where there were no eyes and ears until you got to that thing with the arrows?

**Schwartz:** Without being self serving at all, somebody has to go into a theater of operations as soon as possible who has experience in the country because of what you said. That is particularly true for countries or coalitions with which we have limited experience and which have large technological and cultural differences.

**Oettinger:** You had some measure of independent prior ground truth.

**Schwartz:** Exactly right. And so, when you go to establish coalition control on an emergency basis, you have to get people who have in-country experience, regardless of where the country is — Central America, South America, Africa, Europe — because

you have to be able to interpret what you are hearing and what you're seeing, and that was unbelievably helpful. It was absolutely essential to making that thing work.

**Student:** Do we then draw a need from that, sir, to increase or accelerate our involvement with certain types of people in regions?

**Schwartz:** Sure, and the dilemma can be, as in Saudi Arabia, that there is such limited prior access when you're going in on an emergency. Had there not been an OPM/SANG program that had created some small amount of experience to draw on, it would have been much more difficult. There are no tourist visas into Saudi Arabia, there are no joint/combined exercises. Before the war there was no pre-positioned equipment. There may not be after

the war. There was very limited access. It will be interesting to see if pre-positioning or combined exercises become a reality in the future.

**Student:** Did the Saudis that were there know you from your prior tour?

**Schwartz:** They knew of my reputation. The ones that I worked with on this war I did not know at the outset, but they knew that I had been there before with the National Guard. That helped.

**Student:** So they had a reason to trust you.

**Schwartz:** They had a reason to trust me. They knew that I knew them and I was not timid of them and I would not just tell them what they wanted to hear. That's what happens too often. In our quest for cultural awareness we sometimes inadvertently come to a point where we tell them what they want to hear. Americans want to fit in, and establish "rapport." Remember that famous word from the Vietnam war, "rapport"? You've got to establish "rapport." Sometimes the worst thing you can do is establish such rapport that you're going to give in, and all of a sudden you become ineffective.

The important thing is having somebody at the interface point who is confident enough to be able to tell them what has to be done. They really appreciate that and they know that. Following up on your point, the problem is having limited access before the emergency. In several countries in the world, that still is the case.

**Student:** Certainly at your level. We've an awful lot of young captains and majors in places where you really needed colonels and brigadier generals to have been there recently, so you could go back in at that level a year or two later. So we were fortunate in being able to have you at that level.

**Schwartz:** Somehow our automated personnel management systems should remember who the officers were at the lieutenant colonel and major level who worked in key places and if there is another crisis five or ten years from now, the automated systems ought to spit the names of these colonels out because they will now come in and interface with the Saudi colonels whom they got to know so well, and some will be brigadier generals and some of our officers hopefully would be generals, and it might all happen a lot smoother next time.

To show you the low-tech way in which this war was run, it was run at the joint combined level the same way we ran it in World War I: grease pencil on acetate, charts and pointers. We had a war room

that you would find in a battalion, a brigade, a division. Up above the sliding maps behind the briefers, on the second level, was a huge screen, behind which was millions of dollars worth of projection equipment. Seven days before the air campaign started, our good Saudi friends wanted to go high tech and use an electronic display to plot all the ground forces, and they went so far as to start contracting for them. They were going to put in a completely new electronic system and workstations out on the floor. It was a terribly tough time convincing them not to do that on the eve of battle. It would have taken a year to two years to train people to run the inputs to the workstations, and a week before the campaign started is no time to put in that kind of a system. We went low tech, and it worked, because an Arab with limited English or an American with little Arabic (such as myself) could understand a briefing using the simple symbols we used. An electronic system loses that.

**Oettinger:** Let me ask a question about the maps. Where did they come from?

**Schwartz:** The maps themselves?

**Oettinger:** Yes.

**Schwartz:** They were a combination. Mostly from CENTCOM. Some from the Saudis.

**Oettinger:** But I'll bet you that those were high-tech DMA (Defense Mapping Agency) products.

**Schwartz:** Yes, they included extensive satellite imagery.

**Oettinger:** I don't want you to leave these colonels with the impression that this stuff is World War I vintage. My guess is that you are talking about overhead reconnaissance, photography, going through DMA high-tech mapping, the latest, et cetera.

**Schwartz:** You are right, Tony. We had a satellite aerial photograph of Kuwait on one of the boards which was great. It was a photograph, a beautiful piece of work. There was a difference in the maps. One type of map came from the Saudis; others were the product of what you are talking about.

**Student:** This is a good point to pursue from here on. General Sullivan was with us a few weeks ago. His answer to the question of what lessons were learned, if I paraphrase him properly, was — we really probably don't need many of the high-tech command and control capabilities we thought we did. I'm wondering if you would agree.

**Schwartz:** Yes, except for communications. We need what we have now, and we need position locators. Those requirements would be true in any theater. The position locating, GPS, and reliable, redundant communications are absolutely essential.

**Oettinger:** You guys are getting on very dangerous ground, because I think if you overdraw that lesson, you're going to be dead wrong. What happens is that high-tech stuff that works well gets put into a capsule like under the hood of a car, where it disappears. All you've got to do is turn on an ignition key and you forget what's behind the capsule. You are dealing with successful high tech and all I hear you saying is that what you're using are the things that've been so successful that they disappeared under the hood. You're quite rightly not using those things like an electronic war room installed a week before the fighting begins, because that damn thing isn't under the hood and nobody knows how it works and how it's put together. But the blanket statement that you don't need high tech strikes me as being sort of dangerous.

**Student:** You have to know where some of us are coming from. Recently we went through an iteration in the field where we were told that each of us in every tank would have to have a flat panel display that we would throw all our maps away and we would all begin now to work off a TV screen at all levels. We need to know that that's what we really want to do, and the direction we want to go, and why, before we buy into all the technology and I think that's the point we need to be careful about. You can't always throw a computer and a TV screen at every problem. Sometimes the map is better, and often manual and visual verification is the only reliable solution.

**Oettinger:** I wonder if you could corroborate the following anecdote, General, which I have no independent way of corroborating. It comes through second hand from some Brits who say they witnessed an engagement where an Iraqi tank force came up to them and they were about to engage and they got an order to hold fire. They were watching as, one by one, hundreds of those Iraqi tanks blew up. They didn't know what the hell was happening until afterwards, when it became clear to them that it was the American spotters with laser designators bringing in Copperhead artillery. The Brits reported afterward that they couldn't believe it was artillery because they didn't see any rounds falling into the desert and blowing anything up. They just saw tanks exploding. Now, if that is accurate, it says some-

thing about high technology that is radically different from maps and so on. Is that a legend or is it accurate?

**Schwartz:** Let's differentiate. First of all, that's accurate. I have a lot of high-tech TV footage of things that you talked about, but let's differentiate between high-tech fighting and high-tech command and control. There are differences. High-tech fighting absolutely paid dividends. I believe in it. I do not believe in flat panel displays in tanks replacing maps. That's one thing that I think has gone too far, but I really have come to endorse the investment that is put into weaponry because it worked under very adverse conditions. The thing that we do not know is the sustainability over the long haul. But, suffice it to say, at the end of the war the Abrams tanks were above 90 percent operational. The Bradley infantry vehicles were above 90 percent ready. All of the aircraft of all of the services exceeded operational readiness objectives. The munitions worked. The guidance systems worked. Everything was there. If it had gone on for a year, would it have worked? Nobody knows. If the support systems would have worked, perhaps, they would have, so the stuff probably works under adverse conditions.

To go back to command and control though, where you are interfacing with an unsophisticated, low-tech counterpart nation, you want to create the reality, not just the appearance, of some combined operations in a meaningful way. That's where I say you've got to be very careful of rushing into a high-tech command and control system. I don't know that this is the only way to do it. When you go visit the Royal Saudi Air Force, they are into high tech command and control displays, and they work because they've been using them for 10 or 15 years. My only point is that on the eve of battle you can't make the big switch and you can't leap two or three years in two or three weeks. It won't work, and in this particular case that's what we did. I endorse the high tech investment though, no question about that, and the vignette you painted about weapons is absolutely true. I would also remind you, however, that the U.S. Services themselves can still be better coordinated and I'm sure that should be chased with more money into more and more sophisticated C<sup>2</sup> systems.

**Oettinger:** I guess, if I may, at the command and control level again, the internal communications and so on, both within the U.S. and within the Saudi forces, were of the high-tech type that had disap-

peared under the hood. What you are saying is that at the ad hoc interface points there is no substitute for ground zero truth, trust, between a couple of guys who have gotten used to talking to each other.

**Schwartz:** Absolutely.

**Oettinger:** The last thing in the world you want to do is invent some high-tech solution that takes two years to check out. I couldn't agree more, but I think the inference that you could have run that war with runners and stuff is wrong. I mean, the Saudi side as well as the U.S. side, was using a great deal of embedded high tech.

**Schwartz:** There's another interesting thing. The Saudis do not need nearly as much information as the U.S. needs. We thrive on and demand information. We have come to demand so much information for our decision making process. The Saudis can make decisions on one-tenth of the information. They don't need to know everything. They're not used to getting it. They can't process it, and I'm not saying this just about the Saudis. I guess I'm just using this as an example because it's a very recent one, but in any particular coalition operation in the future, medium- to low-tech nations are confounded by too much information. High-tech flow of information will screw up their decision-making process. And if, all of a sudden, they come into a high-tech environment where information is flowing so unbelievably fast — our intelligence information is unbelievably awesome — (infinite data points) it'll overwhelm them. It'll stun them. They couldn't make decisions because of the flood of information that came in. I just think that is an operational reality to remember.

**Student:** I wonder how unique the decision making process was for the Saudis in an environment where they were literally blanketed by American strength, as opposed to a Saudi decision-making process when there was nobody else involved?

**Schwartz:** Being swept along by events is what you're saying. Yes, there is a great deal of that. The momentum of the operation swept things along with it. There's no question about that.

**Oettinger:** I'm looking at my watch, not because I'm bored but because I'm conscious that I made a commitment to release you at two o'clock and it's a bit by that. I'm having a wonderful time, if you don't mind, but I don't want to prevent you from reaching your next destination.

**Schwartz:** These are some lessons learned (figure 20). I think there's nothing essentially new, except I don't think enough has been said about host nation support and the role it played in the unprecedented victory. The port at Dhahran can take 36 ships simultaneously — 36 ships tied up loading and unloading at the same time. Not only that, there are the warehousing and the staging areas and the ground transportation, except for railroads — there are no railroads in Saudi Arabia — but there are the roads and the airfields within Saudi Arabia for distribution purposes, and of course, unlimited access to those facilities. They paid for all of the fuel, all of the food, for all of the nations that participated. There was total access to billeting, warehousing, hospitals, medical supplies, everything they had. All were opened up and made available. In many nations without that infrastructure, it would be a totally different ballgame. Where there is no infrastructure, you're going to have a terribly big problem, particularly in a prolonged war.

We talked about U.S. liaison teams as being so important, and obviously there's an example of low tech augmented by great communications systems. Nothing beats a liaison team that you can talk to.

Fratricide is a continuing problem, and our ability to cope with it is awful. We killed an awful lot of Arabs on the Eastern province by our own air. The media seized upon the American losses. There were also Arab losses to U.S. fratricide. This is a problem that has to be solved. I keep thinking every time I go through a checkout counter in the Safeway, and observe the simple scanning device on the magnetic bars, "Why can't we put a scanner in the aircraft and magnetic bars on the sides, tops, and fronts of vehicles? Scan it, either get a go or a no go." I mean, there has got to be a technological answer that is not too difficult.

**Oettinger:** Counter-countermeasures, unfortunately.

**Schwartz:** Yes.

**Student:** We also had that problem significantly, did we not, within the U.S. forces?

**Schwartz:** We did.

**Student:** Did you have anything to do with the Arab liaison teams that went to U.S. forces?

**Schwartz:** No.

**Student:** I know all of them had translators and teams.

**Substantial host nation support from Saudi Arabia was essential for success.**

**MODA quickly formed joint forces command to provide theater, corps division command and support structure for 18-nation ground operations.**

**U.S. liaison and assistance teams at key command levels were essential.**

**Anti-fratricide measures must be established and stressed early.**

**Technically competent/qualified leadership.**

**Volunteer top quality force.**

**High tech weapons.**

**Air/land battle doctrine.**

**Clearly bad enemy — unambiguous goals.**

**Unified coalition.**

**Figure 20**  
**Lessons Learned**

**Schwartz:** They did, and they reported up through corps level. They operated on that basis and we didn't have a piece of that.

**Student:** Did they send any U.S. liaison teams to the Marines?

**Schwartz:** The Marines were a different story.

**Oettinger:** I note for the record that we've got five Army people here. This is preponderantly Army; we have one Air Force guy, and a bunch of civilians.

**Student:** I asked that question because I'm wondering how you found interoperability between Army and Marine forces.

**Schwartz:** I would tell you that service parochialism is alive and well. The Goldwater-Nichols Act did an awful lot to strengthen the jointness of the

CINCs, but it is not yet where it should be. The reason you didn't see or hear much about it during this war is the strength and competence of General Schwarzkopf and his style of operating. With a different style of command, you would have seen a lot more bickering, but nobody would dare step out of line and create that with General Schwarzkopf in command. But it's still there. I think it's been vastly improved because of Goldwater-Nichols, but it's got a way to go. It has to do with roles, and missions and future force structure. That's what's still driving it.

Enough cannot be said about the coalition. Everybody, all of those 37 nations, might debate and argue about things, but they never argued about the clearly bad guy they were fighting. Then the unified coalition was essential.

There is a place at Safwan where the original cease-fire talks were held. The meetings were in a white tent, surrounded by combat vehicles, tanks and Bradleys, all with their gun tubes oriented inward. Also, along that airfield and on the approaches which flanked the arriving Iraqi general, there were two Apache helicopters, fully loaded, hovering alongside his approach. They drove him right up the airfield with two Apache helicopters hovering alongside them through this phalanx of combat vehicles. Then they got up there and they went in and everybody was body-searched for weapons. After running through that gauntlet of

combat vehicles the talks went very smooth. That was a pure Schwarzkopf stage setting and convincing conclusion to a unique war.

**Student:** You didn't have any railroad cars you could bring out just for this?

**Oettinger:** Paul, I guess we have exhausted our time. I am sure that the entire group joins me in expressing our appreciation for your willingness to meet with us today. It was a pleasure and a truly educational experience.





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