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**Formal and Informal C³I Structures
in the Desert Storm Air Campaign
Richard T. Reynolds**

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Formal and Informal C³I Structures in the Desert Storm Air Campaign

Richard T. Reynolds

At the time of this presentation, Colonel Richard T. Reynolds, USAF, was a military doctrine analyst at the Airpower Research Institute, College for Aerospace Doctrine, Research, and Education, Air University, Maxwell Air Force Base, Alabama. Col. Reynolds joined the Air Force in 1972, and has spent most of his career in fighter operations, serving in both the United States and Europe. In 1989, after a tour of duty at the Pentagon as AWACS Staff Officer, he was selected to attend Harvard University as an Air Force National Defense Fellow. His new book, Heart of the Storm—The Genesis of the Air Campaign against Iraq, is scheduled to be published in August 1994 by Air University Press. Col. Reynolds is currently assigned to Headquarters, United States European Command, in Stuttgart, Germany, as chief of theater plans.

Oettinger: Colonel Rich Reynolds is one of Will Jenkins' predecessors, four elapsed years. It's been that long! What he did when he was here was a marvelous piece called *What Fighter Pilots' Mothers Never Told Them About Tactical Command and Control—and Certainly Should Have*.^{*} If you haven't seen that, you should. I've also circulated to you the cover and title page and his summary of *Heart of the Storm—The Genesis of the Air Campaign Against Iraq*, and so in the remaining time, Rich, do you want to move up to the mikes?

Reynolds: Not unless you want me to.

Oettinger: Oh, we want you to, yes.

Reynolds: I'd rather stay away from the mikes. I know those mikes. I've been there and done that.

I'm just a slug working down at the Airpower Research Institute at Maxwell Air Force Base. I want to start with what Ken Allard always begins with, which is that my views don't represent those of the United States government. They're just my views.

^{*} Richard T. Reynolds, *What Fighter Pilots' Mothers Never Told Them About Tactical Command and Control—and Certainly Should Have*. Publication P-91-7, Program on Information Resources Policy, Harvard University, Cambridge, MA, 1991.

Oettinger: Has anybody ever really confused you with the U.S. government?

Reynolds: God, I hope not!

Tony invited me up here just as kind of a last-minute deal that you might be interested in, or perhaps not. But he's really in large measure responsible for my doing this recent project, which is this book he mentioned. I apologize for the synopsis, which was done as a marketing ploy. They're marketing this book for publication and it should be out this August. The publisher wanted something that could go on the cover, and we were in a hurry, so we just did it. But Tony is in large measure responsible, because I remember that in this very class we talked about the idea of formal versus informal, and how often informal triumphs over formal in command and control structures. I was intrigued by that idea because I'd seen some of that myself in my own experience. You always care more about the people you know. You have the sense of trust, how all of that works. How does it work at large, political levels?

As the war loomed larger and larger, it appeared to me it was a wonderful opportunity to try to get over there. If you could not fly in the war, at least you could record those who did and what events transpired to make the plan come to fruition. I worked hard at trying to make that happen, but I didn't succeed until after the war was over. I received an invitation from Colonel Bob Coffman of Headquarters Air Force

Warfighting Division (HQA/XOXWD), who said, "You've got to come up to the Pentagon and see what happened." I said, "What do you mean, 'See what happened?'" He said, "Well, some of the things that you're always arguing about appear to have come true, so you ought to see it for yourself before they tear it down."

So I made a trip up with one other guy and we took a look at a place that came to be known as Checkmate. It's in the basement of the Pentagon. In that arena was where much of at least the planning support for the Gulf War occurred.

Oettinger: Was that the old bus tunnel that was the SDI headquarters?

Reynolds: Yes, it's awful.

Oettinger: I can't resist this, but what he's describing as a location was, in the good old days, the tunnel through which buses came into the underground of the Pentagon. It was shut off during the protests because they couldn't possibly have had lowlife coming into the Pentagon with explosives and so on. So then there was that shut-off tunnel and when they needed space for the Strategic Defense Initiative, Star Wars and so on, General Abramson had his headquarters down there. I guess those folks inherited it.

Reynolds: Yes, it's all still there. It's next to the purple water fountain, for those of you who have been down in the Pentagon basement. Anybody know where the purple water fountain is? God, no Pentagon pukers here! That's good.

In any event, it intrigued me that there might be a chance to record right away, first-hand, the major players. So I enlisted the support of two other researchers—Colonels Ed Mann and Suzanne Gehri—we set about interviewing the major participants in the war directly after the war. We took them at all levels from people like General Loh and General Dugan, principally looking at the air side, all the way to some of the air crews who flew. Our intent was to try to figure out how it all went down, how the plan came into being, and who were the players that made it happen.

Interestingly enough, we started out with tracing this long string. If you can imagine that there is a big ball of yarn, and as we kept on pulling at this, I believe that my book shows fairly conclusively that that ball of yarn leads back to one single string, and that's the mind of a maverick colonel named John Warden. John Warden today is the Air Command and Staff College Commandant at Maxwell, but at the time he was slightly out of favor, relegated to the basement initially, and then moved up into the war plans section of the Pentagon.

Oettinger: He was running the Air Force Research Fellows Program.

Reynolds: Yes, he was. John Warden is a strange duck, not unlike Dr. Oettinger, actually. What you saw in him was someone who could be best characterized as a man who's faithful to ideas. He ran counter to most of the senior officer behavior that we, or I, had seen in the past, especially among the general officer corps. We call them "the Brotherhood" in this research attempt. The Brotherhood, it's argued, are faithful to each other. By that I mean, and I think most of you who are military in this audience (and almost all of us are) would understand, that if you go to your boss with a good idea and you tell him, "This is what I want to do," and he says, "Look, don't do it," it's done for, especially your going to the White House. Normally, at that point, most of us would say, "Okay, it was a good idea. I did my best; we'll turn it off."

John Warden was the kind of guy for whom it didn't matter. He wasn't in it for self-gratification, but he very simply (and there's case after case of this) would go around his boss to the next level, and make very clear the story that his boss told; he wouldn't try to change it. But he would say, "I went to my boss. This is what he said. This is his argument; this is mine," and oftentimes the boss would find himself countermanded and things would go on as Warden wanted them to. But of course, this did not make him popular with the Brotherhood. So he was a fairly senior colonel, certainly it looked like he was well beyond the point of being considered for general

officer, and he was headed for retirement when the war broke out.

I don't want to tell you a long story because we're under time constraint, and I don't want you to fall asleep. But I'd like, if you can stay with me, just to kind of thumbnail sketch for you, especially in terms of this formal versus informal, some of the events that led to the adopting of his plan, which was called "Instant Thunder," as the start of the plan—the basis, the framework—that was used by General Horner and his staff to put together the very large strategic campaign that certainly contributed heavily to the defeat of Iraq. I say this with all due respect to our Navy brothers, who also helped fly that same campaign, by the way.

We start with the Iraqi attack on Kuwait. During that period, John Warden was out in the Caribbean on a cruise ship. He decided that he had to come back immediately. He had to wait some 36 hours, made it back to the Pentagon, and started a plan. Why I even bother telling you that is that no one ordered him to make this plan. In fact, he went to his two-star boss and said, "I'm putting this together because I think it's important. I think most military organizations (at least from the U.S. perspective, and I believe the British as well), when they talk of plans, or when they talk of options or operational plans, what they're really referring to, by and large, is deployment plans. They don't talk about taking down a country or an army, or attacking something to achieve national objectives. They're much more along the lines of, 'This is what we would do in the event of...'. " Warden was convinced that's all we would do: we would produce a deployment plan and that plan would not defeat Iraq.

He came up with something that he considered somewhat revolutionary. I don't know; I think you can see bits of it throughout Douhet and other great thinkers. But it was an idea that all modern nation states consist essentially of five rings. The innermost ring is leadership. You work your way out through other rings, which include key production, infrastructure, and preparation, until you get to the outermost ring, which is fielded forces. He argued

that everything should go against the leadership, because after all you're trying to bend the will of the leaders, not the people. If you can make the leadership submit to your will, you will have won the war.

Student: Is this "center of gravity" Clausewitzian stuff?

Reynolds: No, he borrows the center of gravity from him, but he takes it a step further and argues that, first of all, you must find the centers of gravity—there are more than one—and that in a modern state these really can be broken down into five rings. Any of them can be attacked at will, or all together. His argument, as an air power zealot, is that what gives air power more flexibility than ground or sea power is the fact that air power can choose when and where to attack which, or any, or all, of those rings and the centers of gravity within them.

This is the informal thing. He went ahead and assembled a group of people he had been working with over the past ten years, all young officers for the most part—captains, majors, lieutenant colonels—some, but very few, people of his own rank. He felt comfortable with them because he had shared his concept of air power with them in the past. They knew how he worked. He's a real chaos theory kind of guy. He's not directive, but he loves ideas, and everybody, in his mind, is equal. I say this having worked with him myself in the past. Warden is the kind of guy who sees no rank, especially in terms of ideas. You always come to the table as an equal. He sees it both ways, not just down his chain, but up his chain. That's also gotten him in trouble. He has no qualms (nor did he ever) speaking out in front of four-stars, arguing with them. This did get him in trouble throughout the period, but he is not a flamboyant character like a Billy Mitchell or anything like that. He is much more academic, much more reserved, and he's not very adept at public relations.

In any event, Warden assembled a group of about 30 people. They started working on this concept of how we take down Iraq. "What could we do to achieve

the national objectives? What are the national objectives?" This is part of the informal organizational approach again. The formal machinery would say, "Okay, as a military group, I can't act until my national leaders tell me what their objectives are. How do we get those objectives? We wait until the State Department issues them, or the Executive Branch issues them." Instead, Warden's group gleaned all the information they could from newspaper releases, from conversations with White House people, and they put down what they thought were the President's objectives, modifying them as additional information came out. They then put these together with the military objectives to see how they could marry the two, and what kind of forces were available, and how you could change those forces. All this was occurring in a period of 24 hours.

Interestingly enough (and I'm going to skip a little quickly through all of this), there came a very important phone call on 8 August 1990. It was General Schwarzkopf, who was still at MacDill after having gone, at the President's behest, over to Saudi Arabia. He came back and left in charge General Chuck Horner, who was the three-star CENTAF commander, and 9th Air Force Commander as well. General Schwarzkopf called the Air Staff and said, "Look, I'm not happy with what I have. They're doing a great job, but General Horner's up to his eyeballs trying to get everything deployed." (By the way, this deployment process is the formal structure at work. Once started in motion, nobody could turn it off. We had airplanes arriving at fields to pick up divisions that had been deactivated five years ago. We had them landing for other things in different areas.) So all of this machinery was cranking up and General Schwarzkopf said, "Look, I need someone to provide me with a strategic campaign, something different than air/land battle," because he had no ground forces to fight with and he was facing a huge ground army, on-land army.

The Vice Chief of Staff of the Air Force, General Loh, took the call, remembered hearing something about Warden's plan from one of his staffers, and said, "I'll get it to you in two days." This gave

Warden his great opportunity. It was kind of a stroke of fate—call it whatever you will. He then was able to work with his people, and Warden went down to MacDill and briefed General Schwarzkopf. He argued with him a little bit, but Schwarzkopf clearly embraced his plan, and that's what gave it its legitimacy. Warden brought it back the very next morning. This is how fast this train was moving. We're talking about an obscure, small office in the Pentagon in an Air Force directorate that suddenly has been given the blessings of the commander in chief of the units that were supposed to fight over there. Warden gave the briefing to General Powell. Powell embraced it as well, and suddenly we had a plan that was moving quite quickly.

This Air Staff effort was, in my view, a good example of formal versus informal structures. These people have no legitimacy. This Checkmate group with 30 folks now immediately, overnight, expanded to 108 because the Navy was cut in on it, as was the Army. They were asked to help, and they sent their people, but there was no formal tasking for these people. They had only the good graces and the blessing of the CINC. But when you tried to use that in talking to formal organizations, it brought very few results, because they didn't know who those people were. So instead, they started co-opting people one at a time. The intelligence agencies—Central Intelligence Agency, National Security Agency, and others—were co-opted, one person at a time, to help bring information, help put target files together, to get things rolling.

These people were all read in, but—and here's another part of Dr. Oettinger's famous theory—there was no division. It was not, "Intelligence people sit here; operations people sit here; pilots sit here; planners sit here." Everybody was kind of together in this chaotic organization. There were no secrets. All the compartmented things that one normally associates with heavy military planning, because of Warden's mindset, were swept away. He took enormous chances, but he included everybody as kind of an equal partner in the process. They broke into small groups, all trying to figure out what could be done

best, filtering ideas back and forth, sending things back and forth.

Now, this is where I think we're going to see the formal coming in. This plan is on a fast train out of town. As all this occurred, Warden's boss insisted that the plan, as they had developed it thus far, be sent back to the formal commands—the Tactical Air Command, the Strategic Air Command, and in my case, Air University—for comments and critiques and possible help. Tactical Air Command (TAC), which had much at stake, were very unhappy with what they saw. They felt threatened by this plan, and immediately began a kind of counterattack with a different kind of plan that was more in line with Army, air/land battle doctrine. Of course TAC started back-channeling information to General Horner's staff that had deployed in Riyadh, saying, "There are some bad things going on. There are planners from Washington, and there are these great overtones of Vietnam washing through the corridors. Planners from Washington are determining how you're going to fight your war, so look out."

All of these things occurred at once. It appeared for a while that it would come to a head very quickly, but it didn't. It didn't because General Schwarzkopf had demanded that Warden and his small group continue working and bring him a revised version of the plan by the 17th of August, before Schwarzkopf was going to leave MacDill. That gave Warden essentially ten days to put together what would appear to be a final plan that could at least be blessed or endorsed by Schwarzkopf, and then go on his way over.

The folks at TAC and other places were adamantly opposed to this. Do you want me to read you just a small section to get a flavor of what happened then, or will I put you to sleep? What do you think?

Oettinger: Go ahead.

Reynolds: All right, let me try a little bit. What I'd like to read you is the briefing as we recorded it and as I understood it. This passage covers the big meeting between Schwarzkopf and Warden on the 17th of August. This was the second time Warden

saw General Schwarzkopf. For any of you who have read Schwarzkopf's book, *It Doesn't Take a Hero*,* he talks about one meeting with John Warden. The truth is there were two, and this was the big one. This is the one where the plan was blessed.

There's one other part I should mention before I really get into this. As I looked at all of this, and was trying to put the research together, I was saying, "Okay, this is great. Explain to me again how I'm going to talk to people like you and others about what really happened. How do I explain to you that a maverick colonel, who was discredited in many ways in his own community, was able to become the CINC's spokesman, not for the CINC's plan initially, but for his own plan, and then go on and make it the CINC's plan? What happened to the Joint Chiefs of Staff? Where are they in this enterprise?"

If you look at formal structures, the Joint Chiefs should have been taking over this whole thing. They should have been working it through. The J-5 guy should have been working all the rest. The truth of it is that in formal organizations there's what I call kind of "posturing." Put simply, it's easy to say that you're in charge when there are no serious life-death consequences of being in charge. Warden and his people attempted to get the whole plan turned over to the Joint Chiefs very early. They looked for sponsorship. "Here, take this. Help this go." Nobody in the Joint Chiefs really wanted to take it. Nobody wanted to be the sponsor for the plan, because to be the sponsor for a plan that was not successful, or that aggravated other formal entities, is a very dangerous thing. So a lot of these guys, who were very smooth and who wore lots of stars in some cases (in some cases not), showed great skill at sidestepping responsibility for this issue.

Several of the JCS folks and Air Staff senior officers got together, including General Butler, who has since retired, and General Loh, who was the Air Force Vice Chief of Staff at the time, and said, "We

* H. Norman Schwarzkopf, with Peter Petre, *It Doesn't Take a Hero: General H. Norman Schwarzkopf, the Autobiography*. New York: Bantam Books, 1992.

have a serious problem. This whole plan needs to belong to the Joint Chiefs. Yet nobody at the Joint Chiefs really wants to step up, and if they do, we're afraid that maybe it will turn into a ground campaign with huge casualty figures."

This dilemma was solved over a breakfast meeting at Fort Myer on Sunday morning. What Generals Loh, Butler, and Carnes, who was the head of the J-5, decided to do is that they would deputize Warden's boss, a three-star lieutenant general, named Jimmie Adams, as the J-3 for Air. Nobody knew what this made-up title

meant, but it gave a sense of legitimacy to Air Staff involvement in the planning process because now, you see, the Joint Chiefs of Staff and their staffs were involved, and this program was under joint control.

I give you all of that to introduce Major General Jim Meier, a JCS guy who was sent down to work with General Adams for a very short period of time. His tenure lasted less than 72 hours basically, and then he was out of the picture and the plan eclipsed him as well. So here we go.

General Meier made a few opening remarks and turned the briefing over to Colonel Warden who, despite the dark circles under his eyes, seemed energized and full of enthusiasm. The first portion of the briefing was conceptual in nature and similar to what Warden had briefed the CINC the week before. When the colonel mentioned keeping casualties to a minimum as one of the campaign's primary objectives, Schwarzkopf interrupted him, a frown beginning to form on his face. "You must make folks understand that there will be civilian casualties." [By the way, all the dialogue is real dialogue. I didn't make it up. This is what we had from the interviews.]

"Yes," said Warden. Nodding confidently, he explained that a portion of the plan included intensive efforts to show the Iraqis and the world that the responsibility for civilian casualties rested squarely on Saddam Hussein's shoulders, and that the coalition would have no choice in the matter.

Mollified, Schwarzkopf let the briefing continue. Warden showed the CINC the essential target sets, and explained in general terms Instant Thunder's emphasis on national paralysis and shock. [This is the five rings we're talking about.]

Warden turned the vugraph machine off, paused for a moment, and then introduced Jim Blackburn as the intelligence officer charged with giving the CINC a detailed look at target analysis for Instant Thunder. Blackburn brought out a large map of Iraq that showed target distribution for the air campaign. In quick succession, he highlighted the targeted complexes around Baghdad and the kinds of weapons they intended to put against them. Included in the target grouping were Baghdad air defenses, command centers, and the presidential palace. Schwarzkopf wanted to know the location of the palace relative to Baghdad.

"Fifteen miles west of Baghdad," said Blackburn, his hand shaking nervously as he pointed to the spot on the large gray map. Questions from Schwarzkopf weren't making his time in the spotlight any easier. He glanced up at the CINC and pressed on.

Blackburn showed a photo of the Ajaji thermal power plant and explained how strikes from B-52s and TLAMs [that's tactical land-attack missiles] would take out the switching grid, eliminating 13 percent of Iraq's entire electrical power production and a whopping 60 percent of Baghdad's electrical generation capability. Schwarzkopf seemed pleased with that. Next, Blackburn talked about shutting down the cracking towers at the Al Basrah and the Az Yubayr petroleum refineries. By doing so, the intelligence colonel reminded Schwarzkopf, the air campaign would reduce or

stop the flow of oil internally in Iraq, yet allow quick recovery of the industry at the war's end, thereby causing little or no harm to Iraq's export capability. Blackburn covered the remainder of the 84 targets in quick succession with few interruptions from the CINC. Schwarzkopf did express concern with imagery support, but the colonel told him that the Navy and other folks were working the issue. Relieved to have gotten through his portion of the briefing unscathed, Blackburn turned it over to John Warden and sat down.

Warden, still upbeat and confident, began talking about the execution plan and the weapons systems that would make it happen. When the slide popped up showing the 32 fighter and attack squadrons needed for Instant Thunder execution, the CINC got excited. He pressed Warden about when he thought these forces could be in place and usable. People shifted in their seats, leaned forward, and watched for any sign that the CINC was about to lose his temper. This could get ugly, just as it had on other occasions with different briefers. Most of the staffers in the room were glad that they weren't in Warden's shoes—at least not now.

"We show this by the end of September," said Warden, pointing to the 32 fighter and attack squadrons on the chart. Before anyone could object, he added, "with no prioritization." The CINC nodded and looked at his logistics and operations generals, neither of whom protested. The tension in the room visibly lessened.

When Warden got to the part of the briefing on air superiority, he said apologetically, "Maybe this is more detailed than you want," but Schwarzkopf shook his head. He wanted to hear all about it.

Warden explained that he really had two concepts of operation in mind here. The first option was to maintain combat air patrols with F-15 air superiority fighters south of Baghdad, moving north only if the Iraqis took to the air. The second was to go on a pre-strike offensive fighter sweep, destroying Iraqi aircraft on the ground and in the air. In Warden's opinion, this approach would drive Saddam's air forces to autonomous operations by the first morning of the war.

By now it was obvious to almost everybody in the room that the CINC was beginning to like what he was hearing. Warden continued, covering suppression of enemy air defenses and psychological operations. Gathering momentum, he then talked about exactly what the Instant Thunder plan would produce. In Warden's view, the executed plan would destroy Saddam's power base and leave his offensive military capability degraded and difficult to rebuild. It would also severely disrupt Iraq's economy. Unlike the post-war military, however, Iraq's economy could be quickly restored. Warden referred to his entire effort as a kind of modern-day Schlieffen Plan.

"Don't call it the Schlieffen Plan," said Schwarzkopf, gesturing toward the Instant Thunder slides.

"But it *is* the Schlieffen Plan," countered Warden.

Reynolds: You know the Schlieffen Plan? Tell them about the Schlieffen Plan.

Student: I think it was planned in 19-something. It was an essential plan of the Germans against the French ...

Reynolds: 1906 is when it was planned. The idea was to make a sweeping movement around the French line, but Von Moltke unfortunately lived and when he executed the plan, he didn't do enough of it. He backed out and supported the right flank, and it all went downhill from there.

Student: The plan went wrong.

Reynolds:

"But it *is* the Schlieffen Plan," countered Warden, "rotated into the third dimension." [Warden is this kind of military thinker.]

Since Schwarzkopf did not pursue the argument, the discussion returned to the question of exactly when the forces could be in theater and available for tasking.

"If we're talking about the end of September, I'm not worried," said Schwarzkopf.

General Meier, who said nothing since introducing the briefing, piped in, "[Air Force Chief of Staff] Dugan thinks it's executable mid-September and risk-acceptable to do it even earlier."

Schwarzkopf nodded. "We can't flow air and land simultaneously."

"We're not recommending how you make your [flow] choices," said Meier, casting a knowing glance at Warden. The two men had been at odds over making flow recommendations to the CINC ever since Meier got involved in the planning process. Warden wanted to change the flow to get more of the right kinds of aircraft needed to execute Instant Thunder as soon as possible, but Meier was dead set against even trying to deal with the issue. [Meier didn't want to mess with the formal. The formal was there. Warden was always wanting to tinker at the edges. He wanted to push the edge of that envelope if he could.]

Burt Moore, Schwarzkopf's operations general, gestured toward the slides. "These are only forces *assigned* to you. Turkey forces [sic] are not considered, and a fourth carrier is not included."

Not wanting to be left out, Warden interjected that during the meeting of 11 August, General Powell indicated that getting permission to use Turkey as a base of operations would be politically difficult. Schwarzkopf cut him off with a wave of his hand, pointing his meaty index finger at him, and said, "I told you to look at a plan not able to launch from Saudi Arabia."

The room suddenly went quiet. Now it was Warden's turn to sweat. During the first briefing, the CINC had told him to consider an option that didn't include basing in Saudi Arabia. But with only seven days to prepare a comprehensive executable plan, he simply hadn't had time to think about it, let alone produce something. Besides, in Warden's view, it didn't make any sense. Why plan to commit forces to restore order and economic stability to a region if the major friendly force in that region was unwilling to let you in?

As all of these thoughts converged in Warden's mind, a cold and sickly sensation worked its way from his stomach to his spine. He started to speak, but realized the general was still talking. "But the attitude of Arabs today," said Schwarzkopf, "is, Hussein must be rolled back to destroy Iraq as a military power. If we came in and said we could do it in six days, they probably would wail but would say, 'Don't tell us anything else.'"

The CINC stood up, tugged at his pants, and broke into a wide smile. "Two-minute break!" he barked, heading for the door and the nearby restroom. "You've got me so excited with this!"

Warden could hardly believe his ears. A second ago he thought Schwarzkopf was going to berate him for failing to address the no-Saudi option. Like Warden, the CINC had evidently concluded the option was unnecessary. The queasy feeling left Warden's stomach as quickly as it appeared.

Oettinger: Did you get this "queasy feeling" from interviews with Warden?

Reynolds: Yes.

When Schwarzkopf returned, the large crowd of people who had been milling around excitedly, discussing what they'd just seen and heard, fell silent and quickly returned to their seats. Projecting a slide that showed areas of concern, Warden talked about munitions distribution, tanker availability, and the need for a very simple, straightforward airspace control plan. He also pointed out that long-range, surface-to-surface missiles such as Scuds were going to be an extremely difficult targeting problem. "I won't go into detail," said Warden, almost apologetically, as he reached for the pointer and walked up to the map, "but you don't want them to hit Tel Aviv and, to a lesser extent, Riyadh."

Schwarzkopf, feigning surprise, retorted, "I'll be in Riyadh. Change the priorities!"

The entire room broke into uproarious laughter except for Warden, who, after a bewildered smile flitted across his lips, continued speaking. "Extraordinarily difficult problem," he muttered. "AC-130 is a possibility." Because the laughter prompted by the CINC's remark had not yet faded away, most of the people in the room did not hear Warden's ruminations about using AC-130 gunships as Scud killers.

Before long, the subject turned to doctrine. Warden told the CINC that the Instant Thunder planning had engendered extraordinary joint integration and cooperation. As far as he could see, there'd been no doctrinal disconnects between any of the services in making the plan. That said, Warden reached into a plain cardboard box and began handing out copies of *The Air Campaign—Planning for Combat*, the book he had written as a student at National Defense University in 1988. He handed one to Schwarzkopf, commenting that he could use the book or simply throw it away.

The CINC opened it, looked at a few pages and then quietly set it aside. "What's the cost in human life to us?" asked Schwarzkopf.

Warden hesitated a moment. "In my professional judgment," he answered, looking directly at the CINC, "we'll lose 10 to 20 aircraft in the first night. After that, less—three to five percent total."

General Rogers, USCENTCOM Vice Commander, emphatically shook his head and frowned. "I disagree. I think it will be higher—10 to 15 percent, but we can live with it for a short period."

A murmur washed through the crowd as the significance of what both men were saying sunk in. Most of the audience tended to favor General Rogers' estimate over Warden's. From the look of things, Iraqi air defenses were going to be tough—real tough. In fact, some of the aviators in the room were convinced that the loss rates would be much higher than either man predicted.

Warden waited until the noise abated and then calmly walked over to General Rogers. "I'll tell you why I think the losses will be lower," said Warden in a kindly, professorial tone. He carefully explained how Instant Thunder's massive attacks on the Iraqi air defense system within the first 15 minutes of the war would simply overwhelm it, causing confusion and paralysis. According to Warden, the Iraqi air defenses were actually not all that good, and certainly could be suppressed. After the first day or two of

the war, Warden argued, coalition forces would have almost complete air superiority throughout the operating area. "I'm a volunteer to fly," said Warden, smiling broadly.

Rogers, his arms folded in front of him, was still unimpressed. "You've answered most of my questions," he said glumly, "but you've ignored Kuwait. I don't think we can flank Kuwait."

"I'm not worried about ground forces in Kuwait," said Schwarzkopf impatiently, as he massaged his jaw with his left hand. "Can you fly around ground air defenses building up in Kuwait?"

Warden started to reply, but General Moore beat him to it. "We can do lethal or nonlethal suppression."

"We can even do *deception* to induce them to put SAMs into Kuwait," said Warden, a glint in his eye. "It's a good place for them." He wanted all the forces there. Schwarzkopf smiled at the comment and nodded his head in approval.

The briefing turned back to logistics and basing, with the principals voicing concern over the possibility of quickly saturating the operating bases in Saudi Arabia and elsewhere. "How long to build up an infrastructure to handle the flow of forces and materiel?" asked Schwarzkopf.

"We're not sure that in a week and a half we've answered all the questions," replied General Meier cautiously. The JCS two-star did not want the CINC to believe that this little group with John Warden, that they had brought down from Washington, knew everything. A lot more work needed to be done.

Bob Johnston, Schwarzkopf's chief of staff, a ramrod-straight, perfectly chiseled Marine two-star, volunteered his thoughts on the subject. "We might want to protract to build SEAD [suppression of enemy air defenses] capability. Do we have a plan to stretch this out logistically?"

The CINC shot Johnston a disgusted look, growling, "By the end of the first week, we'll have all kinds of pressure to get out. The United Nations Security Council will scream. If it can be done in six days, we can say we're sorry and get out. It may not be pretty, but we're going to get this."

General Meier, realizing that Schwarzkopf was leaning heavily in favor of Instant Thunder, jumped in and summarized the plan's advantages one more time. His words whipped Schwarzkopf into a frenzy.

"This is what makes the U.S. a superpower," shouted the CINC, as he pointed to the Instant Thunder slides. "This uses our strengths against their weaknesses, not our small army against their large army." He half stood and slammed his open palm down hard on the table top, his eyes glistening and his jaw jutting forward. "Our air power against theirs is the way to go. That's why I called you guys in the first place."

"What can we do for you?" asked Meier, his eyes moving from Schwarzkopf to Warden and the assembled Washington team, and then back again to Schwarzkopf.

"The first assistance is him," said Schwarzkopf, pointing a finger at Warden. The CINC turned, faced the colonel, and stared. It was curious to watch Schwarzkopf, a burly hulk of a man, his face huge and fleshy, peering down at the smaller, angular John Warden, rather like a bear taking the measure of a wolf.

"Go to Riyadh with at least one other," ordered Schwarzkopf. "I'm sending you to Riyadh to Horner to brief him," he said again, still staring, "to hand the plan off. My intention is to continue the plan, to refine it to the point of execution." Schwarzkopf relaxed a little and walked over to

Warden. "Don't leave the package," he cautioned. "Carry and deliver it to Chuck Horner." The CINC looked at General Meier. "Any problem?"

"No problem, sir," Meier replied. "How soon?"

"We're at war," snorted the CINC. "The sooner the better."

Reynolds: That gives you a feel, I think, for the way this guy operated. I hope I didn't bore you with the whole thing, but I think I needed to give you a taste of him, so you could at least be introduced to a maverick who was able to push his ideas and work the informal system to an extent that I've never seen before.

The more we delved into this, the more I became convinced that the informal subverted the formal structure to a much larger degree than a lot of people had believed possible. Before the war was over and all the fighting done, there was an informal structure that stretched to thousands of people, all of them linked to John Warden, pumping intelligence information, pumping agricultural information, pumping all sorts of information over on an informal basis to the planners in Riyadh who were linked back to Warden and linked back to the Checkmate people.

Oettinger: It's true, but I want to go back. You know my penchant for arguing about tensions and balances and so on, but without the formal—and your comment about Warden being interested in nibbling around the edges of some of the existing organizations and so on gets to that—my guess is that they couldn't have done too much of that because otherwise at some point, nothing operates. The informal would have used existing pieces of the formal resources and moved them around, but they didn't muck around with internal structures, because otherwise ...

Reynolds: They did, though.

Oettinger: But to what extent, can you say?

Reynolds: I think basically I can address it in a general sense. Before the outbreak of the war, in the fall of 1990, as things got more mature, Warden and his immediate boss, General Alexander, went to various

intelligence agencies and other government agencies begging for some sort of help, some sort of assistance. They laid out their plan very clearly. What happened is that the closer and closer they got to the war, you saw elements of each of those agencies doing dual track operations. The intelligence officer at some site location would send his information, as he dutifully should, through the formal structure. But he also knew that if he sent it through the Checkmate office, it would immediately get to the guys who decided where the bombs and bullets were going to go and who and what they would kill.

It didn't take long for the workers in the formal structures to understand that, "If I want to have an impact, and I believe that what I'm doing is important, the first place I'd better send it is to the informal side. I'll still pay my master, and I will also send it to the informal side." But then another curious thing happened. Pretty soon the operations and plans guys who were the recipients of this information in Riyadh were getting things before the intelligence people in Riyadh ever got it, or they would get more detail, or they would have other stuff. Because it was based on friendships, it got to the point where you ended up working with guys based on who you were and what you said. This informal structure made the formal superfluous.

We even ended up (I shouldn't say we)—these folks ended up with two entirely separate battle damage assessment lists. There was the battle damage assessment list put together by the formal structure, which was completely ignored by the planners, and there was the battle damage assessment list they put together. "Did you get the target or not?" "Yes, I got it," answered the pilot. "How do you know?" "I went back over when I saw the flash, and there were bridge pieces everywhere. I dropped the center span, I know that." That way, as they were planning for the next day's attack, that's the information they

used. They didn't use the formal BDA list. This caused great problems in terms of people accusing one another back and forth over "What was really killed? What is the real story? Where are we in all of this?" And for those who would argue that it wasn't successful, a 100-hour ground war ain't bad; 127 casualties isn't too bad either.

Student: But I think that some people would argue that this informal BDA, with the pilots being inexperienced due to getting excited, became one of the real problems of the war in trying to determine how accurate it was. They would say that, in fact, how we filtered in some of the inaccuracies of the BDA reports is that we were relying on the pilots who wanted to feel good about what they did, and in many cases did overassess what they actually achieved.

Reynolds: I don't think that's a fair assessment. There are some very interesting examples of overkill on some issues. But the issue was that the guys who were making these decisions had X number of hours to make the plan. The perfect is often the enemy of the good. Planners were not getting the information they needed in a sufficiently timely manner to make a decision, so do you really want to put your friend in to run an attack on bunker #27 again, when you know that #27 has been taken out? Do you really want to do that? Or are you going to say, "I ain't doing that. I've got limited resources. I've got to put them somewhere else." It wasn't perfect, but it certainly was better than what had been there before, or what they were getting out of the formal system.

I guess what it really is, and maybe the best way to put it is, it's capitalism. This whole war struck me as a kind of capitalism. These little informal guys who started this restaurant on the corner made a better hamburger than anybody else, so people bought it.

Student: When you look at it now, do you see this as the success of initiative and of informal channels or do you see this as a failure of the structure?

Reynolds: I see elements of each. There is something dreadfully wrong with a formal structure that's incapable of handling its wartime situation. But there were some good things about it as well. I don't think it's necessarily admirable that a maverick kind of guy could put that together, but then again, this is not the first time it's happened. It's changed my whole view of history. I used to be an avid reader of history. I'm not sure now that Napoleon planned any of his battles. I'm not sure that what we've read is anywhere close to the truth on these things. Because I've even seen—and it's been a curious event—that as we got further away from the guys we interviewed, if you interviewed them again, you'd ask the same sort of test questions, and already there was a shift. They no longer remembered it quite the same way. And inevitably the way it was remembered, not out of meanness, somehow made them better. The further they got away from it, the more they did that was really good in the war.

Oettinger: I'm trying to reconcile all this in my head in a way that makes some sense, and I think that if you think of the formal structure as providing tools, that part by and large worked. I'll cite a failure to prove that I'm not just making that up, or at least not totally. If you think of the formal structure as also having execution and imagination, that's where it falls short. If you have Warden without the tools it wouldn't work. The tools without the imagination to use them also wouldn't work.

Let me give you sort of the test case, which is also widely public: the failure to get imagery down to the lowest levels that needed them. There were no tools in place because nobody, as you know, had foreseen that, and it's just not enough to say, "Hey, I would like to use it." If you have not put the tools there, you cannot use them. Everything else, by and large, that Warden imagined could be executed because the tools were in place. Even what you're saying about the guys with dual assignments, if you think about their training, et cetera, et cetera, that was part of the formal structure. Now, that nobody beat the

wit out of them that enabled them to do dual reporting is again, to some extent, because of the formal structure of the armed forces of the United States, where you don't beat initiative out of folks. They're capable of thinking on their own and doing something doable. It applies to the operation of the JICs. Again, we're now talking about 1990 or 1991, but there were already four years of Goldwater-Nichols, and the notion that there might be some brownie points to be had by working with another guy could have had an effect.

So my sense is that it's a subtle interplay of formal tools and informal imagination with precedents. What you describe about Warden and his having done things at the National War College or the National Defense University is not without precedent. The Navy will claim that all the campaigns of the Pacific war against the Japanese were gamed at Newport between World War I and World War II, and again, Newport is a formal instrument. So there is an interesting blend of making the best of both the formal and the informal, which I wish I understood better.

Student: Yes, that's a problem. You can't institutionalize that, so you have your Joint Chiefs of Staff and thousands of officers doing whatever work during peacetime—counting armored vehicles or doing research work, going to school—and then you have a war and you have a kind of competition for who is the best, who is the fastest at giving me a plan. "Hey, guys, here are two days. Come together in groups and submit plans by Friday afternoon." You can't institutionalize it. It works now, but it will not work in the next war. So that's a problem: how you can improve the formal structure to be better next time.

Student: I'd like to pick up on what you're saying, Tony: that it's the success of the formal structure, which has all the pieces there, that allows this ad hoc-ery to come together quickly and sort of leaves the room for the initiative. That makes sense to a point, except when you start to get the formal structures and the informal structures fighting each other for authority in

planning and so forth, which you indicated was partly happening.

Reynolds: It never happened. Interestingly enough, they didn't get a chance to fight. I think the fighting actually occurred well afterwards, when people were trying to put the best interpretation on past events. Part of my impetus for writing this was that while I don't claim to have the corner on truth, I just hope to get a little closer to the truth. It kind of alarmed me, because I wouldn't have believed it if I hadn't seen it, but many people are giving the formal system entire credit for a seamless intelligence operation: General Leide, for example, and his group.* I'm not trying to point fingers, but when you hear some of the things that come out of that, you would swear that everybody was working hand in glove, and this was a wonderful joint effort. When I looked at this and tried to take it apart, I didn't see that. I saw people who were vilified for what was happening, and yet the formal structure couldn't stop it entirely. Because the warfighters, the guys who were really making the war plan, decided to go with whoever was selling the best hamburger—in this case it was the informal structure—that's who they went with, and that's why the informal structure got bigger and bigger and bigger and bigger. It is because as they got more successful, they were the customer's choice, and it just skyrocketed.

Oettinger: You made a very important point, which is distinguishing between formal and bureaucratic. They're not the same. And maverick informal is not the same as Don Quixote, so both sides have their caricatures and their excesses, and I think you've made that point very plain.

Student: The rapid pace of the war invited a lot of that, not only in the strategic assets. Certainly coming out of Riyadh, I recall there was a Colonel Ryder, who was the local logistician ...

Reynolds: Bill Ryder.

* See General Leide's presentation in this volume.

Student: ... and regardless of how things arrived in theater and went to whatever base, he diverted fuels, he diverted trucks, he diverted whatever had to be done in order to make the system work, because if you had used the formalized system to divert those assets, it would have been total chaos.

Reynolds: Bill Ryder sent out officers with literally suitcases full of money to buy things, and he bought them on handshakes. There were a lot of Arab guys running around with suitcases full of money and a handshake that there'll be 12 trucks there tomorrow.

Student: I was one of his people. I wasn't working out of Riyadh, I was working at the wing mode. I just went out there, got in my little truck, and I took two people with me—one guy from finance. I took the guy with the suitcase full of money and a guy that had a handful of Form 9s, which are the formal authorizations for everything, and then I picked up the air crew who were coming in trucks behind me. We'd show up at, you know, Mohammed's place, and we took everything in his store. We bought all the plywood in southern Saudi Arabia. We leased vehicles by the fleets in order to get them to the air crews. Then the people would sit there and negotiate with the guy after we were back hauling the stuff back to the base and start using it.

Reynolds: The formal structure wouldn't let you do that. You'd all be in jail.

Student: We would not have been able to do it on time. There were little things that you don't think of. The air crews had no way to prepare their crew-option briefs. We needed things for them to mark on it.

Student: That's the whole philosophy behind the Marine Corps warfighting kind of mentality. We embrace the fog of war and we accept it, and the whole goal is to train officers and decisionmakers to realize that you're never going to eliminate the fog of war and you should accept the fog of war and operate in that environment and try

to do it in peacetime as much as possible. But there are limitations. We'd go to jail too if we did some of that stuff, but that's the way you're expected to behave. You're not supposed to try to plan this thing out. You're not supposed to expect the system to work perfectly. You're supposed to expect friction, and you're supposed to expect difficulties. In the intelligence community in the Marine Corps, we came out really getting our ass chewed out pretty badly by one of the generals* who was the most vocal critic who headed up intelligence for the Marine Corps after the war was over.

Student: On the other side of that, I see that one of the problems, particularly in my field for the submarines, is that we are very, very formal in operations. It comes from the inherent nuclear power stuff. It's just drummed into our heads from day one. You don't mess with that at all. If it says in the procedures that you will do this standing on one foot, you'll do this standing on one foot and there's no question about it.

Reynolds: I'm pleased to hear that.

Student: We do not do anything that isn't very, very strictly following procedure, and I see that stretching over. We call it "creeping nuke-ism," creeping over into the tactical area where we don't have the flexibility we should to respond to changing threats, changing environments, just the changing conditions out there under the water. So I'm worried about that and I'm pleased to see that other forces have the same thing and maybe they've become a little bit more informal. I hope we follow their example.

Reynolds: Your colleague triggered a thought when you talked about the Marines embracing the formal. Maybe this helps illustrate this formal versus informal in the inculcation on the Marines side. (We're getting near the end here, so this is kind of rapid, but this is where we get the closure

* Maj. Gen. John I. Hopkins, USMC, "This Was No Drill," *Proceedings, United States Naval Institute*, 117:11:1065, Annapolis, MD: U.S. Naval Institute, November 1991, pp. 58-62.

between formal and informal.) As this informal structure became the way of the war, at least certainly for the air campaign, and was legitimized by the leadership's embracing it, General Horner, as the Raj there, said that no airplane will fly if it's not on the air tasking order. This did not make the Marines happy, especially Royal Moore, the air guy for the Marines, because the Marines wanted to be able to put their air where they wanted it, when they wanted it, at the time they needed it.

Now, the argument was that the whole is greater than the parts. "Tell us what your requirements are. We'll divert all sorts of air in." But the Marines were not happy with that. So what Royal Moore very gleefully did (he's very proud of it, and he talked about this in *Proceedings*, so that's why I feel very comfortable mentioning it), is that when he would put in a submission for airplanes flying, he would send everything he had. He would show on the air tasking order that all of these airplanes were, in fact, flying. But the truth is he'd withhold them, and then he'd divert. If he needed to put eight aircraft up where he was showing four, he'd just have them in fingertip until they got up to wherever they needed to go and then he'd drop them off.

That's another kind of innovation, but sometimes this informal structure can also hurt, because the Joint Forces Air Component Commander never got the Marine air under control, in the sense that he never got the Marine air to agree that this was the best way to go and that he had control over it. So inevitably, and that was kind of the interesting thing if you look at the analysis after this war, the Corps that got beat up the most from engagements and stuff was the poor Marine guys going through, because they didn't have enough air. They only had Marine air, and they ended up having to start diverting other things in to help them out. But yet the very guys who would complain (and I'm on your side in this one), the air guys who put this together, were the mavericks. So here's another kind of maverick, who said, "Hey, I know how to play formal versus informal, and I'll defeat your formal system. I know the way around that."

Student: To some extent, wasn't the leadership responsible for fostering and inviting that informal mechanism to work? Schwarzkopf and Horner *were* a different set of players, and a couple of times you've mentioned that throughout history we found that as we go from a peacetime army and then get involved with war, then within the first few months of the war we have to wind up replacing the CINCs because we've got the wrong kind of people.

Reynolds: Sometimes, sure. In deference to our British colleague down here, we ended up that when the Brits came in, they were going to drop their sub-munitions straight down the runway. That's how you do it. That's runway attack. That's what we paid for, that's the munitions we paid for. It only delivers at a low altitude. We said, "Okay." So they let them do it and they were taking a lot of hits. Suddenly, a clever group of British flyers figured out how to do runway attacks from 10,000 feet, and it worked. The formal says, "You do it this way until you get killed."

Student: I was going to ask, if you have difficulty interfacing with some of your own air components, how did you interface with the allies?

Reynolds: Interestingly enough, I guess there was pretty much a spirit of cooperation. Again, this is part of this Wardenism that crept in. There is a tendency to compartmentize everything, but the allies were brought in at the highest levels once things started rolling, so that your guys knew what was happening. They all did. I think that's what allowed the thing to work as well as it did. In fact, they ended up using integrated tactics. There were some problems with radios and other things like that, but basically I still find it absolutely amazing, especially considering the unfortunate incident just recently with the shoot-down of the helicopters,* given that with the thousands of aircraft, there was not a single fratricide air-to-air, not a single one! There were no midair collisions. And guys were

* The accidental "friendly fire" that shot down U.S. helicopters patrolling in southern Iraq.

diverted on the runway, by the way. It wasn't a case where they all flew the ATO. The ATO often times did not get flown. It was other things that were, so I don't know.

Student: What about targeting? Was that a joint decision?

Reynolds: Yes, to some degree. That's a whole other debate in terms of that General Schwarzkopf was the final arbiter on all of that as the joint forces commander. Everybody's targets were nominated. There was some rub—not so much allied rub, none that I'm aware of quite frankly—but rather, Army concerns. General Franks was vitriolic in his lament that 75 percent of the targets that the Army nominated (I believe that's the number; I could be off, but some huge number) were not serviced. Any airman's response to that would be, "God, you're lucky. I mean, we should do that every time then, because if you can do a 100-hour war with us missing 75 percent of your targets, it's shit-hot. Imagine if we got 80 percent!" The truth of it was that the air, be it Naval air, Marine air, or Air Force air, did not belong to the Air Force, or did not belong to any service; it belonged to General Schwarzkopf, and he was the final arbiter.

That was the other interesting part about how this all held together. The fact that Schwarzkopf believed in the strategic air campaign infuriated many of his ground commanders. I don't know if any of you have seen a book that's called *Certain Victory*. Have you heard of that? All of you have been in school for a while, so I don't know if it's circulating. It's a wonderful book. The Army did it. It was a closed, never to be released book that was released only to active duty Army general officers in which they showed conclusively that it was the Army that had won the war almost single-handedly. It was all tank battles. But more importantly, they list all the names of the people they interviewed. And guess who wasn't there? Schwarzkopf. They were very unhappy with General Schwarzkopf for that.

I could understand that from a corps commander's perspective, because they did

nominate targets day after day, and Schwarzkopf agreed to let the Joint Forces Air Component Commander prosecute the strategic air campaign first. His argument was that, "We will move on the ground when the Iraqi units are at 50 percent strength or less." Now there comes another big, tough question. How do you determine what 50 percent strength is? Tough to do. A good friend of mine, who was a wing commander over there flying A-10s, was getting beat over the head all the time by General Horner, but more importantly by Buster Glosson, who was his deputy, who would say, "I want to know." He said, "I would always tell him, 'Fifty-eight percent.'" I said, "Well, sir, how did you know it was 58 percent?" "I had no idea," he said, "I just knew he wanted 50 and I wasn't going to give him that, because, shit, I didn't want those guys to die going across the line."

They weren't getting a lot of help from the intel side on that, because how do you tell what's 50 percent destroyed when everything's covered over with sand? We all know about other innovative things, like the tank plinking. When somebody figured that out, General Horner himself said, "I've got to admit that when the Maverick IR-guided 500-pound was put together, I thought that was the dumbest munitions buy in the entire world." He fought it as a one-star. He said, "Who the hell is going to spend the time to use an either optically or IR-guided 500-pound bomb? It's just not big enough. It's a stupid weapon. Two thousand pounds, yes, but a 500-pound?" It's a weapon of choice, because you could load them up on F-111s. Once the guys (and it was two captains getting together) figured out that, "Hey, at night it doesn't even matter if they bury the tank for a while; that tank will radiate at a different look than the sand," that tank was not the Iraqis' friend. So there were more of those kinds of informal discoveries, but a lot of infighting.

Oettinger: You were talking about diverting the airplanes as they were on the runway and so on. It's a point that Jack Leide made when he was here, as well. At what level did that diversion take place?

Reynolds: That's the great part about all this. The reason I think that all of this worked is because there was the "Boys Club." It was really four guys, but one in particular made that decision. Directly under General Horner was Brig. General Glosson who, working with Lt. Col. Dave Deptula, made most, if not all, the immediate commit decisions for strategic attacks.

It made the daily ops guys crazy, because I know of one case in which there was a 12-ship of F-111s that were diverted off as they were taxiing to takeoff. It was going to go great because the intel had sighted this super target that had to be hit now; I mean it *had* to be taken out. The guys went up but, of course, when they took off, they couldn't get to a tanker. You've got to picture this: There were 16 tanker cells stretched across Saudi Arabia, but they couldn't divert the airplanes because they'd never make it in time and the guy on the end they were closest to needed the fuel, so they kept off-loading 40,000 pounds of fuel at a clip, and they moved it all the way across from ship to ship until they were finally were able to get part of those guys fueled. But there was a lot of that going on and these guys ended up

coming back with a full load of bombs. And a lot of people were not happy. So, it isn't perfect.

Oettinger: Keep going ...

Reynolds: I think these guys have had enough of me now. It was an interesting story. I am more skeptical than I ever was. Thanks for your time. Good luck to you all.

Oettinger: One second, ladies and gentlemen, before we break up, we have a present for our speaker.

Reynolds: A Harvard tie?

Oettinger: Yes. This tie has special significance, because Rich instigated, in an informal move against the then-formal lethargic mechanism, the idea of giving ties, so it's only fitting, if you'll pardon the expression, that you should have your own.

Reynolds: Thank you so much. I appreciate it. I really don't have one. This is great.



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