Field Artillery

A Joint Magazine for US Field Artillerymen   *September-October 2005*

1st Cav in OIF II

An Interview with MG Pete Chiarelli CG, 1st Cav

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Front Cover: SPC John L. Jackson of A/3-83 FA, 1st Cav Div, sights in the collimator for an M109A6 howitzer's aiming reference point in combat operations in Fallujah, November 2004, during Operation Iraqi Freedom II. (Photo by SFC Johancharles Van Boers, 55th Signal Company, Combat Camera)

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MG Ralston Becomes 36th Chief of Field Artillery

On 4 August Major General David P. Valcourt, the Commandant of the Field Artillery School, Commanding General of Fort Sill and 35th Chief of Field Artillery, gave up command to Major General David C. Ralston. General Ralston's most recent assignment was as the Director of Force Management for the G3 of the Army at the Pentagon. The change of command was conducted by the Lieutenant General (Promotable) W. Scott Wallace, who is designated to become the Training and Doctrine Command (TRADOC) Commander, and took place at the Old Post Quadrangle on Fort Sill, Oklahoma.

General Valcourt has been the Chief of Field Artillery since December 2003. During his tenure, his first priority was to support the FA and Army at war. He initiated programs to rapidly incorporate counterinsurgency lessons learned into training schoolhouse-wide, including warrior battle drills for new Soldiers and redefining the role of the drill sergeant. In conjunction with other TRADOC schools, he established the Army's CounterStrike Task Force in support of servicemen deployed in Iraq and Afghanistan. He also accelerated the fielding of the guided multiple-launch rocket system (GMLRS) unitary and Excalibur unitary projectiles in Iraq.

As Chief of FA, he was instrumental in refining the FA design of the modular force, including the design of the fires brigades, the consolidation of fire support teams (FISTs) at the maneuver battalion level in the brigade combat teams (BCTs) and the design and functions of the fires and effects cells (FECs).

One of his initiatives was to designate the battlefield coordination detachments (BCDs) as Department of the Army-selected brigade-level command positions and increase the number of BCDs to five in the Active Component (AC) with an additional two BCDs in the Army National Guard.

General Valcourt actively progressed joint interdependency in the Army and was instrumental in reinstating joint close air support (JCAS) training and securing an Air Force presence at Fort Sill. He defined and initiated training for joint fires observers (JFOs), including 13F Fire

Support Specialists, and established the eligibility of 13Fs to train and qualify as joint terminal attack controllers (JTACs) to terminally control Type 1 CAS.

Major General Ralston, originally from Madison, South Dakota, served as the Assistant Commandant of the Field Artillery School and Deputy Commanding General of Fort Sill from October 2001 to June 2003. Prior to that assignment, he was Assistant Chief of Staff for Operations for the Kosovo Force (KFOR) in Pristina, Kosovo, and Chief of Staff of Fort Sill.

In his other commands, General Ralston was Commander of the 1st Cavalry Division Artillery at Fort Hood, Texas, the Div Arty in which he also had served as Executive Officer; Commander of the 3d Battalion, 1st Field Artillery (3-1 FA), 1st Infantry Division in Germany; and three batteries, including a Lance firing battery.

He was the S3 of the 2d Armored Div Arty and S3 of 3-3 FA, also in the 2d Armored Division, Fort Hood; and Brigade Fire Support Officer (FSO) in the 1st Armored Division in Germany. He was an FA Assignments Officer at FA Branch in the US Army Personnel Center, Alexandria, Virginia; and, as a colonel, was in the Military Personnel Policy Division of the Office of the Secretary of Defense at the Pentagon.

General Ralston completed an Army War College Fellowship at Harvard University. He holds an MA in Personnel Management from Central Michigan University. He is married to the former Stephanie Smith, and they have four children: Amanda, Mark, Lindsay and Logan.

Fort Sill ceremonies often include Fort Sill's icon Half Section that flies the guidon of the first command of the Commanding General. At the 4 August ceremony, the Half Section exchanged General Valcourt's B/2-37 FA guidon for General Ralston's C/6-33 FA guidon to fly as long as he commands Fort Sill. Both Chiefs of Field Artillery first battery commands were formerly in the 212th Field Artillery Brigade in III Corps Artillery at Fort Sill.

L to R: MG Valcourt, MG Ralston and LTG Wallace

FKN Wins Army-wide Award

In a ceremony on 9 September, the online Fires Knowledge Network (FKN) development team presented the Commandant of the Field Artillery School, Major General David C. Ralston, the trophy that recognizes FKN as the most outstanding knowledge transformation initiative in the Army for 2005. The ceremony was held in McNair Hall at Fort Sill, Oklahoma. The team is part of the Knowledge Management Branch of the Training and Development Division, Directorate of Training and Doctrine (DOTD), in the Field Artillery School. FKN competed against hundreds of knowledge transformation initiatives.

FKN is a the Field Artillery School's site on Army Knowledge Online (AKO) that allows Soldiers rapid connectivity with the school via the internet to help find the information they need or solve problems while deployed in Iraq or Afghanistan or while stationed anywhere in the world. FKN is password-protected to provide operational secure information and is the first of its kind on AKO.

FKN includes communities of practice sub-sites, such as 13F Fire Support Specialist, Master Gunner, *Field*

FKN Development Team (L to R) MSG(R) Henry Koelzer; SFC(R) John J. Velas; SFC(R) J. Michael Gradoz; SFC(R) Eddie C. Henderson, Chief of the Knowledge Management Branch, holding the trophy; MSG(R) Gregory D. Plant; and MG Ralston.

Artillery magazine, directorates/departments in the Field Artillery School, FA units and other communities. FKN maintains all FA manuals online, provides forums for professional discussions and exchange of the latest information plus maintains more than 4,000 reference documents.

Fort Sill's New AC and DCO:
Colonel Mark McDonald

L-R: Fort Sill's New Chief of Staff COL William L. Greer; incoming Assistant Commandant (AC) and Deputy Commanding Officer (DCO) COL(P) Mark McDonald; former Chief of the FA MG David P. Valcourt; and outgoing AC and Deputy Commanding General (DCG) BG Mark A. Graham.

In a reveille ceremony on 25 July at the flagpole in front of McNair Hall, Fort Sill, Oklahoma, the Field Artillery said "Goodbye" to the FA School Assistant Commandant (AC) and Deputy Commanding General (DCG) Brigadier General Mark A. Graham and welcomed the new AC and Deputy Commanding Officer (DCO) Colonel (Promotable) Mark McDonald.

General Graham was the Chief of Staff of Fort Sill before becoming AC/DCG. He went south to San Antonio, Texas, to become the DCG for Fifth Army.

Like Brigadier General Graham, Colonel McDonald was the Chief of Staff of Fort Sill before becoming AC/DCO. His previous assignment was as the Executive Officer to the G3 of the Army at the Pentagon. Among other assignments, he commanded the 82d Airborne Division Artillery from July 2001 until June 2003, including for Operation Iraqi Freedom.

Also during the 25 July ceremony, the new Chief of Staff of Fort Sill Colonel William L. Greer changed responsibilities with Colonel McDonald. Colonel Greer previously had been the Deputy J5 for the US Forces in Korea. During OIF, he commanded the 101st Airborne Division (Air Assault) Artillery.

Major General Peter W. Chiarelli
Commander of the Multi-National Division, Baghdad (MND-B)
during Operation Iraqi Freedom (OIF) II

The 1st Cav in Baghdad

Counterinsurgency EBO in Dense Urban Terrain

Interview by Patrecia Slayden Hollis

Major General Pete Chiarelli, Commander of the 1st Cavalry Division, Fort Hood, Texas, deployed America's First Team to serve as part of the MND-B in Baghdad for OIF II from March 2004 until March 2005. "Task Force Baghdad" conducted full-spectrum effects-based operations (EBO) in a city of 200 square miles packed with six to seven million people. Its mission was to "conduct full-spectrum operations focused on stability and support operations and to secure key terrain in and around Baghdad, supported by focused and fully integrated information [IO] and civil-military operations, in order to enable the progressive transfer of authority to the Iraqi people, their institutions and a legitimate Iraqi national government."

At its largest (just before the January 2005 Iraqi national elections), TF Baghdad had 12 US brigade-sized elements, 62 US battalions, 322 US companies, 3 Iraqi brigades, 7 Iraqi battalions and 58 Iraqi companies, totaling more than 40,000 Coalition Soldiers.

This interview was conducted on 29 June at Fort Hood, Texas.

Ed

Q *What was Baghdad like when you got there?*

A Well, it depends on what day you're talking about—*literally.* When I arrived in Baghdad to stay on the 31st of March, things looked pretty good. We had a few issues: the shutdown of Muqtada al Sadr's newspaper, *The Al Hawza*, and the arrest of one of Sadr's lieutenants prompted eight pro-Sadr demonstrations in the four days prior to 3 April 2004. Things were tense, but they had been

Photo by Fred W. Baker III

tense before. Overall, it seemed things had been improving.

Everything changed on the 4th of April. At about 1705, 2-5 Cav [2d Battalion, 5th Cavalry], 1st Cavalry Division, was completing its transition with the 2d ACR [2d Armored Cavalry Regiment]. 2-5 Cav was mid-stride in transferring authority when a firefight broke out in Sadr City. Eight Soldiers were killed and 51 were wounded.

Fighting then broke out throughout Baghdad in just about every Shi'a neighborhood and some Sunni areas; it was a tough fight. And the 1st Cav Division would not officially assume control from the 1st Armored Division for another 11 days. So in terms of combat operations, things changed.

From the standpoint of Iraqi security forces, we had seven Iraqi battalions at that time. On 4 April, they each were running about 700 to 800 people strong. By the end of the first week of fighting, they were down to 100 to 200 per battalion. Most of the Iraqis had decided not to fight—had gone home.

We also had about 8,000 police on the

street. For a city the size of Baghdad, we really needed about 23,000. Many decided not to come to work.

In the area of infrastructure improvement, there was much that needed to be done. An $18.4 billion supplemental was "on the table." But because of the deteriorating security situation, very little had been spent. In some areas of Baghdad, many of the same conditions that Soldiers found when they arrived right after the end of major combat operations in March of 2003 still existed.

In the area of governance, we had neighborhood and district advisory council [NAC and DAC] meetings that were absolutely critical. They were part of an excellent program established by the CPA [Coalition Provisional Authority]. But those meetings were suspended in early April because people were afraid to attend them.

And in the area of emphasis we call "economic pluralism" (you could call it long-term economic development), the overall unemployment rate in Baghdad was 39 percent, and in the northern two-thirds of Sadr City, it was 61 percent.

So, that's where we stood about the 15th of April. *Welcome* to Baghdad.

Q *Please describe your enemy.*

A There were two types of the enemy. The first is the insurgency, which is made up of Iraqis or people who have lived in Iraq who want something different.

The insurgency itself has three major groups. Of course, there are elements of the former regime, the Ba'athists who are followers of Saddam Hussein. Then there are folks who, because of policies that have been implemented, are either out of jobs or don't want to work for the new government—some are Ba'athists who

SGT Nicholas Bayers, A Company, 2d Battalion, 5th Cavalry, watches the streets of Sadr City from the roof of a building 27 August 2004 during Operation Iron Fury, an operation aimed at securing areas within Baghdad's poorest neighborhood for civil military operations.

aren't allowed to return to their old government positions. The last of the insurgency are the Sunni and Shi'a fundamentalists (such as Muqtada al Sadr).

This insurgency, as compared to other insurgencies, did not have then—and I still believe does not have now—any kind of well developed political platform. No one says, "When we win, Iraq will become a socialist (or capitalist or federalist or whatever) state." No one is promising "a chicken in every pot." No one is saying "'Mohammed' will be the new president, king or leader." There seems to be a single focus: "We want the Coalition *out.*"

You would think that the three elements of the insurgency would get along with one another because they have the same goal—but they don't. There are very few times when they get together on anything.

I call the second category of the enemy "international terrorists." These are people who come from outside Iraq's borders to conduct attacks against the Coalition and Iraqis. They include folks like Zarqawi, the Jordanian, who was proclaimed to be "The Prince of Iraq" by the terrorist Osama Bin Laden, a Saudi Arabian. They are not "insurgents," they are "terrorists" in every sense of the word.

While the insurgents often use terror as a weapon against the innocent people in Iraq, during the time we were there we found no direct linkage between the insurgency and international terrorists who travel to Iraq to attack both the Iraqis

and Coalition Forces. Now they may have followed the same intent at a particular time, but we saw definite fissures in how they got along with one another. It was not a monolithic group. It's very difficult for the American people to understand the differentiation between the two types of enemy because we haven't educated them on it.

This distinction caused us challenges. For example, when we were making progress against the insurgency, the international terrorists increased the number of attacks and the level of destruction, so the American people would see the same or an increase in violence. It is hard for anyone back in America to see the distinction; it all seems like a big fog with the attacks continuing to escalate. But those very often are reactions to progress in the battle against the insurgents.

Understanding all that makes a big difference in how you fight and win in Iraq.

Q *Please describe Baghdad when you left a year later.*

A We conducted combat operations in Baghdad almost every day. We stopped attacks against Coalition Forces; picked up a lot of weapons, small arms and ammunition; and created a safer Baghdad. I think we definitely had great success against the insurgents and against some of the international terrorists.

In the area of training the Iraqi security

forces, those seven battalions I told you about were at their authorized strength (700 to 800 soldiers each) by the time we left. For seven months, we literally embedded 70-man teams in each of those battalions. Our American embeds trained, conducted patrols and strike operations with, and mentored their counterparts on a daily basis.

Resourced down to the platoon level, the advisors leveraged the cultural importance of relationships with the Arab people to build trust and rapport and to create momentum toward a truly professional military force. These forces were trained to conduct counterinsurgency operations 24 hours a day as opposed to the culturally desired strike-force mentality. When we left, we think we had seven of the best Iraqi Army battalions in Iraq.

We also embedded a 50-man team with the 40th Iraqi Brigade. That same brigade took over the Sheik Marouf-Tallil Square-Haifa Street area on 6 February 2005. For our year in Baghdad, this was one of the most difficult areas in the city. TF 1-9 Cav worked this area for 11 months and received 192 purple hearts. If you followed the news today, the Sheik Marouf-Tallil Square-Haifa Street area is one of the calmer areas in all of Baghdad.

One reason is that during our year we went after the insurgents while at the same time—really simultaneously—we maximized nonlethal effects focused on infrastructure improvements, establishing governance and increasing employment, all enhanced by a robust IO campaign. Additionally, we now have the Iraqi 40th Brigade controlling that part of the city trained in counterinsurgency operations—not strike operations.

Instead of thinking they can provide security with intelligence-based operations conducted periodically with units that spend a majority of their days at the forward operating base [FOB], the Iraqi battalions we trained assume control and conduct full-spectrum counterinsurgent operations 24/7, 365 days a year. They conducted strike operations when they had the intelligence, but, more importantly, they conducted daily patrols and neighborhood outreach engagements instead of staying on the FOB. Alongside the Soldiers of the 3d Infantry Division, they are doing an excellent job of making that area very livable again.

In the area of city police, we had limited success. We went from 8,000 to about 14,000 of the 23,000 policemen needed

for what were then 79 police stations in Baghdad during our year. Although coalition vetting and recruitment of Iraqi police during the deployment was on par to achieve the 23,000 needed to support a city of six to seven million, the reality was that many of those recruits, after graduating from one of two police academies, were siphoned off by the Ministry of Interior to support strike-force operations (special police battalions) or into an overpopulated police bureaucracy. This practice severely hindered the Baghdad populace from getting the local security it needed.

In the area of infrastructure improvement, we changed the plan of attack for implementing our part of the $18 billion supplemental I mentioned earlier. Initially, the monies were heavily weighted toward large capital projects, such as landfills, sewage and water plants, and relied on other donor nations to fund projects that connected the large capital projects to local neighborhoods. While many of these large capital projects were needed, it made little sense to build a sewage treatment plant if you could not get the sewage out of the streets or build a large water treatment plant if you could not distribute the water. The failure of these funds to be provided immediately created a need to reprogram some of the $18 billion to affect the immediate signs of progress at the local level—what we considered the "first mile."

You see, we found during the April uprising and from collaboration with the 1st Armored Division that areas where local infrastructure was in shambles became prime recruiting zones for insurgent forces—those areas with sewage running through the streets, electricity almost nonexistent, no running water, trash everywhere, no jobs and no basic medical services. We needed to affect the recruiting zones first before we built the large capital projects.

We had to become creative. In Al Rashid, a capital-level project ended in a local labor success. Instead of using modern machinery and less than 500 workers, we hired approximately 4,000 Iraqis to build the southern Baghdad landfill. When the project was completed in February 2005, southern Baghdad had a place to dump all its solid waste while simultaneously employing 4,000 locals for more than four months. This took not only 4,000 people out of the enemy's recruiting pool, but also allowed workers (with an estimated 13-plus family members each) to support their families through local employment.

Another example occurred 72-hours after fighting ended in Sadr City in mid-October 2004 [the second Sadr uprising that began in August 2004]. We worked with the US Embassy, USAID [US Agency for International Development] and local Baghdad leadership and contractors to mobilize and saturate Sadr City quickly with more than 22,000 local jobs oriented on neighborhood sewage, water, electricity and trash improvements. The effect: it attacked Muqtada al Sadr's base of power—the disenfranchised—by providing jobs and visible signs of local improvement.

In mid-February 2005, a central portion of Sadr City awoke to the first running water system the city had ever seen. 200,000 people were immediately affected. Local contract and labor completed the project.

These two projects, along with many more throughout the Baghdad area of operations, made lasting impressions and "took the wind out of" insurgent rhetoric. During our year and upon our departure, infrastructure repair became the immediate impact theme that set conditions for long-term security.

In the area of governance, we were pleased. The successful election of 30 January 2005, where millions of Baghdad citizens voted in spite of the insurgent and terrorist intimidation campaign, left us with a clear indicator that the Iraqi people wanted a taste of true democracy. From our standpoint, the CPA-implemented neighborhood/district advisory councils played a *very* important role in teaching Iraqis about democracy. However, the concept of local government working in partnership with the national government was not part of the Iraqi and Arab culture. This centralization of government was compounded by the only example of governance the Iraqi populace had for the last 35 years—Saddam Hussein's dictatorship.

In the area of economic pluralism, or rather creating long-lasting jobs, we went from 39 percent unemployment throughout Baghdad to about 21 percent unemployment. A more pronounced result occurred in Sadr City: from 61 to 22 percent unemployment. We implemented long-term economic growth projects centered on developing the region's agricultural potential and infusing local growth by creating economic incubators. So we were *very* pleased with that.

Q *How did you execute EBO to create the desired effects?*

A Simultaneously. You must work all five of the lines of operations [LOOs] that we have discussed, *literally*, at the same time, complemented by a robust IO program that supports all five LOOs [conduct combat operations, train and develop the Iraqi security forces, improve the infrastructure, establish governance and promote economic pluralism].

SGT Mathew H. Lowry of A/3-83 FA, 2d Brigade Combat Team (BCT), processes a fire mission in an M109A6 howitzer during combat in Fallujah on 6 November 2004.

The amazing thing about the American Soldier—and one of the things I'm most proud of—is his or her versatility to do all that. Our Soldiers routinely balanced conducting combat operations at six a.m. to handing out humanitarian supplies at eight a.m. Then they deftly shifted to help educate Iraqi entrepreneurs on how to put together a business plan and apply for a small business loan at 10 a.m. to training Iraqi Security Forces on how to conduct professional development sessions with their own forces by one p.m. Later in the day, that same unit would balance conducting detainee operations with meeting with local NAC leaders about an infrastructure project that needed to be accomplished. Soldiers and leaders made it all happen.

Now, it may be somewhat of an overstatement to say that every platoon conducted all LOOs in one day, but some platoons on some days did just that. Platoons very seldom conducted operations that supported a single LOO.

Soldiers and leaders understood that the execution of infrastructure improvement supported their force protection. Soldiers understood we weren't ensuring Iraqis had water just because we wanted them to have water. They knew that when we helped the Iraqis get water or electricity or helped the Iraqis get sewage out of the streets, it had a direct effect on force protection.

If we could employ an Iraqi who had 13 mouths to feed—and there were areas in Baghdad that had 13 or more mouths to feed in 52 percent of the homes—then it had a direct effect on force protection. If we could put a single breadwinner to work at a meaningful job for 10 to 12 hours a day, then he had neither the requirement nor desire to go out and fight the Coalition at night.

The key to EBO is to understand that there's no line you can work independently. For example, you will never achieve security if all you do is try to provide security through combat operations—it just won't happen. Security in this environment is not something that simply grows "out of the barrel of a gun."

At the division level, we focused our effects through an ECC [effects coordination cell] that had a LOO chief [field grade officer] responsible for each line of operation. The ECC was run by my chief of staff. The division fire support element [FSE] did traditional FSE tasks but understood the intent and evaluated the effects of lethal fires on the overall campaign plan. There were times that lethal missions that would have been fired without hesitation in a different kind of war were canceled because of their negative impact on a nonlethal LOO. It was about achieving a balance.

Q *How did you conduct counterfire?*

A We had made the conscious decision to deploy without an FA brigade to run counterfire, but I later asked for one. I had been using my DFSCOORD [deputy fire support coordinator] for counterfire because I gave the Div Arty [1st Cav Division Artillery] responsibility for the Al Rashid area of Baghdad as the 5th BCT [brigade combat team]. The Div Arty was fully committed and out of the fire support coordination and counterfire business—there was no way Steve Lanza [Colonel, Div Arty commander] could run a distinct maneuver fight and provide fire support coordination for the division.

So when I asked for an FA brigade, there was no hesitation in providing the 75th FA Brigade Headquarters (minus) that ran our *very* difficult counterfire fight and was absolutely fantastic.

We found that because of the constricted urban terrain and the tactics employed by the insurgents, we had to look at counterfire operations differently. We had to look very hard at pattern analysis by dissecting enemy engagements and techniques to anticipate and target future possible firing positions rather than employ the traditional counterfire drill.

The 75th FA Brigade gave us some redundant capabilities. It also gave us an O6 commander with a lot of experience. We did some *very* unique targeting in Baghdad. We couldn't get an acquisition from a Q-36 radar and immediately put fires on the point of origin because the point of origin could be the back patio of an apartment complex with hundreds of people living in it. So we needed some additional capabilities, some additional eyes to take a look at how we could fight that fight. The 75th Brigade provided those capabilities.

Q *What have you learned in counterinsurgency operations?*

A First I learned that success in one LOO opens up an assailable flank for the enemy to attack, and he will attack. For example, in November 2004, our polling showed 45 percent of the people in Baghdad were happy with the electricity they were getting. By January, that was down to about four percent. The reason was because the enemy realized we were starting to get the distribution system "squared away" and decided to go outside Baghdad where the people couldn't see the attacks and take down the 400-kilovolt lines that brought the electricity into the city. The enemy knew the people of Baghdad were almost unanimous in their hatred of attacks on

Soldiers from B/1-21 FA prepare to search a house during Operation Kick Off in Al Rashid, Iraq, on 30 November 2004. Operation Kick Off was a combined operation with the 304th Iraqi National Guard. 1-21 FA occupied forward operating base (FOB) Falcon in support of Operation Iraqi Freedom.

Photo by CPL James P. Johnson, 55th Signal Company (Combat Camera)

the infrastructure. Our polling showed 98 percent of the people said there was no justifiable reason for any attacks on the infrastructure.

And I promise you, the enemy blames such a "failure to provide electricity" on the Coalition and the fledgling Iraqi government—although that is probably not well understood in America.

The other thing I learned is we are *good* at lethal effects; but in a counterinsurgency, nonlethal effects are as important as, and, at times, more important than kinetic effects. We are very good at fighting and breaking things and teaching other people to do the same. But nonlethal effects are critical to winning the war in Iraq. So, if we're really serious about fighting an insurgency, we have to change our culture and accept the importance, and sometimes preeminence, of nonlethal effects.

I'm as guilty as anybody else about not "putting my money where my mouth is." Prior to my year in Baghdad, if you gave me 10 lieutenant colonels, rank ordered from best down to worst, and said, "Okay, fill your staff," where do you think I'd put the number one lieutenant colonel every time? Tell me.

Probably your G3 shop.

That's exactly right. But we need to train and develop IO officers to the same quality as our folks in the G3. IO is that important.

We also need the right people to analyze what needs to be done in the infrastructure. In a counterinsurgency, getting the resources to improve the infrastructure can be as important as getting more tanks or bullets.

We need to restructure our staffs to operate in a counterinsurgency, including adding a robust IO cell. For example, I pulled together an IO cell for the ECC. But the problem is that when you go to, say, the G3, and ask for two people to work in the IO cell, the G3 picks the people he can afford to let go. Then when those people come to the IO cell, who do they work for, the IO chief or G3? Who has rating authority? As a legacy division, we were not authorized these personnel by MTOE [modified table of organization and equipment]; therefore, we were forced to form an IO cell from various staff sections. The Army has made great efforts to remedy this under the new Modular Force structure. If our experience means anything, IO sections

MG Pete Chiarelli, Commander of MND-B, embraces BG Jaleel Khalaf Shwail, Commander of the 40th Infantry Brigade, Iraqi National Guard, during a transfer of authority (TOA) ceremony on 21 February 2005.

will grow as we continue to improve our modular formations.

I give big kudos to the Army for providing us cultural advisors for our IO cell. These were civilians from the region who helped ensure the IO products we created weren't IO products designed by Americans to convince Americans but were vetted through someone who understood the culture, helping to ensure the products had the desired effects on the Arab population of Baghdad.

We need to relook the entire headquarters of the UEx or UEy [two- and three-star units of employment]. The Chief of Staff of the Army has made it clear that our current transformation organization is not the final organization. It will need tweaking as we begin to understand more about modularity.

I think we need to look at the way our staffs are set up. Do we need a G1, G2, G3, you know, and G5 and G6 like we have now?

In OIF II, we basically re-focused our staffs around three major functions. We had our ECC that I talked about before, and we redesigned the staff into Information, Strike, and Sustain sections. I will tell you that, from a command and control perspective, that makes sense.

We have to make full use of collaboration. The greatest tool I've seen in almost 33 years in the Army, from a command and control standpoint, is the advent of the command post of the future [CPOF] that allows headquarters located miles away to collaborate in real time on the same problem within the current operational picture.

From my CPOF screen, I could see the real-time operational picture with my brigade commanders and come up with a maneuver plan, fire support plan, an infrastructure plan, a whatever plan. So while maneuver commanders talk about their plans, fire supporters, engineers, intel guys all listen, ask questions and simultaneously put together their support and collection plans for the scheme of maneuver. We quickly can move through the MDMP [military decision-making process] in a way that never has been possible before.

In the CPOF, I could "get into the brains" of brigade commanders on the ground, each with 22, 24 years of experience, to help me solve problems. I would like to see that capability expanded to allow UEx commanders to pull in battalion commanders to help solve problems.

Another thing I learned in counterinsurgency is the importance of passing information and knowledge down and horizontally. In the Army I grew up in, you always passed information up and then down. In Baghdad, Soldiers on one side of the city who saw an emerging enemy tactic, technique or procedure [TTP] being employed could save lives by quickly passing that info down and out, from one platoon sergeant to another, rather than passing the info up to be filtered and then to be passed down again.

Combat in Baghdad was not a division fight—not even a brigade fight. It was a company and platoon fight and, every once in a while, a battalion fight. Brigades orchestrated the five LOOs, and resourced combat operations run by battalion commanders and, mostly, company commanders or platoon leaders.

To help those junior leaders, we came up with the CavNet, a knowledge transfer system where individuals can post emerging enemy and friendly TTPs on SIPRNET [secure internet protocol network]. A platoon sergeant could see the newest TTP on the CavNet just before he conducted PCIs [precombat inspections] or briefed his platoon on its upcoming patrol, or he could post what he saw or learned during his patrol on the CavNet.

This is *revolutionary*. Let me give you an example. In one part of the city, we saw Muqtada al Sadr posters being rigged with IEDs [improvised explosive devices]. The natural response of an American Soldier is to rip the poster down. A Soldier in one

part of the city noticed wires coming out of the poster and discovered it was booby trapped. He posted the info on the CavNet that night.

Days later, because a Soldier had checked the CavNet, a platoon in another part of the city checked out posters and found them booby-trapped too. There is no question that Soldiers' lives were saved by that fast transfer of information.

That is where we need to go. I may not be able to get CPOFs down to the company level, but what I would like to see is a PDA [personal digital assistant] or some other device in the hands of every patrol leader. It might not even have to be a secure device. I understand OPSEC [operational security] concerns, but rapid fielding of a relatively cheap non-secure device for passing this type of life-saving information may be in order.

Q *What other systems or weapons do we need for a counterinsurgency?*

A We had enemy rounds falling on us, hurting and killing people, so we need a way to acquire incoming rounds more effectively.

Then I need the ability to shoot *now*. Can I knock a mortar out of the sky? Is that possible? Do we have the technology to do that while limiting collateral damage to acceptable levels?

I would like to have more Predator-like capabilities—not just a UAV [unmanned aerial vehicle] that finds targets, but also a UAV that kills targets. I don't necessarily have to have the weapon hung on the UAV, like the Predator. But if the UAV has a laser designator for Apache helicopters in a laager position where they can't be heard or seen, we proved the Apaches can pop up and engage the target with Hellfire missiles. That is very effective, especially in urban operations, causing minimum collateral damage.

Q *Sir, that sounds like what Major General John Batiste, Commander of the 1st Infantry Division in OIF II, said in his interview [May-June edition].*

A Well, you see, John and I intentionally decided to conduct a coordinated campaign. He fought to get additional Predators with weapons onboard, while I was trying to get laser designators on my Shadows.

Q *What message would you like to send Field Artillerymen around the world?*

A Full-spectrum operations will be the norm in the future. I believe the role of the Field Artillery in a full-spectrum fight is going to grow, not diminish. The skill sets of Artillerymen, as effects-based operators, are becoming more important, not less important.

The Chief of Staff of the Army has said the transforming Army is an organization that will be worked over time. I think we're going to see many of the capabilities provided by the Div Arty come back—probably not as a Div Arty, but in a different form. It's our responsibility to ensure that the force we design can do the job in all the ways we plan to employ it. And we need a force FA headquarters for the FA assets that are absolutely essential to the way we fight.

Major General Peter W. Chiarelli is the Commander of the 1st Cavalry Division at Fort Hood, Texas. In March 2005, he returned from a one-year deployment in command of the Multi-National Division (Baghdad) in Operation Iraqi Freedom II. Also in the 1st Cavalry Division, he served as the Assistant Division Commander (Support) and G3 as well as the Deputy G3 Director of Plans, Training and Mobilization for III Corps, also on Fort Hood. His other commands include the 3d Brigade, 2d Infantry Division, and 2d Battalion, 1st Infantry Regiment, 9th Infantry Division, both at Fort Lewis, Washington. Before taking command of the 1st Cav, he was the Director of Operations, Readiness and Mobilization in the Army G3 at the Pentagon. He is a graduate of the National War College in Washington, DC, and holds a Master of Public Administration from the University of Washington and a Master of Arts in National Security and Strategy from Salve Regina University in Newport, Rhode Island.

Redleg Roll Call—1st Cav

These are Field Artillerymen who lost their lives while serving in the 1st Cavalry Division in Iraq from January through June 2004. We honor these Redlegs and their fallen brethren in the 1st Cavalry Division. The Army's greatest asset is the Soldier, who implements American international policies around the globe on the dangerous frontlines and can pay with his life—as each of the 169 Soldiers in the 1st Cav did. God keep them.

SFC Michael Battles B/1-21 FA 28 October 2004	CPL Forrest J. Jostes C/1-82 FA 4 April 2004	PFC James Marshall A/1-21 FA 5 May 2004	SPC Casey Sheehan C/1-82 FA 5 April 2004	1SG Ernest Utt B/1-82 FA 27 June 2004
PFC Adolfo Carballo A/1-21 FA 10 April 2004	SPC Justin W. Johnson HSB/1-82 FA 10 April 2004	PFC Anthony Monroe HHB/1st Cav Div Arty 16 October 2004	SGT Skipper Soram B/3-82 FA 22 September 2004	
SPC Chad Drake HSB/1-82 FA 7 September 2004	PV2 Bradley Kritzer A/1-21 FA 5 May 2004	SGT Pamela Osbourne HHB/1st Cav Div Arty 16 October 2004	SSG Kendall Thomas HSB/3-82 FA 28 April 2004	

A Soldier's Story

SPC Brenda Medina
M240B Gunner in the 5th BCT Commander's PST
1st Cav, OIF II

Specialist (SPC) Brenda G. Medina, 20 years old, from Vacaville, California, was an M240B Gunner and member of the Personal Security Team (PST) guarding a high-payoff target against insurgent attacks during Operation Iraqi Freedom II. SPC Medina was in Iraq from March 2004 until March 2005 guarding the Commander of the 5th Brigade Combat Team (BCT) who was the 1st Cavalry Division Artillery Commander assigned a maneuver brigade area of operations in Baghdad. Her military occupational specialty (MOS) is 71L Administrative Specialist. While working far outside her MOS, she was one of the first women in the 5th BCT in direct combat in Iraq. Her performance highlights her capabilities and adaptability. This is her story.

The PST's job was to protect the colonel, take him wherever he needed to go. I was selected for the PST because of my roles during exercises we had before we left Fort Hood [Texas]. During our field problems, I was a sniper in the OPFOR [opposing force] and played other roles. The Sergeant Major, with input from his NCOs, selected the team from different MOS.

Once we were part of the PST, we were assigned our jobs. I was a gunner, and my weapon for the HMMWV [high-mobility multipurpose wheeled vehicle] was the .776-mm M240B. They thought it would be better for me to be on the gun because of my height. I'm five feet, four inches tall. I could shoot pretty well, so I qualified.

There were 11 people on the team who were with the commander at all times: three HMMWV drivers, three gunners, four dismounted guards and the PSO [personal security officer]. I also served as a dismount.

At times it was hard. We were on call 24/7, but we got to see a lot of things and meet a lot of people. It was exciting because we were actually out there; we got to see everything because we were out of the FOB [forward operating base] four or five times a day on raids, patrols, cordon and searches; for meetings and openings of hospitals, schools, sewage treatment plants; and after bombings. We went everywhere.

My first IED experience came after a long time out of the FOB. Early in the morning, we were leaving a cordon and search. There were only three HMMWVs on the road, and we headed back to the FOB to get some sleep. I was the gunner in the first HMMWV.

All of sudden, I heard something explode and ducked down. The IED was close to the far side of the road, so nothing happened to us, but my ears were ringing. The insurgent who planted the IED actually ended up blowing up his legs, but we were all fine.

I think a lot of my experiences were interesting because we got to see things other people didn't get to see. Fore example, if something got bombed, we were right in the middle of the situation, helping helicopters come down or soldiers that needed our help in any way.

We were there shortly after anyone called, sometimes at three or four in the morning. We had 10 minutes to be on the HMMWVs, ready to go with our guns up. That was pretty interesting; I liked that. We were always "on the go," and it made our time in Iraq go by a lot faster.

Our days were pretty long. They varied, depending on whatever we had to do. The days averaged about 10 hours of operations because we went in and out of the FOB a lot. Sometimes we worked four hours, sometimes it was eight and sometimes it was 16.

On the day of the Iraq National Elections, the PST worked 24 hours. Although I did not work that day—I had hurt my back—I worked the days before the elections. We went to the poll sites to see if everything was ready and secure and to meetings at the DAC [district advisory council] hall.

Once, outside the DAC hall there was a drive-by mortar attack. The insurgents were in a little pick-up truck. One of them was in the back with a mortar tube, and as the truck drove up and stopped, the insurgent shot the mortars before the truck raced off.

That was pretty scary because we had nowhere to run to avoid getting hit by them. As the mortars came in, we all took cover inside the DAC hall and just waited it out, hoping the mortar wouldn't hit the building. The mortar hit a field close to our building. I think that was the most frightened I was in Iraq because we had no place to go. The front of the building was a small space, and they came close to hitting us.

There were other times we had nowhere to run but inside our HMMWVs, which wouldn't really protect us much ,when we got attacked by mortars outside the FOB. Those were frightening times because we couldn't do anything about the situation.

There was one other woman in our PST. Of all the PSTs, I think we were the only one that actually had females.

I wasn't really thinking, "Oh, I'm a woman on the frontlines" I just saw it as part of my job. It was kind of special because we got to see and do things that other females didn't because we were on the team and we went out a lot. But everyone was doing what they had to do. It was my job; it was very hard and stressful at times.

If I went back to Iraq, I'd probably want to do the same job again. You feel like you actually are doing something—I mean, *everybody* does something—but on the PST, you're out there beyond the walls of the FOB, seeing what's going on.

I like the Army. I don't know if I'll stay in, but for the time I'm in, I'll do my best at whatever my job is.

D³A in an Urban Environment

1st Cav Counterstrike Operations in Iraq

By Colonel Thomas S. Vandal and Captain William L. Gettig

As the 75th Field Artillery Brigade learned during its support of the 1st Cavalry Division (1st Cav) in MultiNational Division (MND)-Baghdad during Operation Iraqi Freedom (OIF) II, fire supporters face many challenges delivering effects on insurgents. The 1st Cav Commander requested the help of the 75th Brigade from III Corps Artillery, Fort Sill, Oklahoma, after directing his 1st Cav Division Artillery to serve as the 5th Brigade Combat Team (BCT), a maneuver brigade, in Baghdad. The 75th Brigade Headquarters (minus) deployed to Baghdad with about 40 personnel to serve as the 1st Cav's counterstrike headquarters.

Counterstrike in an urban area is difficult at best, especially in a city the size of Baghdad, which has a population of about six million people. Living in an unforgiving desert environment, Baghdad's population clusters close to the shores of the Tigris River. Thousands of years of civilization make the city a warren of alleyways, side streets and dead ends. Patrolling and indirect fires are difficult in an area with such dense population, buildings and streets.

We had to adapt tactics, techniques and procedures (TTPs) traditionally used to fight in a high-intensity conflict for counterinsurgency in urban terrain. In Task Force (TF) Baghdad, for example, reactive counterstrike raises the possibility of excessive collateral damage, and with continuous media coverage in theater, the anti-Iraqi forces (AIF) routinely exploit unintended consequences for their propaganda value.

75th FA Brigade counterstrike operations were modified in theater to accommodate the changing AIF's use of indirect fires against Coalition Forces. "Counterstrike" for counterinsurgency operations, as opposed to "counterfire" for high-intensity conflict, requires more synchronization of combined and

joint fires and other effects—including nonlethal and maneuver—and the employment of a wider range of sensors and responders. Traditional proactive counterfire procedures have given us the experience to defeat a seemingly random and unpredictable enemy. As fire supporters counter the insurgents, they adapt counterstrike TTPs to the contemporary operating environment (COE).

Counterstrike doctrine, as it is being written and coming into maturity, is the joint fires answer to the insurgency.

Fire supporters conducting counterstrike operations not only use radars, but also a host of other sensor assets. Civil affairs (CA) teams, the persistent threat detection system (PTDS), tactical human intelligence (HUMINT) teams (THTs), unmanned aerial vehicles (UAVs), combat air patrols, snipers, quick-reaction forces (QRFs) and Special Operations Forces (SOF) all are synchronized and focused into a cohesive whole to achieve effects on the insurgents.

Our employing indirect fire weapons—mortars, cannons or rockets/missiles—has created a branch in which precision and planning are everything—are part of who we are. Using a variety of lethal and nonlethal platforms to achieve effects, Artillerymen have trained to be precise and timely in every operation. From massing fires on an enemy to providing logistical support, fire supporters understand synchronizing and integrating combined arms assets and operations. This unique expertise is what makes Field Artillerymen so vital in fighting an insurgent enemy.

Fire supporters plan and coordinate counterstrike operations using the *Decide, Detect, Deliver* and *Assess* (D³A) targeting process. This process is applied against an enemy who doesn't mass indirect fires but fires rockets and mortars to harass Coalition Forces and achieve psychological as well as destructive effects.

Decide: Intelligence Preparation of the Battlefield (IPB) and S2 Analysis. To evaluate the enemy threat and potential courses of action (COAs), artillery S2s first must understand each of the five requirements for accurate predicted fire and how AIF mortar or rocket teams attempt to meet them. The S2 considers the characteristics of each type of munition used by the enemy, the trajectories,

HPTL	When	How	Effects	Remarks
Cell Leader	As Acquired Planned	Patrol Raid	Capture/Kill Capture/Kill	Verify through multiple source reporting.
Financier	As Acquired Planned	Patrol Raid	Capture/Kill Capture/Kill	Verify through multiple source reporting.
Rocket/Mortar Team Members	As Acquired As Acquired by Radar	Patrol QRF Fire Support	Capture/Kill Capture/Kill Destroy	Verify with radar acquisition and forward observation.
Weapons/Ammo Caches	As Acquired Planned	Patrol Raid	Neutralize Neutralize	Exploit site to identify owners.

Legend:
  HPTL = High-Payoff Target List   **QRF** = Quick-Reaction Force

Figure 1: Example of an Attack Guidance Matrix (AGM). The AGM must be flexible because insurgents are harder to detect and target than, say, an enemy military unit.

ranges, improvised launch systems, training required to calculate the firing data, hasty survey techniques, mortar/rocket crew training, observed emplacement and displacement times, locations of found caches and the sophistication of observed enemy TTPs. These all indicate the ability of a particular insurgent cell or group of cells to achieve their desired effects. The S2 analyzes past enemy operations of an insurgent team to determine future enemy COAs of the team or one of its cells.

Assess the Situation. The IPB process is useful to determine the COAs for multiple AIF rocket and mortar teams. By looking at the battlefield through the eyes of an enemy rocket or mortar team, the S2 assesses the enemy situation and helps manage resources to detect them. The S2 determines areas to which the enemy repeatedly returns by analyzing historical points of origin (POOs) in space and time. In TF Baghdad, we did this using five steps.

1. Conduct a historical analysis. The S2 plots the last 30 days of historical POOs and points of impact (POIs) with back azimuths. POIs help only in confirming the S2's assessment of a potential enemy area of operations (AO). The S2 also distinguishes between rocket and mortar POOs.

2. Assess indirect fire attacks in space and time. The S2 identifies clusters of POOs, the size of which depends on the terrain. In urban terrain, the clusters may be more concentrated than in rural areas, which tend to be more loosely packed.

The S2 identifies areas of interest, which represent the enemy AO. He references HUMINT, Tip Hotlines, CA, information operations (IO) and local authority reports to link areas with each other. Although it is not always possible to get the information he needs, the S2 gathers whatever information he can to help determine the disruptive effects that might ensue if the wrong person is targeted.

The named areas of interest (NAIs) at the division level may be as large as six kilometers in length, width and height. The collective size of the NAIs is not important as long as it represents what the enemy thinks is his AO, and the S2 is judicious in justifying the size. The S2 also assesses whether the insurgents live within the area or use ingress/egress routes to execute fires.

3. Assess trends and enemy operational tempo (OPTEMPO). After the NAIs are marked, the S2 assesses the trends for each. The most effective method is by time-of-day versus day-of-the-week. This helps the S2 determine likely times for fires, surges in fires, likely days for fires, the impact of key events, the enemy's impact on friendly operations, which types of mortar/rocket fires occur on which days and logistical constraints for the enemy to rearm and plan between attacks.

Developing a time-versus-day chart is a critical step in predictive analysis. The S2 assesses adjacent NAIs to build a case for

linking two or more of them to one particular group. S2s also use the chart to assess enemy resupply times, based on fires and found ammunition caches.

4. Conduct predictive analysis. The S2 uses Steps 1 through 3 to provide the data for predictive analysis. He sorts through all the data and provides the best analysis on where and when the enemy is likely to fire.

The purpose of predicting enemy actions is to help the commander focus the right sensors on the right area for the right responders.

Develop the High-Payoff Target List (HPTL) and the Intelligence Collection Plan (ICP). Targeting insurgent personnel has changed the HPTL significantly. Using HUMINT and other intelligence-gathering assets, the counterstrike team targets different facets of the enemy's rocket and mortar cells, including financiers, cell leaders or planners, logistics personnel and recruiters. Fire supporters coordinate sensors and responders to observe, capture or kill enemy personnel meeting the commander's target selection standards (TSS).

The TSS and attack guidance matrix (AGM) are based on the reliability of sources and assessments. (See Figure 1 on Page 9 for an example of an AGM in counterinsurgency operations.) HUMINT reports are especially important as local nationals move in and out of social circles with ease and minimum risk.

The AGM must be flexible because insurgent personnel are less easily detected and tracked than more traditional targets, such as military units.

After the commander approves the AGM, this document is synchronized with the IO campaign. IO is critical because, in many instances, a targeted "bad guy," if captured or killed, would have an overall negative effect on the Iraqi people—you might "win" the skirmish by taking an insurgent out but lose the IO battle.

Detect: Synchronization. The division fire support element (FSE) helps the analysis and control element (ACE) synchronize assets. By noting when and where the enemy has fired and assessing how the attack was performed, the FSE helps the ACE assess the capabilities of the enemy and predict future actions. The FSE also helps staffs focus on achieving the effects necessary to fulfill the commander's intent.

The counterstrike cell of the FSE constantly manages radar acquisitions to determine their validity. False acquisitions are a normal occurrence in urban terrain. Acquisition verification is essential to provide data for conducting predictive analysis and managing responders. The counterstrike cell must be certain that an acquisition is truly a target to send responders to that location, thereby making the most of limited resources.

During OIF II, the 75th FA Brigade augmented the 1st Cav FSE with an intelligence section focused on analyzing enemy fires and providing predictive analysis. This allowed the FSE to augment counterfire teams sent to conduct crater analysis or investigate POOs at crime scenes in Baghdad. AIF launcher systems were compared to identify emerging enemy TTPs across the division AO.

The division effects coordinator, called the ECOORD, who in this case is the 75th FA Brigade Commander, institutes a secure electronic counterstrike targeting meeting via the command post of the future (CPOF) on the division fires net. The 75th Brigade held the meetings on Mondays, Wednesdays and Saturdays, allowing the division and its BCTs to coordinate and synchronize counterstrike missions.

Input from the BCTs is invaluable because they have a clearer picture of the division's counterstrike priorities in their areas and the required resource allocation across the division. The division FSE intelligence section disseminates the predictive analysis, allowing for greater intelligence input and crosstalk from the BCTs.

The counterstrike targeting meeting helps to synchronize collection assets across the division. At this meeting, the fire support officers (FSOs) and S2s discuss their covert collection needs with the division collection manager. This prevents collection assets from operating in the same area for the same purpose. It also allows static collection assets to be employed within their ranges. For example, UAVs are allocated to areas beyond the limits of the joint land cruise missile defense elevated netted sensor system (JLENS) and the PTDS. See Figure 2 for the 1st Cavalry Division counterstrike daily synchronization matrix.

UAVs also collect data over areas not covered by patrols as insurgent indirect fire teams prefer to execute fires in areas with no Coalition Force presence. Conversely, where there are friendly patrols, the patrols can shape the enemy into target areas of interest (TAIs) in which the coalition can position covert collection assets and make responders available. The key concept is for the BCTs to identify TAIs in their AOs.

A good example of BCT counterstrike

Sensors	Unit	0001	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Sensors																										
Shadow#1							Sector 2: Baghdad					NAI 12					Sector 3: Baghdad				Sector 4: Baghdad				
Shadow#2		Sector 1: Baghdad																								
JLENS		Bde NAIs CR/CM																								
PTDS		NAIs 9,10, 11, 12					NAI 1		NAI 3		NAI 1		NAI 3		NAI 4		NAI 3		NAI 9			NAI 2		9,10, 11	
MNC-I Sensors																										
Predator				Mixture of "Down Days"																						
Hunter			Baghdad Route Recon																							

Legend:
BCT = Brigade Combat Team
Bde = Brigade
CR/CM = Counterrocket/Countermortar
JLENS = Joint Land Elevated Netted Sensor
MNC-I = MultiNational Corps, Iraq
NAI = Named Area of Interest
PTDS = Persistent Threat Detection System

BCT
Division
Corps

Figure 2: Counterstrike Daily Synchronization Matrix, 1st Cavalry Division

operations was in the 39th BCT AO in the Adhimiya neighborhood in northern Baghdad. Operation Mortar Man Adhimiya was designed to destroy AIF mortar teams firing onto coalition forward operating bases (FOBs).

Using all sources and predictive analysis, the 39th BCT emplaced a sniper team in the vicinity of historical mortar POOs. During the setup phase, the sniper team wounded one and killed seven insurgent mortar crewmembers.

Deliver: Methods of Delivery. The collateral damage risk with artillery munitions in urban terrain requires a detailed collateral damage estimate (CDE) before firing artillery to assess the potential infrastructure damage and the risk of unintended civilian casualties. Counterstrike operations use other than artillery and mortar responders, such as patrols, snipers, fixed- and rotary-wing assets, and QRFs. The Iraqi Army and Police also are integrated into the responding packages to defeat the enemy. UAVs, such as the armed Predator, provide a platform for direct-action upon the enemy.

The capabilities, availability and response times of every responder are factored into the ICP. Every sensor is linked directly to a responder. For example, radars are linked via the advanced FA tactical data system (AFATDS) to PTDS or UAVs (sensors) to direct BCT patrols, snipers or other attack assets. The placement, orientation and operation of radars are *crucial* to accomplish the mission.

IO is another method of delivering effects. IO officers are instrumental in communicating to the enemy the dangers of fighting US forces. Whether through direct or indirect contact, the information campaign gains the support of the local populace and is another deterrent to enemy actions. Engaging local leaders to stop indirect fires and inform MultiNational Forces (MNF) of outsiders in their areas is essential in preventing those fires. The 1st Cav also had a Tips Hotline for locals to call and report enemy activities and locations.

Assess: Munitions Delivered and Battle Damage Assessment (BDA). The requirement to have eyes on a target allows S2s to determine the BDA immediately. This allows the effectiveness of one round of artillery fired on an enemy mortar or rocket position to be analyzed and assessed instantly. The BDA is verified by nearby patrols, QRFs or UAVs and helps the S2 assess the effects upon

the cell associated with that insurgent team. This assessment is critical to determine if the sensors and responders still are needed for that area or can be focused on another area.

S2s also assess the IO campaign impact through trend analysis in the AO. Changes in the frequency and locations of fires, movement of enemy mortar and rocket teams from one area to another and HUMINT reports may indicate the effects of the IO campaign and other operations.

Interrogating captured team members may yield further clues about the task organization of cells in the AO. A chemical known as X-spray (used to detect a subject's exposure to explosive materials) is helpful in determining if captured personnel are involved in an attack.

UAV footage proves the guilt of targeted insurgents and helps ensure the cooperation of the Iraqi general populace. Shortly before the Iraqi elections, an AIF rocket team operating from within the 5th BCT AO launched a rocket toward the International Zone. The UAV had footage of the team setting up the rocket launch system, firing and exfiltrating the area. The UAV followed the team to a nearby village and provided the location to the QRF, which subsequently captured seven members of the rocket team.

Counterstrike Operations Developments Ongoing. The principles and procedures for counterstrike operations for an insurgency being developed by units in Iraq are emerging as doctrine and TTP. Fighting ongoing in urban areas poses different challenges and solutions and requires a flexible, adaptive Field Artillery.

Given the nature of the enemy's indirect fire TTPs in OIF, it is imperative that fire supporters embrace the challenge of synchronizing the variety of sensors and responders at the disposal of the maneuver commander. As such, the Field Artillery always will evolve and provide fires and effects. With the assistance of the Counterstrike Task Force at Fort Sill, Oklahoma, and the

US Air Force photo by SSgt. Suzanne M. Jenkins

Senior Airman Robert Mascorro, 46th Expeditionary Reconnaissance Squadron, marshals an RQ-1 Predator in Iraq. Predator is a remotely piloted aircraft that provides real-time surveillance imagery. Unmanned aerial vehicles (UAVs), such as the armed Predator, are platforms for direct-action upon the enemy.

development and rapid fielding of new sensor and responder technology, we will see even greater effects on the AIF in the future.

Colonel Thomas S. Vandal commanded the 75th Field Artillery Brigade, III Corps Artillery, at Fort Sill, Oklahoma, and deployed with the brigade headquarters (minus) to Baghdad to serve as the Counterstrike Headquarters for the 1st Cavalry Division in Operation Iraqi Freedom (OIF) II. While in Iraq, he served as the Effects Coordinator (ECOORD) for the 1st Cavalry Division. Currently, he is the Commander of the Operations Group in the Joint Multi-National Readiness Group (JMRG), formerly known as the Combat Maneuver Training Center (CMTC), at Hohenfels, Germany. He also was the Commander of the 1st Battalion 37th Field Artillery (1-37 FA), 2d Infantry Division, Fort Lewis, Washington; S3 and Executive Officer of the 1st Cavalry Division Artillery, Fort Hood, Texas; S3 and Brigade Fire Support Officer (FSO) in 2-82 FA, also in the 1st Cav; and B Battery Commander, 4-29 FA, 8th Infantry Division (Mechanized) in Germany.

Captain William L. Gettig, until recently, was the S2 of the 75th FA Brigade at Fort Sill and deployed with the brigade headquarters to Iraq to conduct counterstrike operations for the 1st Cavalry Division during OIF II. Currently, he is a student in the Military Intelligence Captains Career Course at Fort Huachuca, Arizona. Also in the 75th FA Brigade, he was the S2 for 1-17 FA (Paladin) during OIF I; Fire Direction Officer in B Battery, 1-17 FA; and Battalion Reconnaissance and Survey Officer, also in 1-17 FA. He is a graduate of Cameron University, Lawton, Oklahoma.

JAGOG

Training Air-Ground Combat Prowess at the NTC and JRTC

By Colonel Arden B. Dahl
USAF

On 5 July, the USAF renamed the Air Ground Operations School (AGOS) at Nellis AFB, Nevada, the Joint Air-Ground Operations Group (JAGOG).[1] This reflects a USAF move to reinforce the unit's *joint* air-ground training mission and that the organization is more than just a "schoolhouse."

JAGOG trains basic and advanced air-ground combat skills to prosecute land campaigns. Its objective is to develop a joint team that combines close air support (CAS) and air interdiction (AI)—the core air-ground missions—with ground maneuver and fires to win battles.

For Airmen, the proximity of air-to-ground fires to friendly ground forces and the requirement for detailed integration with maneuver and fires in the close fight make CAS the toughest joint mission. For this reason, *we emphasize CAS training.*[2]

The JAGOG schoolhouse teaches the basics of air-ground planning, integration and execution to produce entry-level joint terminal attack controllers (JTACs), joint fires observers (JFOs), forward air controllers-airborne (FAC-As), air liaison officers (ALOs) and ground liaison officers (GLOs). JAGOG hammers out advanced CAS skills in Air Warrior I and Air Warrior II exercises in conjunction with National Training Center (NTC) and Joint Readiness Training Center (JRTC) rotations at Fort Irwin, California, and Fort Polk, Louisiana, respectively—two of the Army's "Dirt" Combat Training Centers (CTCs).

JAGOG Organization and Operations. The group consists of four squadrons, one detachment (Det) and one operating location (OL) in four states. Additionally, the Army Joint Support Team-Nellis (AJST-N) is integrated into the JAGOG schoolhouse mission at Nellis AFB. Figure 1 lists the JAGOG units and their locations and major programs.

The JAGOG plan for the Fort Sill OL is to grow the two personnel already assigned to a detachment size (about 12 personnel) within two years and possibly station a combat training squadron (CTS) at Fort Sill later (about 25 personnel). The OL will instruct the JFO Course (JFOC), an Army-Air Force draft course. The eventual JFO throughput planned for Fort Sill is about 500 students per year.

The JFO is a recent jointly recognized combatant. He is an expert in killing targets with artillery and naval surface fire. For Types 2 or 3 CAS, the JFO is trained to serve as the JTAC's eyes and

ears when the JTAC is not in a position to see the target or aircraft at weapons release. In those types of CAS, the JFO provides timely, accurate targeting information for the JTAC's (or certified FAC-A's) terminal attack control of the aircraft. Together, they form a joint battlefield team designed to train together and provide commanders lethal CAS.

During the last 12 months, more than 80 percent of JAGOG's 4,000-plus air-ground students wore Army "Green." JAGOG's Air Warrior exercises exposed another 90,000 Soldiers and Airmen to air-ground problems at the "graduate" level. These exercises integrated more than 2,000 fighter/bomber sorties, 30 flying squadrons and approximately 400 tactical air control party (TACP) personnel in the brigade fights at the NTC and JRTC. Air Warrior I and II have been building joint combat prowess in the close force-on-force fight for the last two decades.

All the more, the Army's transformation to a leaner brigade-centric force with less organic direct and indirect fire resources calls for greater reliance on air power to win battles. This has intensified the need for the robust joint training of Soldiers and Airmen in combat operations ranging from stability and support operations (SASO) to major combat operations (MCO).

This article describes the main challenges of air-ground training and some initiatives to keep joint air-ground training "on the front burner" at the NTC and JRTC.

Air-Ground Training Fronts. The air-ground training challenge has lots of moving parts. To help prioritize the effort, JAGOG has organized tactical air-ground training into three "fronts"—first, second and third.

First Front. This front is the point at which terminal attack control, munitions and targets intersect on the battlefield. The training primarily is concerned with the JTAC-JFO lash-up on the ground and the play of the FAC-As and pilots, the air-to-ground trigger pullers. This front is receiving a lot of DoD attention concerning how many JTACs are required to support combat operations on the ground and the equipment, ranges and sorties needed to train that number of JTACs. JAGOG's primary training push at this tactical level is the interdependency of the JFO and JTAC.

Second Front. The second training front is in the brigade combat team (BCT) tactical operations center (TOC). The focus there is on integrating the efforts of the ALO/TACP, the fire support element (FSE) or fires and effects cell (FEC) the latter in the modular BCT, and the rest of the BCT's combat staff.

In my view, this is our toughest training front. It requires extensive practice in garrison and other exercises to get battle priorities and execution right.

This also is the front at which we need to do the most work to correct some dysfunctional CAS practices often observed during the brigade force-on-force scenarios at the NTC and JRTC. The basic problems preventing effective CAS employment at these rotations are listed in Figure 2 on Page 14.

The results of these shortfalls are missed opportunities on the battlefield at best and lost battles at worst.

The Army or Air Force cannot solve these problems in isolation. Both must work together to boost the efficiency of limited air power resources.

Proficient air-ground teams in the TOCs during NTC and JRTC rotations position their JTAC-JFO teams on the battlefield in the right places and times with enough air power to defeat the opposing forces (OPFORs). This, in turn, leverages maneuver and fires to win battles.

Third Front. The third training front addresses the corps-level air support operations center's (ASOC's) interface with the theater air control system (TACS). The ASOC sits astride a number of tactical command and control lash-ups between the senior FEC at the two- or three-star unit of employment (UEx); subordinate TACPs at the brigade, battalion and company levels; FAC-As; and strike aircraft—and at the operational level, to the combined air and space operations centers (CAOCs).

For decades, the Air Force has not trained ASOC command and control skills in a robust combined arms setting. This is a setting in which the ASOC

Unit	Location	Mission	Annual Scope
6 CTS (-)	Nellis AFB, NV	Joint Firepower Course (JFC)	1,400+ Students
		Joint Fires Observer Course (JFOC)	120 Students
		Army Branch School Support	4,000 Students
6 CTS OL	Fort Sill, OK	JFOC	Pilot 29 Aug 05
549 CTS	Nellis AFB	Air Warrior I (NTC)	10 Exercises
12 CTS	Fort Irwin, CA	Air Warrior I (NTC)	10 Exercises
548 CTS (-)	Barksdale AFB, LA	Air Warrior II (JRTC)	10-12 Exercises
548 CTS, Det 1	Fort Polk, LA	Air Warrior II (JRTC)	10-12 Exercises

Legend:
AJST-N = Army Joint Support Team-Nellis
CTS OL = Combat Training Squadron Operating Location
Det = Detachment
JRTC = Joint Readiness Training Center
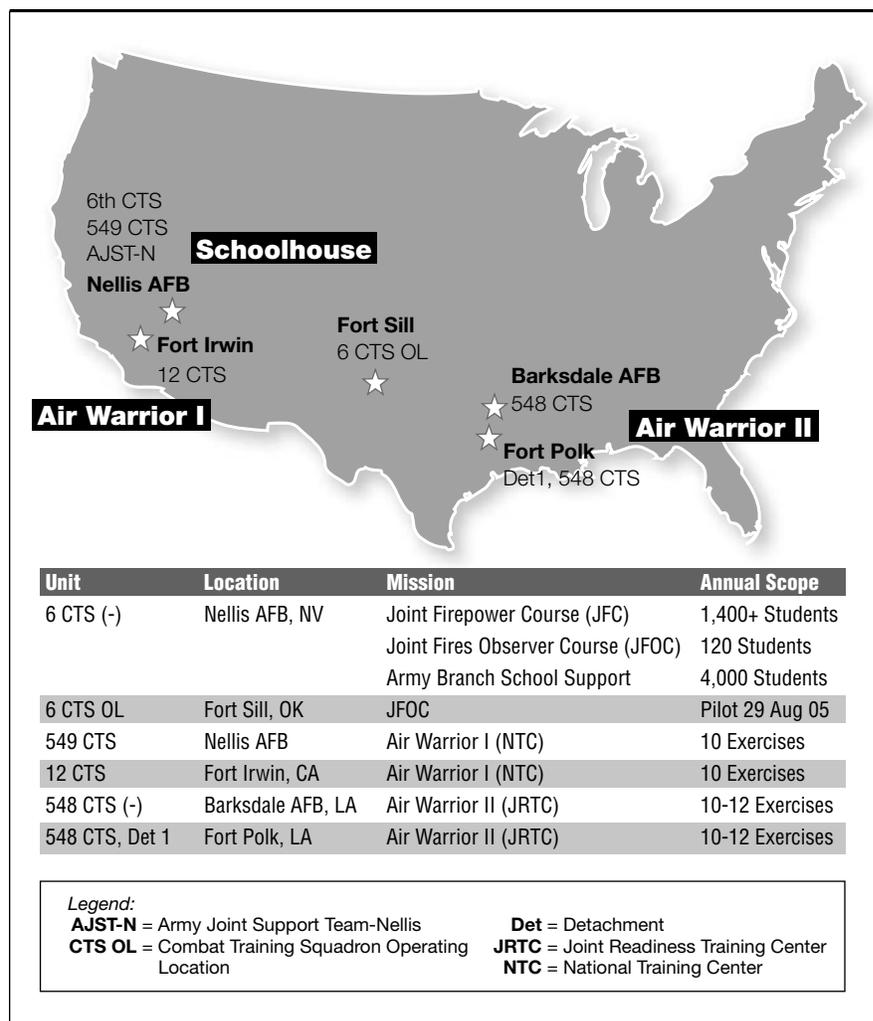**NTC** = National Training Center

Figure 1: Joint Air-Ground Operations Group (JAGOG). JAGOG is based at Nellis AFB, Nevada, with squadrons/units in other locations, as shown, to provide close air support (CAS) and air interdiction (AI) for land combat training.

simultaneously works with a CAOC, the senior FEC at the two- or three-star UEx and subordinate TACPs and CAS aircraft, all while dealing with the friction and fog generated in an "opposed" exercise.

The result is that most air-ground command and control lash-ups have to be put together just before or during actual combat operations.

That said, during the last year, the Air Force has initiated a program to overhaul ASOC training to enable the employment of the most air power with the least amount of command and control.

Air Warrior Initiatives. Currently, the NTC and JRTC train BCTs with SASO scenarios that emulate the challenging combat conditions in Iraq and Afghanistan. However, the important task of influencing the Afghans and Iraqis to meet coalition goals via nonlethal effects has decreased the high-intensity force-on-force training opportunities for Soldiers and Airmen.

This is a classic problem of "near rocks" and "far rocks" training priorities. Everyone agrees that we must get the SASO mission right today—that our forces must be able to employ air power mainly for nonlethal effects missions (such as presence; show-of-force; intelligence, surveillance, reconnaissance, or ISR; etc.). At the same time, we need to hone lethal skills to be able to defeat a capable foe in the next major war.

The key is to blend lethal and nonlethal air power execution in the NTC/JRTC and Air Warrior scenarios. The task is for exercise planners to script events that trigger the BCT's execution of lethal CAS. During the last year, both the NTC/ JRTC and Air Warrior exercise programs have made great strides in developing various scenario tools to address both SASO and MCO skills and stimulate lethal air-ground training especially in urban settings.

NTC 52d Infantry Division (52d ID)-Directed CAS Fragmentary Order (FRAGO). The CAS FRAGO tasks the BCT to use air power to destroy stationary and mobile targets on the fringes of the BCT's battlespace in support of division objectives. These exercises energize BCT CAS planning and execution in urban environments, thus increasing unit confidence in employing air power.

The missions are complex and require close coordination between the BCT and its higher headquarters. Targets include vehicle-borne improvised explosive device (VBIED) manufacturing facilities,

- A lack of understanding of what the desired air power effects should be—of what CAS brings to the fight.
- A lack of understanding of the rules of engagement (ROE) that restrict air power employment because of air-ground weapons effects on the battlefield.
- A lack of CAS planning, which leads to reactive/late CAS employment and inefficient CAS command and control.
- Deficient CAS battle drill: the tactical operation center (TOC) is not "at the ready" when CAS arrives.
- Inadequate battle tracking and clearance of fires.
- Poor airspace coordination.

Figure 2: Basic CAS Problems at the NTC and JRTC

enemy weapons caches and safe houses, and other urban targets. The BCT's successful execution of CAS or the lack thereof affects scenario force ratios and subsequent combat issues.

The CAS FRAGO is used primarily in SASO and was employed during the 4th ID's mixed high-intensity conflict (HIC)/SASO hybrid rotation at the NTC in July and will be used again for its September NTC rotation.

NTC Hybrid HIC/SASO Rotations. The 4th ID's July rotation featured three HIC battles, three live-fire battles and one extended SASO period. The HIC battles put two battalions in the field to fight a battalion-sized OPFOR amidst urban settlements and cave complexes. The OPFOR was equipped with armored vehicles, surface-to-air threats, infantry and an adaptive command structure. Adding realism and difficulty, Arabic speaking contractors inhabited the urban settlements as they do in SASO.

The BCT's use of CAS (A-10s in this case) in the HIC battles was effective, a reflection of solid joint air-ground skills at the TOC and in the field. The HIC battles reminded all of the difficulty of air-ground integration in a tough force-on-force fight and the necessity to work these perishable skills. The hybrid mix of HIC and SASO scenarios also will be a part of the 4th ID's September rotation and the Joint Forces Command Joint National Training Capabilities' (JNTC's) November rotation at the NTC.

NTC/Air Warrior I Joint Effects Training (JET). The JET is a four-phase program that tackles the issues of the first and second training fronts. The JET trains scouts,

reconnaissance teams, TACPs, battalion FSEs, BCT staffs, Army aviation and military intelligence (MI) companies to integrate air power and other joint fires and effects on the battlefield.

The JET exercise is accomplished twice during an NTC rotation under the guidance of the NTC Operations Group and JAGOG observer/controllers (O/Cs). The first JET is "dry fire"; the second is live.

Key training tasks include observation and collection; lethal and nonlethal joint suppression of enemy air defenses (JSEAD); MI data gathering; target marking; airspace coordination; mortar, cannon and multiple-launch rocket system (MLRS) missions; CAS battle drills; and air strike execution. The goal is for rotational units to implement JET in home-station training programs to develop an integrated joint effects team.

Phase One of JET is completed at the NTC Leaders Training Program (LTP) and focuses on integrating CAS, artillery, attack aviation and electronic warfare (EW) in a controlled classroom environment under expert instruction. NTC LTP trainers provide the BCT staff with orders directing them to develop a JET as well as provide on-the-spot and after-action review (AAR) feedback. The BCT staff departs the LTP ready to build on effects training at home station.

Phase Two is completed at home station and consists of battalion- and BCT-level exercises integrating JET assets. JTACs, JFOs, forward observers (FOs) and MI units continue formal and informal training and participate in BCT staff-level battle drill training.

As the final part of Phase Two, the BCT's staff is issued an NTC deployment order, including a JET annex complete with training description, scheme of fires, target list, CAS annex and graphics—before it departs for the NTC. The objective is for the BCT staff to come prepared to integrate joint fires.

Phase Three encompasses a complete JET dry run and prepares the BCT to integrate effects during the force-on-force and live-fire battles that follow. During the reception, staging, onward movement and integration (RSOI) phase of the NTC rotation, the BCT conducts training site familiarization, attends CAS classroom instruction and rehearses its plan. The BCT also executes surface-to-surface indirect fire training, focusing on calls-for-fire from forward sensors. The BCT also executes adjust fire, fire-for-effect, smoke, spot and engaging moving target

missions. The MI company works on data collection from organic and inorganic assets.

Phase Three culminates in the dry employment of simulated CAS, artillery, attack aviation and EW systems. Feedback is provided on the spot and during the NTC Operations Group Commander's RSOI AAR.

Phase Four culminates in a live JET during the NTC rotation transition to live-fire period. The NTC gives the BCT a live-fire order that includes a JET annex complete with training description, scheme of fires, target list, CAS annex and graphics. The unit refines the basic plan and validates its ability to execute CAS as ordered.

The BCT then takes the field and conducts a series of live-fire JET rehearsals before moving on to the live-fire JET. The live JET rehearsals prepare the BCT for the impending NTC live-fire battles by practicing the most difficult aspects of joint effects integration and mass.

Thirteen BCTs and TACPs have participated in JET events, training more than 500 JTACs, fire support teams (FISTs) and scout team personnel; 39 artillery batteries; and 25 mortar platoons. All units have recommended the continuation of JET exercises. JET performance observations are listed in Figure 3 on Page 16.

JRTC/Air Warrior II CAS Situational Training Exercise (STX) Lanes. During the last six months, the JRTC LTP has reinvigorated air-ground integration with the added emphasis on urban operations. This has culminated in a highly successful CAS STX employing fighter and bomber aircraft over Leesville, Louisiana (estimated population of 6,500), just off the northeast side of the Fort Polk reservation. Leesville is one of three moderately sized cities in the local area that permits dry CAS operations overhead and TACP/FIST teams and their vehicles to operate in the town. Aircraft participate unarmed with a minimum altitude of 3,000 feet above ground level (AGL). The other two cities are DeRidder and Oakdale.

The CAS STX program primarily addresses the JTAC-FO (and future JFO) tactical partnership in executing Type 2 CAS controls. Type 2 CAS occurs when either the visual acquisition of the attacking aircraft or target at weapons release is not possible or the attacking aircraft are not in position to acquire the mark/target prior to weapons release/launch (i.e., during adverse weather or at night, when the aircraft are at high altitudes or use standoff weapons, etc.)

The CAS STX trains the JTAC and FO to deal with the line-of-sight visual and communications issues one encounters around buildings, in alleys and from behind hedgerows in the middle of town. Additionally, the CAS STX adds the difficulties that a large town presents in terms of increased size, clutter and numbers of stationary and moving targets.

The STX trainees, thus far, have included A-10, F-16 and French Mirage 2000 pilots and more than 100 JTACs, FOs, platoon leaders and company commanders.

JRTC/Air Warrior II Live-Virtual-Constructive (L-V-C) Play. The JNTC effort has made steady progress in combining L-V-C exercise participants into JRTC rotations. Now nested as part of the growing distributed mission operations (DMO) network throughout the continental US, the communications, wiring and exercise adjudication procedures are in place for both virtual and constructive aircraft to engage the enemy on the battlefield (linked into the L-V-C network at the JRTC).

Pilots sitting at Barksdale AFB in Louisiana flying A-10 and B-52 simulators have flown missions in SASO scenarios at the JRTC. The AC-130 simulator at Hurlburt Field in Florida also has operated virtually over the JRTC box. Likewise, various Airmen constructively have piloted missions from an office at Fort Polk linked to the radios and command systems of other exercise participants.

While there are many issues and bugs to work out in getting operator fidelity of virtual and constructive effects on the battlefield, the L-V-C effort has already stimulated increased air-ground integration in the BCT TOC.

Ultimately, the DMO network will enable a wide assortment of Airmen, weapons systems and theater command systems to participate in training at the NTC and JRTC.

Air Warrior ASOCs. The Air Warrior exercises now have permanent contractor-run ASOCs, one each at the NTC and JRTC. "Contract ASOC" is the short name for the Air Support Operations Center Element/Joint Air Warfare Tactics Analysis Team (ASOCE/JAWTAT).

The contract ASOCs are manned by former Army and USAF personnel with extensive tactical and operational "shooter" and command and control backgrounds.

These ASOCs are extensions of the air-ground expertise resident in the Air Warrior I and II squadrons. They are designed to support Air Warrior and NTC/JRTC rotations by replicating 24-hour ASOCs. Each contract ASOC executes doctrinal command and control of subordinate TACPs supporting the BCT and coordinates with the FSE/FEC in the division TOC.

Additionally, the ASOCs soon will have the broadband connections to exercise the command and control links between the NTC and JRTC air wars and the training CAOC at Nellis AFB. Important in this construct is the use of real-world command and control systems and processes employed in the Central Command (CENTCOM) theater.

The contract ASOCs also have detailed mission analysis capabilities to enhance Air Warrior feedback and the debriefing of the BCT staffs, TACPs and aircrews. The ASOCs employ enhanced computational technologies to record, analyze and highlight battle successes and failures; provide timely analysis of the integration of air and ground elements; and develop pertinent documentation for unit lessons, trends and future training. At the end of the rotations, every TACP and flying unit departs with a comprehensive "take-home" package of mission playback data and analysis.

The contract ASOC's impact on the BCT is threefold. In addition to better replicating TACS and its processes, the ASOC boosts airspace command, control and coordination for fixed- and rotary-wing aircraft and unmanned aerial vehicle (UAV) operations in concert with the Army airspace command and control (A^2C^2) function. It also improves the air-ground integration between the FSE/FEC and TACP and their systems within the TOC, a blending of Blue and Green teamwork.

As a final note, the contract ASOC's wealth of operational experience fosters institutional cross-talk between the participants and NTC/JRTC-Air Warrior O/Cs. This interaction will bolster combat skills across the joint spectrum.

Other Air Warrior Initiatives.[3] There are several other Air Warrior initiatives that need quick mention. For example, both Air Warrior programs are increasingly employing a wider variety of aircraft, weapons and sensors in their exercises.

The use of B-52s, B-1s and even B-2s has become routine at the JRTC, both in scenario training and during Leesville-DeRidder-Oakdale urban CAS training. The first B-52 deployed to Nellis this year specifically to execute CAS at the

NTC. "Bomber" CAS brings new air-ground capabilities (loiter, munitions and sensors) and challenges (airspace and training).

The first F-15E Strike Eagle employment at both the NTC and JRTC also occurred during the last 18 months.

Air Warrior II also has been working joint surveillance and target attack radar

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• Brigade combat team- (BCT)-level CAS battle drills are not practiced adequately at home station, so staffs arrive at the NTC with varying degrees of proficiencies in CAS tactics, techniques and procedures (TTPs). Critical members of the CAS battle drill huddle are unsure of their responsibilities and lack the basic training to participate effectively.

• The process of marking CAS targets with artillery tends to be overly complex, and staffs lack the proficiency to execute in a timely manner.

When planning target marking, units do not adequately consider CAS aircraft capabilities and systems, employment tactics and various weapons flight/employment characteristics.

One "rule-of–thumb" will not work for all weapons and aircraft delivery profiles. Mark timing is affected by the type of weapon employed and the weapon's flight profile, release angle and altitude, aircraft speed, etc. For example, laser-guided weapons deliveries from medium altitude require the unit to fire the mark earlier then a high-angle dive bomb attack profile from a low altitude.

• Joint effects training (JET) identified a problem with firing ground-burst illumination rounds to mark targets for aircraft using the current advanced FA tactical data system (AFATDS) Version 6.3.2. The software does not provide an option for an illumination round to burst at ground level to mark a target—this 155-mm round was designed for the optimum height of burst (HOB) of 600 meters to illuminate enemy forces in an area.

AFATDS operators must do a workaround to fool AFATDS Version 6.3.2 into selecting ground bursting for illumination. (See the procedures at the bottom of this figure.)

Units must ensure their FA leaders and AFATDS operators know how to do the workaround for Version 6.3.2 and why they need to do it.

AFATDS Version 6.4 to be fielded in the Second Quarter of FY06

allows the operator to choose the HOB without a workaround.

• Airspace coordination is a problem. The BCTs generally build airspace coordination areas (ACAs) that are too small and too complex for aircraft tactical maneuvering and weapons employment. ACAs must account for specific aircraft performance and weapons delivery/release parameters. Also, artillery projectile flight parameters tend to be generic, resulting in higher than required ACA floors.

While not a JET trend, BCTs also must avoid building ACAs that are too large. Overly large ACAs restrict the ground commander from employing his organic indirect fire assets in his battlespace without significant coordination. The ACAs can be adjusted with informal restrictions, but the entire joint force must be notified of any changes.

Most units are reluctant to establish informal restrictions within their airspace. Part of the problem is that inserting and changing complex ACA data in AFATDS calls for highly trained operators. With skilled operators, AFATDS provides the advantage of digitally notifying every part of the force of the ACA changes and calls for confirmation that every element got the changes, including Army aviation, unmanned aerial vehicle (UAV) operators and indirect fire units.

However, the combination of complex ACAs and cumbersome, time-consuming AFATDS airspace management reduces the flexibility and timeliness of indirect fire and air power integration.

• Communication issues plague both the BCTs and tactical air control parties (TACPs). Older TACP communications equipment fails at a high rate, causing significant connectivity "holes." Line-of-sight or retransmission capabilities are not properly considered when choosing observation positions, and many units do not bring sufficient spare parts and back up radios.

AFATDS Version 6.3.2 Procedures to Adjust the 155-mm Illumination Round HOB to Ground Burst

1. Select the "Mission Processing" tab on the current menu bar:
A. Select "Initiate Fire Mission."
  (1.) Input the target location, to include target altitude.
  (2.) Select the "Method of Control" of "DNL."
B. Select the "Munitions" tab.
  (1.) In the field "FFE #1 Shell," select "Illum."
  (2.) In the field "FFE #1 Fuze," select "Time."
  (3.) In the field "FFE #1 Volleys," enter "1."
C. Select the "More Mission Data" tab.
  (1.) In the "Fire Units" field, press "Add."
  (2.) Select the appropriate fire units to add.
  (3.) Press the "Analyze Target" button.

2. Select "Intervention Point":
A. View the AFATDS "Cannon Tech Solution."
B. Accept the AFATDS "Recommendations."

3. Select "Target" on the main menu screen:
A. Select "Workspace."
  (1.) Highlight "Target."

(2.) Click the #3 button on the mouse to select "Adjust" (or on the keyboard to select "Adjust").
(3.) Another option is to display the "Initiate Fire Mission" window and type in the target number that you want to correct and the grid will auto fill. Select the "Shift" tab and input the "Down" correction in the "U/D" field.
B. When the "Adjust" window opens up:
  (1.) In the "Azimuth" field, select "Observer/Target."
  (2.) Select "HOB Correction" and input "Down 550" for 155-mm. Input "Down 700" for 105-mm.
  (3.) In the "Method of Control" field, select "AMC/WR."
  (4.) Press "Apply Then Analyze."
  (5.) Once the mission re-enters the "IP" window, select the "IP" tab and accept the recommendation.
Note: Once the operator presses "OK" in the "Adjust" window, fire commands are sent automatically to the guns, and a fire mission will not

stop in the "IP" window for review.

4. To end the mission after the rounds are complete:
A. Select the "Active Mission Monitor" (small tank on current tool bar). Select the "Option" tab on the "Rnds Complete" window and select "End of Mission."
B. Option two is to select "Weapons Mission Monitor" (Paladin toggle on the current tool bar) and select "EOM." This option only works at the battery-level AFATDS.

COL John L. Haithcock
TSM FATDS, Fort Sill, OK

Legend:
AMC = At My Command
DNL = Do Not Load
FFE = Fire-for-Effect
IP = Intervention Point
WR = When Ready

Figure 3: NTC/Air Warrior Joint Effects Training (JET) Observations and Lessons

Leesville, Louisiana. This town of about 6,500 people near the JRTC is one of three in the area that allow "dry" CAS overhead and TACPs and fire support teams (FISTs) to operate in the town. The NTC conducts similar training over Fort Irwin.

Colonel Arden B. ("Surgeon") Dahl, USAF, is the Commander of the Joint Air-Ground Operations Group (JAGOG) at Nellis AFB, Nevada, formerly known as the Air Ground Operations School (AGOS). He is an A-10 Warthog pilot with operational assignments in Europe, Korea and the continental US. Prior to his current assignment, he was the Operations Officer and then Commander of the 74th Fighter Squadron (A-10) at Pope AFB, North Carolina, deploying the squadron in 2002 for combat in Operation Anaconda, part of Operation Enduring Freedom in Afghanistan. He served as the Chief of Wing Weapons and Tactics for the 52d Wing at Spangdahlem Air Base in Germany, deploying with the 81st Fighter Squadron (A-10) for combat during Operation Allied Force in Kosovo. He also deployed with the 74th Fighter Squadron to the Gulf for Operations Desert Shield and Storm.

system (JSTARS) E-8 aircrews to help track and point fighters to mobile OPFOR mortars in the counterfire mission.

Air Warrior continues to bring in joint and allied air units. Joint players have included USN F/A-18s and USMC F/A-18s and AV-8Bs. Allied units include Royal Air Force GR-3 Jaguars and GR-4 Tornados and French Mirage 2000 aircraft. Allies also have sent their TACPs to NTC and JRTC rotations. This trend likely will grow based on the interest other allies have expressed.

The United Kingdom is interested in joining the contract ASOC program as a possible training venue. The latter matches up with a JAGOG plan (FY06) to invite ASOC combat personnel to serve in the contract ASOCs as a training audience. They would train to support a brigade fight, coordinate air and airspace at the UEx level (two-star TOC) and connect to the CAS functions of the CAOC-N at Nellis AFB.

Finally, an important near-term effort at the NTC will aim to improve joint airspace command and control above and below the coordination altitude. The proliferation of UAVs in the BCT battle has increased the difficulty for current A^2C^2, ASOC and higher echelon theater air control functions to deconflict and integrate artillery, UAVs, rotary- and fixed-wing players—and, ultimately, to defend the airspace. Meeting this challenge is a specific JNTC objective for the NTC 05-10 rotation and a major issue from the latest Joint Service Chiefs' Forum

The Takeaway. The NTC/JRTC and Air Warrior staffs have made significant strides in providing opportunities to train air-ground combat prowess for the combined arms team. However, good scenarios are not enough to produce air-ground success against an OPFOR. Effective CAS employment is hard work and "a two-way street" for Airmen and Soldiers.

The joint air-ground team in the BCT TOC is the key. Both USAF TACPs and BCT staffs must be ready and fluent in air-ground integration, something they must train on back at the "home fort" long before RSOI at the NTC or JRTC.

1st Cav: Engineering Countermobility for Insurgent Indirect Fires and Mobility for Coalition Forces

By Captain Patrick S. Marsh, Major Robert L. Menti and Captain Luis M. Alvarez

O n 21 February 2005, an Army-Marine combat operation systematically destroyed the far and near bridgeheads on a key enemy smuggling and infiltration route across the Euphrates River near Baghdad. The operation eliminated the anti-Iraqi forces' (AIF's) last passage from the eastern edge of northern Babil into southern Baghdad. This route commonly was used to launch deadly indirect fire attacks into the International Zone in Baghdad.

Days later, a Marine-secured combat assault and obstacle (A&O) engineer (EN) platoon "grubbed and cleared" debris and earthen berms along a 10-kilometer stretch of restricted terrain in northern Babil, allowing freedom of movement for civilians and Coalition Forces throughout the area of operations (AO). At the same time, a combat EN reserve platoon and its infantry (IN) brethren uncovered several rockets, improvised explosive devices (IEDs) and munitions caches in graveyards and mining pits in northern Babil. Combined intelligence (S2) and operational analyses of AIF smuggling patterns, primary IED trends and support zones led to these finds.

Through planning and execution, mobility and countermobility operations disabled the insurgents' power to disrupt the emerging Iraqi government and provided security to the Iraqi people.

The Threat. The 5th Brigade Combat Team (5th BCT), 1st Cavalry Division (1st Cav), deployed from Fort Hood, Texas, to southern Baghdad in March 2004 for Operation Iraqi Freedom (OIF) II. The BCT operated out of Camp Falcon, a forward operating base (FOB) along Highway 8, the road to Baghdad International Airport. The 5th BCT was commanded by the 1st Cavalry Division Artillery Commander, Colonel Stephen Lanza, after the Div Arty had been designated a maneuver BCT.

The 5th BCT's AO was a support zone for an AIF command and control (C^2) center and the locus of most indirect fire attack points of origin (POO) in the Baghdad area.

The insurgents used aerial bombs from former Iraqi Air Force bases, ammunition depots and hidden caches to make several IEDs. These IEDs destroyed M1114s and up-armored high-mobility multipurpose wheeled vehicles (HMMWVs), killed and maimed 5th BCT Soldiers and hindered the division's mobility and patrol of designated "rocket boxes": named areas of interest (NAIs) from which insurgents launched rocket attacks.

Early in the deployment, the AIF attacked Camp Falcon with light and medium mortars (60-mm and 82-mm) integrated with deadly and accurate light to medium rockets (57-mm, 67-mm flechette, 100-mm, 107-mm, 122-mm and 127-mm) from improvised rocket launchers, trays and earthen berms. Indirect fire attacks produced Coalition Force casualties, a number of casualties second only to those caused by IEDs.

The AIF used open areas near schools, urban areas and religious sites to launch attacks, taking advantage of constraints imposed by counterstrike rules of engagement (ROE). Another limitation was the rapid displacement times of mortar and rocket teams, averaging less than two minutes. Rotary-wing air support was key to most missions but often resulted in deterring indirect fire instead of killing insurgents.

Terrain also favored the enemy: the southeastern border of the 5th BCT's AO totaled 70 square kilometers of farmland, abundant in date palm groves and bordered by the Tigris River. The enemy had the edge while area civilians could not report AIF activities due to limited visibility and no communications infrastructure.

During August and September 2004, many 60-mm and 82-mm mortars and 107-mm and 122-mm rockets hit Soldiers' living quarters on FOB Falcon, prompting the 5th BCT commander to implement an innovative and aggressive countermobility engineering solution.

This solution combined ongoing combat patrolling with aerial surveillance to stop enemy indirect fires. The BCT commander ordered the staff to analyze the enemy's terrain use leading into and out of the support zones and determine the enemy's tactics, techniques and procedures (TTPs) and operational patterns.

Operations Thunderstruck and Hardball. The brigade staff developed the enemy TTPs, patterns and terrain use and then reverse-engineered scenarios for mortar and rocket indirect fires.

The central analysis team included the S2; assistant brigade engineer (ABE); 1st Battalion, 8th Cavalry's (1-8 Cav's) assistant operations officer (A/S3) (primary area of focus); the terrain team NCO; and the fire support cell NCO. The team collected fragments of information from historical IED sites: exploded/found rocket POOs, destructive/unsuccessful mortar POOs and trajectories, rocket and mortar ranges, radar acquisitions, visual sightings and confirmed POO sites; it also determined major and minor roads, vegetation, waterways, bridges, urban and military graphics, and critical infrastructure of interest, including Sunni, Shi'a and radical mosques.

The terrain team put the information on terrain overlays for a graphic representation on a 1:5000 scale model of the 5th BCT's AO. The S2 reviewed the terrain model and added enemy operation cells, actions, movements and command cells within each of the threat support zones. 1-8 Cav's A/S3 compiled an additional overlay with the S2 to integrate more patrol debriefing information. The fire support cell NCO analyzed and briefed the POOs, other missed information from radar acquisitions, enemy indirect fire TTPs and the enemy weapons capabilities.

The ABE reverse-engineered the information into an obstacle overlay for countermobility and identified the need for Coalition Forces' mobility to apply direct pressure on areas the enemy had to cross: the AIF limit of advance (LOA).

The countermobility plan evolved into Operation Thunderstruck, and the mobility overlay became a comprehensive

brigade plan, called Operation Hardball. Finally, the judge advocate general (JAG) played a critical role in ensuring Operation Thunderstruck didn't violate the ROEs.

Operation Thunderstruck was an overall obstacle (countermobility) plan to block the enemy's use of key terrain and hinder his movement, preventing immediate egress from the POO to south Babil. The BCT executed a combination of kinetic and mechanical blocking on the south-north routes in key terrain along the southern boundary of the 5th BCT's AO from the Baghdad Airport to the Tigris River. The block forced the enemy to use only checked and heavily patrolled routes and the 5th BCT's clearly defendable terrain during movement between his hiding positions and the indirect fire launch sites.

Operation Hardball was a mobility plan allowing Iraqi and Coalition Forces freedom of movement to and from key terrain, with minimal danger from IEDs and maximum accessibility with more speed. Heavy engineering assets shaped the terrain for maximum horizontal east-west movement.

Engineers developed a safe passage by expanding roadsides; clearing and grubbing ambush areas; constructing new roads; expanding culverts and culvert heads; and hardening the road surface with chip-rock, concrete and (or) asphalt. The heavy reserve engineers developed critical avenues of approach (AAs) to the terrain and rocket boxes. Construction contractors used the commander's emergency relief program (CERP) funds for most of the remaining AAs.

Together, Operations Thunderstruck and Hardball blocked the enemy's freedom-of-movement to the POOs and allowed Coalition Forces to close with the enemy while using economy-of-force. The collective planning and execution phases began in October 2004 and continued into February 2005.

Site reconnaissance and cross-terrain imagery scans followed initial planning with updated one-half meter imagery and imagery from the Shadow unmanned aerial vehicle (UAV).

Due to limited organic resources, the EN brigade brought in engineers from allocated reserve units. The 5th BCT organic resources included the 515th Forward Support Battalion-lift, B/8 EN, Headquarters and Headquarters Company (HHC)/1-8 Cav, the terrain team, psychological operations (PSYOP), medical support, an explosive ordnance detachment (EOD) team and the 1st Cav's 4th Brigade

Two bridges are demolished during Operation Thunderstruck. The operation blocked the enemy's freedom-of-movement, allowing Coalition Forces to close with the enemy while using economy-of-force.

Photo by CPL Bill Putnam, 122d Mobile Public Affairs Detachment

attack helicopters.

The ABE briefed and rehearsed the operation. After conducting movement-to-contact, security elements established an outer and inner cordon with air coverage while PSYOP teams engaged the local people on the objective.

Addressing multiple sites simultaneously, the engineers used augers and dozers to bore holes and emplace explosives and tamp them. The explosives included C-4, TNT, mine-clearing line charges (MICLIC), 40-pound cratering charges and large unexploded ordnance (UXO) and satchel charges. Local people within the danger zone were removed.

The explosions produced surprising and effective results. Besides an enormous cut in the road with large canals tied in, the explosions sent a message to the local populace and the AIF: the Coalition is here to defend them and the enemy is no longer wanted.

Because PSYOP engaged them, the people no longer could straddle the fence; they turned to the Coalition for help, subsistence and security. The day after the cut, the heavy engineers came in, emplaced large Alaskan nine-ton barriers into the ground and brought payments to the Iraqi people who had broken windows or crop damage from the blast.

Then the 458th Corps Wheel Engineers and 411th Heavy Combat Engineers came into the communities and created, improved, grubbed and cleared, and developed roads from goat trails into highways. Finally, after creating and approving CERP packets, Coalition Forces hired hundreds of Iraqis to clean the parallel areas of foliage and trash; construct new culverts and culvert heads; widen shoul-

ders; and asphalt, concrete or chip-rock the surface of the 10-meter wide road. The entire community benefited from the project.

In the last two months of deployment, the 5th BCT became the higher headquarters for the 2/24 Marines, which occupied the northern Babil AO. With that, the 5th BCT commander expanded Operations Thunderstruck and Hardball into the southern area of the AO to block the enemy again and destroy him in place. The last Thunderstruck/Hardball mission used 2/C and 2/A/612 Combat EN (Reserve) working with A/2-162 IN (Reserve) and F Company, 2/24 Marines (Reserve). These units' operations led to the capture of an AIF cell and a large cache along the Euphrates River that contained medium-range rockets, pre-made IEDs and tons of munitions.

Blocking the enemy from his ingress/egress to indirect fire sites and forcing him onto patrolled and controlled roads was the goal of the 5th BCTs countermobility engineering operations. These operations succeeded, decreasing the number of attacks in the AO, while engineers opened a mobility corridor for Coalition Forces to traverse with safety and speed.

Captain Patrick S. Marsh, Engineer (EN), was the Assistant Brigade Engineer for the 5th Brigade Combat Team (5th BCT), 1st Cavalry Division, Fort Hood, Texas, returning from a 12-month tour in Operation Iraqi Freedom (OIF) II in March. Among other assignments in the 1st Cavalry Division, he was an Assistant Brigade Engineer for the 4th Brigade Aviation and Assistant Operations Officer for the 8th Engineer Battalion.

Major Robert L. Menti was the 1st Cavalry Division Artillery (Div Arty) S3 at Fort Hood. Currently, he is a student at the Command and General Staff College, Fort Leavenworth, Kansas. Also in 1st Cav Div Arty he was the S3 for the 1st Battalion, 21st Field Artillery (1-21 FA) (Multiple-Launch Rocket System) and Aviation Brigade Fire Support Officer. He deployed to OIF II as 1-21 FA's S3 and, later in OIF II, served as the 5th BCT's S3.

Captain Luis M. Alvarez was the S2 of the 5th BCT during OIF II. Currently, he is the Commander of the Headquarters and Headquarters Detachment of the Research, Development and Engineering Command (Natick Soldier Center), Natick, Massachusetts. His previous assignments include serving as the S2 of 4-7 Cav, 2d Infantry Division, in Korea, and 1st Cavalry Division G2 Targeting Officer and S2 of the 1st Cav Div Arty, the latter two assignments at Fort Hood.

Winners' Gallery

1st Place, Combat—Howitzer Battery, 1-278 Regimental Combat Team (RCT), Tennessee Army National Guard, fires a round from an M109A6 155-mm howitzer (Paladin) during a fire mission at Jisr-Naft, Iraq. Photo by SSG Russell Klika, 278th RCT Public Affairs (PA)

1st Place, Training—PFC Ben McKandles, D Battery, 319th Field Artillery (D/319 FA), 173d Airborne (Abn) Brigade (Bde), checks the barrel of an M119A2 howitzer for obstructions during training at Grafenwoehr Training Area, Germany. Photo by Jason L. Austin, US Army Europe (USA-REUR) PA

Winners

2d Place, Training—Soldiers from B/2-20 FA, 4th Infantry Division (ID), Fort Hood, Texas, fire a rocket from an M270A1 Multiple-Launch Rocket System (MLRS) during a live-fire exercise. Photo by PV2 David Hodge, 4th ID PA

2d Place, Combat—PFC Terrell Washington of C/2-319 Airborne FA Regiment (AFAR), 82d Abn Division (Div), aims his M203 grenade launcher while on a foot patrol of Baghdad's Hotel District. Photo by PFC Michael J. Pryor, 82d Abn Div PA

3d Place, Combat—SPC Ontario Smith, F/7 FAR, 25th ID, fires a 155-mm round during a show-of-force exercise at Forward Operating Base Salerno, Afghanistan. Photo by SSG Bradley A. Rhen, Combined Task Force Thunder, 25th ID PA

3d Place, Training—PFC Ben McKandles, D/319 FA, 173d Abn Bde, flips a spent round out of a M119A2 105-mm howitzer during training at Grafenwoehr, Germany. Photo by Jason L. Austin, USAREUR PA

Finalists

Finalist—LTG H. Steven Blum fires one round in a 12-round fire mission with Soldiers from the Arkansas Army National Guard's C/1-206 FAR, 39th BCT, at Camp Taji, Iraq. Photo by SPC Benjamin Cossel, 196th Mobile Public Affairs Detachment (MPAD)

Finalist—SPC Matthew Hampton, 1-145 FA, Utah Army National Guard, mans the squad automatic weapon during an exercise at Dugway Proving Ground, Utah. Photo by SSG Scott Turner, 358th MPAD

Finalist—An M109 Paladin from B/2-82 FAR, 1st Cavalry Division, fires a round from Camp Taji, Iraq. Photo by SPC Benjamin Cossel, 196th MPAD

Finalist—PFC John Edwards, C/2-319 AFAR, 82d Abn Div, patrols the streets of Baghdad's Hotel District. Photo by PFC Michael J. Pryor, 82d Abn Div PA

The staff at *Field Artillery* magazine would like to congratulate all who entered the 2005 Field Artillery *Photo Contest.*

All photographs entered in the contest were excellent examples of the photographers' skills and talents. We received many entries from across the services—Active and Reserve Components. The content varied from security and stability operations in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) to live-fire training in Utah.

The top 10 entries appearing in this magazine are also available for viewing and downloading under "2005 Photo Contest Gallery" on our website at http://sill-www.army.mil/famag/. All photos entered into the contest may be used in upcoming editions of the magazine. Full credit will be given to the photographers.

2006 *Field Artillery* Photo Contest

Purpose. The purpose of this annual contest is to obtain high-quality photos capturing Field Artillery personnel or units in training or actual full-spectrum operations for use in the Chief of the Field Artillery's poster series, as cover or other shots for *Field Artillery* or in other esprit de corps or strategic communications projects. Although entrants may submit horizontal or vertical photographs, vertical shots tend to be best for magazine covers and posters.

Scope. Photos should capture images that tell the story of today's Army and Marine Field Artillerymen in the Global War on Terrorism (GWOT) or in training. The competition is open to any military or civilian, amateur or professional photographer.

Prizes will be awarded in two categories: (1) Training for Combat or Stability and Support Operations and (2) Actual Combat or Stability and Support Operations. A First Place of $500, Second Place of $250 and Third Place of $75 will be awarded in each category. Each entrant may submit up to three photographs to arrive at the *Field Artillery* office no later than 1 June 2006. Winning photos will be posted on the Photo Contest Gallery on the *Field Artillery* home page at sill-www.army.mil/famag.

Rules. The following are the rules for the 2006 photo contest:
• Each photograph must be a color jpg or tif image with the subject meeting the requirements of one of the two categories.
• Each photo must have a minimum of four (4) megapixels in its original file size. Any image with its resolution "beefed up" to meet contest requirements will be disqualified.
• Images cannot be manipulated other than the industry standard for darkroom processing, such as dodge, burn, crop, etc. (For clarification see DoD Directive 5040.5, "Alteration of Official DoD Imagery.")
• Each image must have identifying and caption information embedded in the "File Info" or "Properties Summary." This includes the photographer's name, unit/affiliation, email address, mailing address and phone number. Caption information should include who is doing what, where and when in the photograph. Be sure to fully identify the FA personnel/unit being photographed—for example, SGT Joe Smith, Gunner, C/2-20 FA, 4th Infantry Division at Fort Hood, Texas.
• Photos cannot be copyrighted or owned by any agency or publication; the images must be cleared for release and publishable in *Field Artillery*.

Judging. Photographs will be judged by a panel of editors, professional photographers and military personnel. The judges' decisions will be final. Judging criteria is as follows:
• The power and impact of the message the image conveys.
• Composition, clarity, lighting, focus and exposure of the image.
• Creativity and originality.

Submissions. Images can be submitted by email, CD, zip disk or file transfer point (FTP). CDs and zip disks cannot be returned.
• Email images to the Art Director at fred.baker@sill.army.mil. Please submit only one image per email. Mark the email's subject line as "2006 Photo Contest/Photo #1 [2 or 3]—Your Last Name."
• Mail CDs or zip disks to: *Field Artillery*, ATTN: Photo Contest, P.O. Box 33311, Fort Sill, OK 73503-0311. FedEx CDs or zip disks to Room 7, Building 758, McNair Road, Fort Sill, Oklahoma 73503-5600.
• For FTP, send an email to the Art Director requesting the FTP site, user name and login.

Questions. If you have questions, call *Field Artillery* Art Director Fred W. Baker III at DSN 639-5121 or 6806 or (580) 442-5121 or 6806.

Counterstrike at the NTC
Reversing Negative Trends

The CD brought back from the suspected insurgent's house included several digital movie clips, obviously filmed by the enemy or one of his supporters. Complete with Arabic martial music and the recorded voice of the photographer, the clip on the captured CD included a short film of an insurgent 120-mm mortar team attacking the coalition unit's forward operating base (FOB). The crew fired six rounds from the town in less than two minutes and simply vanished.

Worst of all, Soldiers viewing the captured movie knew the enemy had gotten away while they still struggled with the losses of that attack. The only good news was this attack took place at the National Training Center (NTC) at Fort Irwin, California—not Iraq.

R ecent experiences at the NTC have shown a mixed bag of results in winning the counterstrike fight. Since March of 2004, the NTC has conducted stability and support operation (SASO) mission readiness exercises (MREs) for units deploying to the war on terrorism, replicating the full spectrum of enemy activities found in Iraq. Units undergoing this training routinely struggle "to get the upper hand" in the counterstrike fight against the insurgency. No unit in recent memory has defeated the enemy indirect fires "system" decisively, even for a short time.

We have seen several negative trends in the

By Lieutenant Colonel
James L. Miller and Chief
Warrant Officer Three
Michael A. Harp

counterstrike fight that contribute to the challenge. This article is about reversing those trends and providing some insights on achieving the desired effects in the counterstrike fight.

Conversational and unclassified evidence from the combat zones indicate that many of these same trends exist in deployed units and create the same challenges in combat.

There is no "silver bullet" in winning the counterstrike fight. However, there is a single concept that commanders must keep in mind: the counterstrike fight can be successful only if the maneuver commander takes ownership of it, directs a proactive approach, includes combined arms and joint forces, is offensive-minded and includes both lethal and nonlethal components. This approach is the true focus of this article.

Our article lists the most common counterstrike negative trends at the NTC. The solutions to these trends are a combination of lessons learned, doctrine and procedures gathered from units with recent combat experience. They highlight the basics of our counterstrike doctrine and combine both reactive and proactive actions while maximizing the tenets of the offense. They also emphasize the Army model of "See first, understand first, act first." Commanders seeking a

proactive, offensive-oriented, lethal and nonlethal, joint and combined arms approach to counterstrike should consider the following seven trends when creating their counterstrike systems.

1. Units at the NTC struggle to fully integrate a lethal and nonlethal, joint and combined arms approach to counterstrike. Maneuver commanders who emphasize winning the counterstrike fight supervise its execution and allow their staffs to integrate effects to achieve that goal. Without the commander's focus, units struggle to successfully integrate all the elements of combat power: protection, leadership, firepower, maneuver and information.

Successful units develop combined arms operations that integrate deliberate information operations (IO) and civil military operations (CMO) by using a well developed targeting cycle. The targeting cycle must analyze the enemy as a system to identify where the unit can apply the elements of combat power.

There are several key parts of any indirect fire system. At their simplest, they are shooters, terrain, resources and weapons, command and control (C^2), observer and target. Without any one of these parts, an insurgent indirect fires system soon will fail.

As part of their targeting cycle, units "attack" these parts with lethal and nonlethal effects, addressing each as a single target or target set. A running estimate and a routinely conducted commander's update ensure the commander is comfortable with the plan to
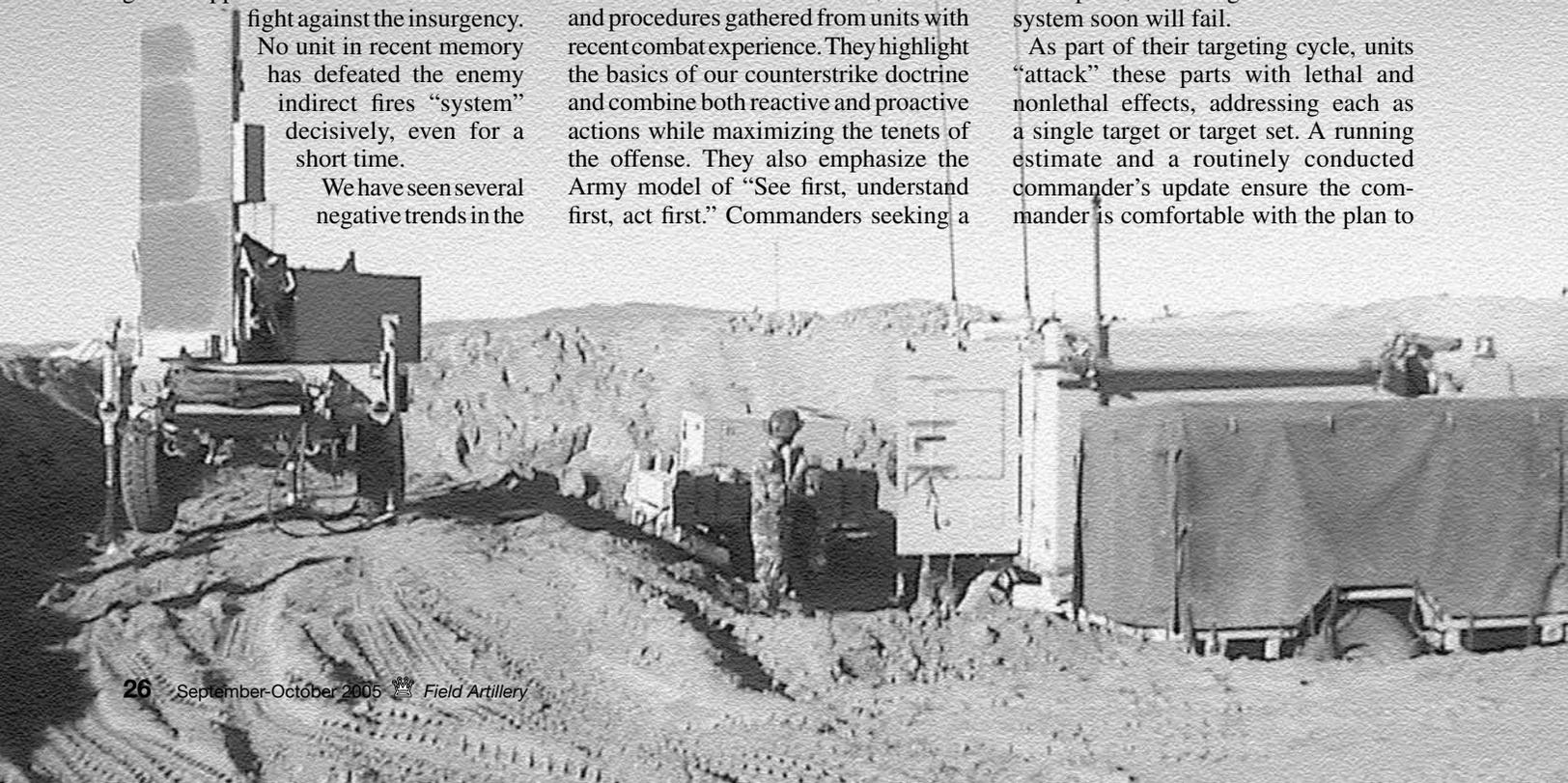
address each target. Feedback from the commander during the update ensures the staff is working toward his desired end state by maximizing the effects of all available assets.

Successful units at the NTC take the commander's intent and devise an approach that focuses lethal and nonlethal options simultaneously against a single target and all targets in the enemy fires system. No element is ignored, and effects are mutually supporting.

The most important point is best illustrated by a line from an old movie: "If you talk the talk, you must walk the walk."

Units that fail in the counterstrike fight don't support their nonlethal operations with lethal options when required and vice a versa. Units fail if they use only one option or use them sequentially vice simultaneously. The same is true for units that do not integrate combined and joint capabilities into the lethal fight.

The combined arms approach to the lethal fight must gain the most from all available forces. The most successful units at the NTC synchronize the counterstrike fight daily and plan a suite of options to respond to attacks through Field Artillery and mortar fires, close air support (CAS), combat patrols, stationary observation points and attack aviation. Successful units also use a well-thought-out intelligence, surveillance and reconnaissance (ISR) plan that identifies and targets enemy shooters before they shoot and tracks them after they engage friendly forces.

Finally, FA battalions often are experts at counterstrike but lack the resources and C^2 to execute the counterstrike fight in an insurgency. Once again, the counterstrike fight responsibility rests with the maneuver commander, and he must direct and resource it. At the NTC, brigade commanders who assign the task to their FA battalions and fail to support and resource its execution, fail in their counterstrike fight. On the other hand, brigade commanders who take on the mission and resource their counterstrike fight and provide C2 routinely reduce the enemy's capabilities at the NTC.

2. Units normally are reactive, not proactive. Although a well rehearsed and responsive combined arms and joint lethal counterstrike capability is a part of the solution, units must prevent as many attacks as possible through proactive measures. This is tough when good radar sections don't acquire all the enemy indirect fires and the enemy avoids our reactive responses to his attacks.

Army doctrine is offensive-oriented, encouraging us to dominate battlespace by retaining the initiative. Good units use terrain and pattern analysis combined with IO to develop the times and places they can interdict the enemy and prevent his attacks. This analysis gives them information dominance in their areas of operations (AOs) and allows them to act first by denying the enemy terrain, resources and sanctuary through a lethal and nonlethal combined arms approach that takes the initiative away from the enemy.

Units cannot win this fight simply by passing it to Field Artillerymen and allowing them to react to the enemy from a FOB. Everyone in the BCT must be involved, and everyone must leave the FOB—get out and "make it happen"—to dominate the BCT's battlespace.

Successful units use every attack and every contact with or capture of enemy indirect fire personnel or resources to update their pattern analyses and determine likely enemy activities in their AOs. Using a terrain analysis software product provides a pattern analysis that visually displays times and locations and may allow the unit to predict the next attack, the enemy's travel routes and likely ammunition cache sites.

This product is only adequate if units leave it to the targeting officer and S2 to employ. However, if units involve the entire staff and are proactive, they get better results.

One of the best proactive measures starts as a reaction. Effective units conduct an after-action review (AAR) of every acquisition, even those that may be false—every contact with indirect fires, every nonlethal operation and every response to an attack by maneuver, an ISR platform or reactive fires.

They use these AARs or a story-board concept to look at the system and provide an analysis "picture" that gets better with every contact. By developing a better understanding of the enemy's shortcomings or the opportunities he presents, units can rapidly take away his initiative and dominate the battlespace.

3. Units do not understand the limitations or technical aspects of counterstrike radars. At the NTC, we often see a new warrant officer leading a newly formed radar section. These great Soldiers try their hardest but simply do not have the technical expertise to maximize their radars' performance.

Even strong radar sections that are well trained and technically proficient usu-

ally struggle with higher headquarters that over centralize tactical and technical control of the radars and (or) refuse advice from the radar section leaders. As a result, the Q-36 radars are not emplaced to guarantee a high percentage of acquisitions while reducing ground clutter. See the NTC site in the Combat Training Centers (CTCs) section of Fires Knowledge Network (FKN) on the Army Knowledge Online (AKO) for instructions and illustrations on how to position radars.

The key shortcoming we see at the NTC is units don't understand the dead space in the area believed to be covered by the radar beam. The average radar section does not understand track volume, manual terrain following, enemy weapons ballistics, ground clutter reduction and how the shelter uses the parameters entered into the computer. Again, our NTC site on FKN discusses solutions for these technical shortcomings.

During the last year, too many radar sections at the NTC did not understand how to use the radars to acquire the majority of the rounds fired at them. The radar sections will acquire rounds successfully only with a detailed understanding of these technical aspects.

Again, one of the best ways to improve is through an AAR for every missed or false acquisition. This allows the unit to correct shortcomings in the radar set up, identify changes in enemy attack patterns and maximize the capability of the radar system.

A software solution also is available for all Q-36 and Q-37 radars, called the FireFinder position analysis system (FFPAS). This system allows units to visualize radar coverage in three dimensions and see shortfalls. Sections that use this software can make amends quickly to faults in their site analysis that create dead spaces the enemy can use as sanctuary.

FFPAS facilitates the sighting and set-up of a radar before it occupies a new position. The software determines radar coverage at a particular location by assessing the radar's ability to locate different types of enemy weapons. FFPAS can perform in minutes calculations that require significantly more time when done manually.

FFPAS can perform a computer analysis of the radar's performance against probable enemy weapons locations and aim points. This allows the operator to assess the radar's sighting and set-up based on battlefield intelligence in a

variety of scenarios. The rapid analysis of this computer-based system allows the radar section leader to quickly analyze alternative positioning sites and evaluate potential radar coverage.

4. Units do not rehearse their counterstrike plan to standard (it's not just a clearance-of-fires drill). Most units at the NTC do not rehearse their counterstrike plans from sensor to responder; if they do, it is rarely to standard.

Often we hear "Why do we need to rehearse with all the practice we're getting dealing with incoming?" The answer at the NTC is that the enemy can engage and displace in less than three minutes while most units take longer to respond with fires and even longer with ISR or maneuver forces. The solution is frequent combined arms rehearsals exercising the entire reactive system from sensor to responder.

A good rehearsal starts as a surprise and is initiated by one of the brigade's senior leaders, ensuring it gets the respect it deserves. The rehearsal must be truly combined arms, lethal and nonlethal, and not centered on fire support elements (FSEs) and FA batteries.

Experience shows that rehearsals are some of the best training because they identify shortcomings and allow improvements in responsiveness. The rehearsals should include clearance of fires approval authority, if needed, so units understand how they get permission to fire. Great rehearsals include friction so units are prepared for the possibilities they may face during their responses.

Finally, an AAR after every rehearsal ensures improvement every time.

5. Clearing fires is not easy, and approval to fire is often retained too high in the chain of command. Too many units retain clearance of fires at the highest level. This is due largely to a misconception of what is happening in theater. Although there are cases where this is required, most deployed units have the approval authority at too high a level.

The real purpose of clearance of fires is to prevent fratricide and limit collateral damage. "Waking up a senior leader in the middle of the night" takes time and does not always limit collateral damage and avoid fratricide.

Only detailed battle tracking and collateral damage checks in accordance with clear commander's guidance allow a timely reaction. With clear commander's guidance, anyone can clear fires; without it, the commander, in effect, removes

a critical piece of the counterstrike fight—the ability to respond quickly.

Establishing pre-cleared or "no maneuver" areas over known or likely enemy firing points also hastens the counterstrike process. These areas must be based on thorough pattern analyses, advanced legal reviews and the commander's guidance.

Successful units in the counterstrike fight have a clearance-of-fire drill that is completed by the battle captain, including standard techniques and FalconView or a similar software program to check rapidly for clearance from structures and potential collateral damage. If the enemy fire point of origin (POO) plots in a pre-cleared area, it is shot immediately.

At the NTC, successful units establish procedures that speed responses and often achieve response times of less than two minutes.

6. Units do not conduct AARs or analyses when they fail to acquire or interdict the enemy. As a result, most units are reactive. Most units take no action to determine why they missed incoming rounds. This also is true when units' quick-reaction forces or patrols fail to gain contact with the enemy in indirect fire attacks. The result is they seldom get better at defeating the enemy.

A good AAR or analysis will lead to discovering new enemy tactics and techniques, can determine if the unit has technical or tactical radar employment problems or can show the unit response is just too slow.

Knowing these critical facts allows units to take measures to correct the shortcomings or to find ways to defeat the new enemy tactics and techniques proactively.

7. Essential repair parts stockage list (ERPSL) management is generally very weak. In the last year, 100 percent of the ERPSLs brought to the NTC for rotation have been incomplete. The unit and radar section leaders don't know what parts are on hand because they rarely have conducted a proper inventory. Finally, the parts on hand are not stored properly: good parts and non-mission capable (NMC) parts are stored together and unmarked. These problems cause long down-times for radars as repair parts are not on hand or are difficult to find in the radar sections.

Given the cost of a full ERPSL, it is expensive to fix this problem. The cost itself is sometimes the problem. Some units cannot afford a full ERPSL and wait for something to go down before they or-

der a part. Often the decision to maintain a full ERPSL is made above the brigade level. Either way, most units' Class IX budget can't afford a full ERPSL.

While this works in garrison, it will not work in combat. It results in Soldiers' lives being at risk and the enemy gaining new-found freedom of action while our Q-36 and (or) Q-37 radars are deadlined.

The solution is to invest in a full ERPSL in accordance with Army regulations; inventory, mark and store it to standard; and place the proper command emphasis on this vital logistical requirement. The FA and the Army must address this as a force protection issue.

Reversing these negative trends gains an advantage over the enemy. The offensive-oriented, proactive, joint and combined arms, lethal and nonlethal approach is the only way to win the counterstrike fight. Commanders who address counterstrike to break these trends will set the conditions for dominating their battlespace and improving force protection.

Lieutenant Colonel James L. Miller is the Senior Fire Supporter (Wolf 07) at the National Training Center (NTC), Fort Irwin, California. In his previous assignment, he commanded 1st Battalion, 15th Field Artillery (1-15 FA), part of the 2d Infantry Division in Korea. Also while in Korea, he served as the Chief of Fire Support for the Combined Forces Command (CFC). In the 3d Infantry Division at Fort Stewart, Georgia, he was the Chief of Plans and Exercises in the G3 and Battalion Executive Officer and Brigade Fire Support Officer while assigned to 1-10 FA. He commanded the 1st Howitzer Battery, 11th Armored Cavalry Regiment in the Gulf for Operation Positive Force, a follow-on to Operation Desert Storm. He holds two master's degrees.

Chief Warrant Officer Three Michael A. Harp is the Senior Radar/Targeting Observer/Controller (O/C) at the NTC. He deployed for Operation Iraqi Freedom as the Targeting Officer for the 3d Brigade Combat Team (BCT) in the 4th Infantry Division. Chief Harp served as a Radar O/C with the 393d Regiment (Training) at Fort Chaffee, Arkansas, and as a Radar Technician and Brigade Targeting Officer while assigned to 2-320 FA, 101st Airborne Division (Air Assault), Fort Campbell, Kentucky. As an enlisted Soldier, he has held every position from Multiple-Launch Rocket System Crewmember to First Sergeant. He is a graduate of the Joint Aerospace Command and Control Course and Joint Firepower Control Course, both at Hurlburt Field, Florida, and the Information Operations Course at the Expeditionary Warfare Training Group in San Diego, California.

A Soldier's Story

SPC Shaun Hancock
Infantry Squad Member and FDC Crewmember
A/1-21 FA, (MLRS), 5th BCT, 1st Cav, in OIF II

Specialist (SPC) Shaun P. Hancock, 26 years old, from Salem, Ohio, served in dual roles as an Infantry Squad Member and Fire Direction Center (FDC) Crewmember in A Battery, 1st Battalion, 21st Field Artillery (A/1-21 FA) (Multiple-Launch Rocket System, or MLRS), 5th Brigade Combat Team (BCT), 1st Cavalry Division, during Operation Iraqi Freedom (OIF) II. His military occupation specialty (MOS) is 13P MLRS Fire Direction Specialist. The 5th BCT was the 1st Cavalry Division Artillery that was transformed into a maneuver brigade for OIF II and was responsible for an area of operations in Baghdad. SPC Hancock was selected by the 5th BCT for this interview because of his dedication, adaptability, performance excellence and endurance, moving back and forth from MLRS fire direction to Infantry M203 Gunner and Rifleman. SPC Hancock plans to leave the Army and go to technical school for Electronic Engineering in Ohio. This is his story.

It was a tough transformation, going from MLRS to infantry tactics. It was a growing process for our squad—a long training process. I think we trained for roughly eight months before going to Iraq. It made everyone a little tougher and a little faster in the way each handled problems and situations.

We knew we were getting ready to form into infantry squads, so we started preparing ahead. Everyone in the FDC, all the launcher drivers and the ammo platoon, formed three different infantry platoons. Those of us who had worked together daily were separated and put into different platoons, so we worked with people we hadn't worked with before. Our three platoons had the firepower needed to rotate to cover all our missions in Iraq.

We patrolled through Sidiyah, a district in southern Baghdad, and came down on details for guard duty. But mainly we made sure the roads were clear of VBIEDs [vehicle-borne improvised explosive devices] and IEDs, making sure the insurgents couldn't plant them on the sides of the roads. Sometimes we conducted raids. We did all the normal infantry duties.

At first I thought it was crazy—going from MLRS to infantry. But after a while, I realized that everyone in the Army is infantry first and his primary MOS second. So you just take the situation and run with it—make the best of it.

I think I did the best I could, but I won't say I was the best one out there.

Serving in an infantry squad was different. It gave me a different feel for the Army. I've been in the Army for six years now, and for five of those years, I was in an FDC. The whole thing with infantry duties rejuvenated me with a spirit that I need to continue.

I wasn't very happy about going to Iraq in the beginning because I wasn't sure if we could make a difference. After being there for while, the difference showed. The people became friendlier as time went on. They got to know us and knew they could trust us. They knew we were there to help them, which was the gist of what we were trying to tell them.

All the little projects we did—building foot bridges, helping them rebuild schools, parks, small stuff like that—made a lot of difference in the community.

I'd have to say that one of my most harrowing experiences in Iraq was the first fire fight we got into. We were at our observation point by the fire station in Sidiyah in south-central Baghdad, just south of the airport. We got word over the radio that there was Sadr militia moving through the area.

We got a description of what they were wearing and saw a few that fit the description. We didn't act until we were fired upon, but once we took fire, we reacted exactly as we were trained to react: lay down suppressive fire, and if you have a "clean" shot, take it.

But there were no clean shots. It was dark, and they were wearing dark clothes. All we were doing was laying suppressive fire until the QRF [quick-reaction force] could pull up and lay down suppressive fire, so we could pull out.

It was the first time we actually had to fire at the enemy. Facing people who are shooting at you is quite an experience. After that, we expected more of the insurgents to come that night, but they didn't. We had to be on our toes all the time.

I was at FOB [Forward Operating Base] Falcon. Sometimes we got out of the FOB, but it depended on the type of mission we were doing, if we had guard duty or not. When we went on big raids, the entire battery was out all day. If it was a small raid, a one-house raid, our platoon might go out for two or three hours.

When we first got there, we were running two platoons out, one platoon in, throughout the 24-hour period. It was very stressful. Later, we were able to work each platoon for a maximum of three missions everyday.

One platoon would do two missions, another platoon might do three. We rotated, but we still had platoons doing something everyday outside the FOB.

When we first got there, we were in sort of a rich section of Baghdad. There weren't too many problems, but the people were wary of us or indifferent to us. When we left, I think more of those people appreciated what we did for them.

At the same time, the insurgents were out there trying to destroy what we had done to make the community a better place—every chance they got.

I'm getting out of the Army—I'm too far away from my kids. I have nothing against the Army; I've reenlisted once. Being in the Army has been a growing experience for me.

Staff Sergeant Jasen Manning, 13F, fills out a 9-line report for close air support (CAS) before briefing the pilot during a practical exercise using the call-for-fire trainer (CFFT) in Fort Sill's first Joint Fires Observer Course (JFOC), 31 August 2005.

Joint Fires Observer

The USA and United States Marine Corps (USMC) have identified the need to provide close air support (CAS) training to forward observers (FOs), reconnaissance marines and special operators to better prepare them to assist in the control of Type 2 and Type 3 CAS aircraft when a qualified joint terminal attack controller (JTAC) is not collocated with the FO. The idea is to provide a limited capability to control CAS in situations where a qualified JTAC is not physically located with the FO and the situation requires immediate assistance from available CAS assets. The intent is not to circumvent the need for a qualified JTAC, but to address the fact that a JTAC cannot be present in all locations of the joint battlespace.

"JCAS [Joint CAS] Action Plan"
Joint Forces Command (JFCOM), 2003

By Colonel Michael A. Longoria, USAF, and Lieutenant Colonels D. Wayne Andrews and Steven P. Milliron, AV

The Army and Air Force are moving out on creating a joint fires observer (JFO). Much has been written and discussed about the JFO; unfortunately, some of the information remains misunderstood or is just plain inaccurate.

The purpose of this article is to clarify the facts associated with the term "JFO" and the Army's and Air Force's plans to train JFOs.

What a JFO Is and Is Not. First, we need to define joint fire support. According to Joint Pub 3-0 Doctrine for Joint Operations, "Joint fire support includes joint fires that assist air, land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, airspace, and key waters."

Next are the facts associated with providing the CAS portion of joint fire support. In 2004, the Rand Corporation published the monograph "Beyond Close Air Support, Forging a New Air-Ground Partnership." Figure 1 lists the monograph's key findings.

These findings illustrate the need for an asset to increase the critical combat capability the JTAC brings to the air ground battle exponentially: the JFO. Although the concept of the JFO is not new, the services' recognizing that the JFO's role in the Modular Army in light of the increased need for JTACs is a logical and effective force multiplier.

As the Army continues its transformation into a more flexible and lethal combat force, one of the determining factors of the Army's success will be its ability to leverage the full spectrum of joint fires for joint interdependency. One way to leverage these joint fires is the creation of a JFO.

As defined by the Army's Field Artillery Center at Fort Sill, Oklahoma, and agreed upon by the Air Force's Joint Air Ground Office (JAGO) in the Air Combat Command, Langley AFB, Virginia, the JFO is a "trained service member who can request, adjust and control surface-to-surface fires, provide targeting information in support of Type 2 and 3 CAS terminal attack controls and perform autonomous terminal guidance operations (TGO)."

A JFO is not a certified JTAC and will never replace a certified JTAC. However, a JFO can serve as the eyes and ears of a JTAC (or certified forward air controller-airborne, called FAC-A) to provide timely and accurate targeting information for the JTAC's terminal control of Types 2 and 3 CAS when the JTAC is not in position to see the target or the aircraft at weapons release or when attacking aircraft are not in a position to acquire the mark or target before releasing or launching their weapons.

When a JTAC is unavailable and the tactical risk mandates the use of an unqualified controller, the JFO will be capable of controlling CAS.

Field commanders must be judicious in using their JTACs to maximize their availability and avoid the exceptional situation of a JFO's controlling CAS, thus deviating from the doctrinally optimal killer combination of the JTAC and CAS platform. Figure 2 gives an example of a commander's positioning of his JTAC

1. Army transformation is increasing Army interest in air-delivered fire support.

2. Army transformation will increase the demand for joint terminal attack controllers (JTACs).

3. The JTAC program currently is not designed to generate a large number of certified JTACs.

4. Operational/technological trends and manpower realities, not service preferences, are at the heart of the JTAC debate.

5. Creative use of available technologies may free JTACs to focus on essential functions and give engaged ground elements greater access to joint fires.

6. Disaggregating the JTAC function is essential to ensuring that both Army and Air Force battlefield needs are met.

7. Army organic fires remain the most efficient means to meet the routine unplanned requests for fire support.

8. Air attack and ground maneuver should be planned as mutually enabling activities.

Figure 1: Findings of the 2004 Rand Corporation Monograph "Beyond Close Air Support, Forging a New Air-Ground Partnership"

The JTAC with scouts supporting the northern sector is in position to control attacks along the main supply route (MSR) where the targeting team expects the best opportunity to destroy large numbers of enemy vehicles.

JTAC

JTAC

The JTAC with the center company is in position to control attacks along the main enemy avenue of approach. A tactical risk assessment will determine the type of CAS control required.

TACP

JFO

The company commander has positioned the JFO to direct fires against the southern sector. He can call for indirect fires and call a JTAC or the battalion tactical air control party (TACP) to support Type 2 and 3 CAS against enemy targets.
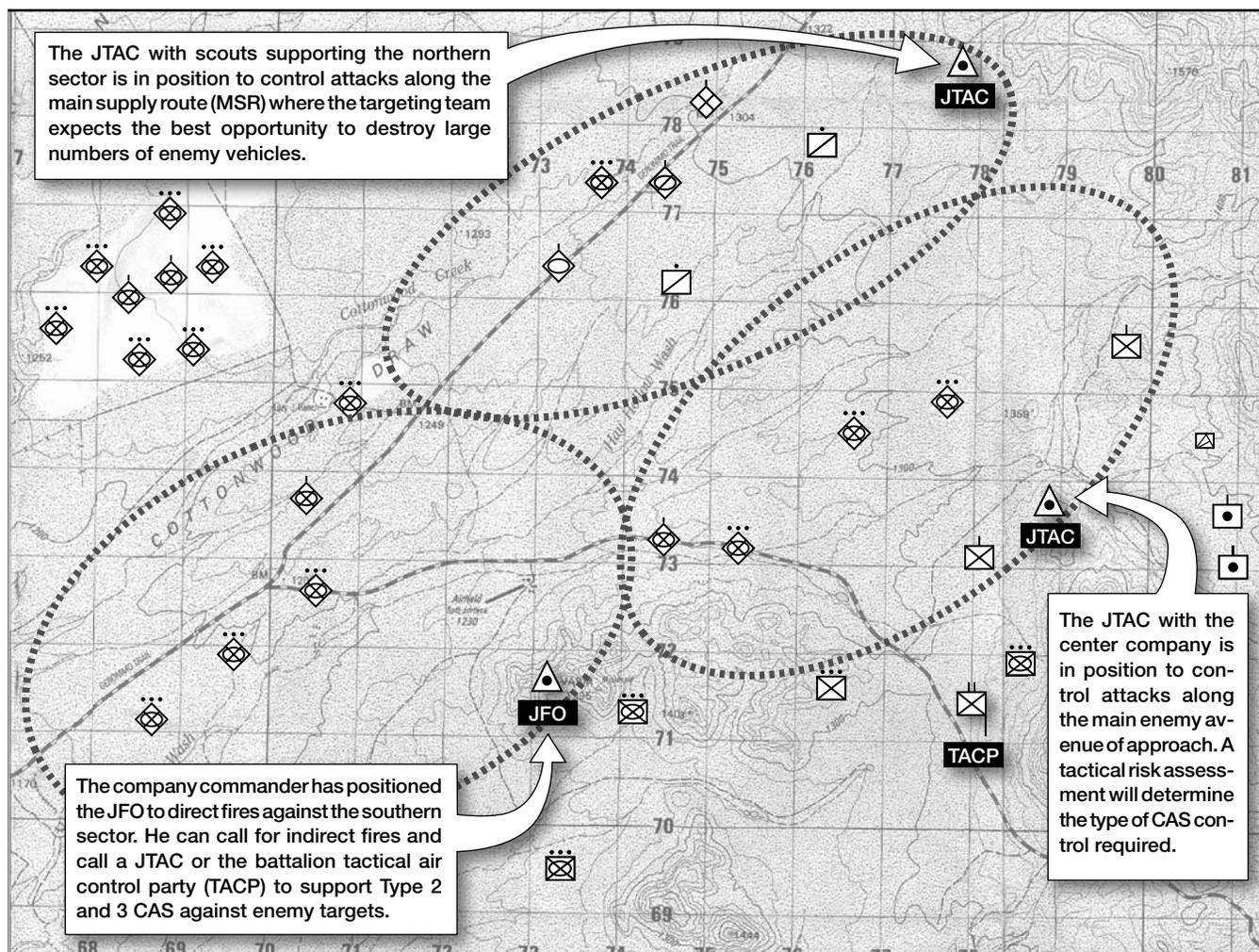
Figure 2: Example of JTAC and JFO Positioning for CAS Success

and JFO assets to make the most of his air power assets.

The JFO's controlling CAS when a JTAC is unavailable and the tactical risk mandates it is not a new concept. Historically, FOs have executed "emergency" CAS. However with joint interdependency and a lack of formal CAS training for Army FOs, creating a JFO course was a necessity.

Many units have done and still do quality training and familiarization programs with their resident air support operations squadrons (ASOS). But CAS training as a whole has diminished greatly over the years—so much so that a fire support sergeant in the rank of sergeant or staff sergeant (13F20/30 Fire Support Specialist) no longer was responsible for CAS tasks on his military operational specialty (MOS) task list. This has been corrected. The next logical step was to establish a formal JFO program for new Knight or combat observation and lasing team (COLT) sergeants and company fire support sergeants to ensure they can apply the full range of joint fires.

Training the JFO. The JFO Course (JFOC) started in January 2005 as a seven-day course running in conjunction with the third week of the other resident courses at the Air Ground Operations School (AGOS) located at Nellis AFB, Nevada. (AGOS recently was renamed Joint Air-Ground Operations Group, or JAGOG.)

The course consists of 25 hours of academics and 26.5 hours of simulations with a one-day field exercise. The academic instruction focuses on the integration and execution of joint fires, including artillery, mortars, naval surface fires, CAS, rotary-wing close combat attack (CCA) and AC-130 aircraft.

JFOC graduates come away with an enhanced ability to plan and execute joint fires at the tactical level. Students learn the basic doctrinal issues of JCAS and the command and control needed to employ it effectively. They learn the fundamentals of CAS execution, which include map-reading skills, brevity terms, aircraft and weapons capabilities, and types of CAS terminal attack control. They receive additional instruction on integrating surface fires with CAS, calculating the maximum ordinate
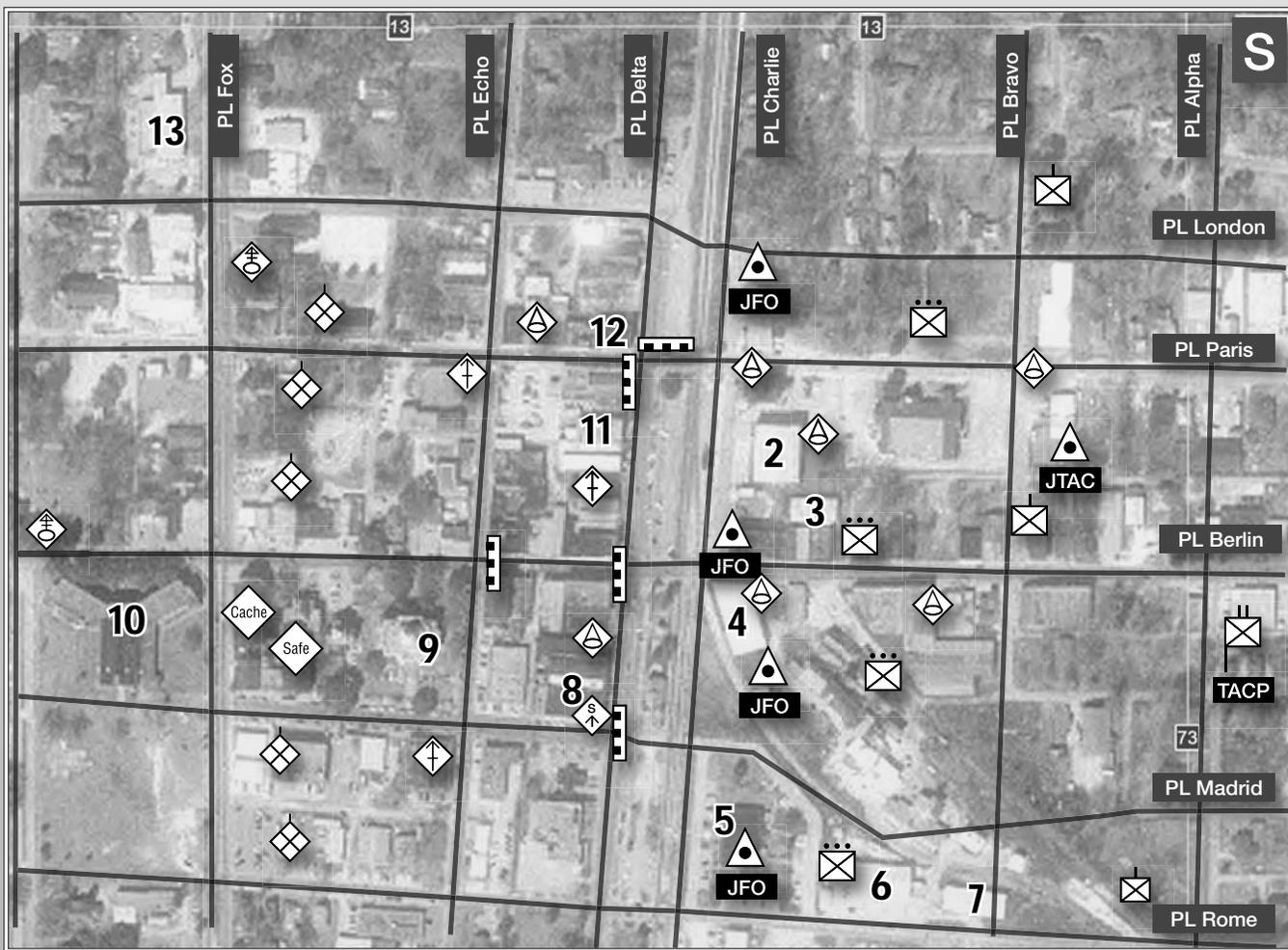
Type 2 CAS Control Scenario. The JTAC is positioned with the center company of the battalion conducting operations in an urban environment. The company's task is to conduct a presence patrol to Phase Line (PL) Delta and then conduct raids to destroy the insurgent forces at a known safe house and weapons cache site between PL Delta and PL Fox.

The town has been gridded partially on the map with only key buildings numbered. Buildings 9 and 10 are on the no-strike list as they are a government building and mosque, respectively. Like most urban operations, the JTAC cannot see every target he is responsible for, so he must rely on others to give him targeting information.

Each platoon's JFO is trained to verify a

(MAXORD, the highest point a projectile achieves during its trajectory) for artillery and mortars, applying naval surface fires, developing and using airspace coordination areas (ACAs), calling in and employing AC-130 aircraft and applying Army rotary-wing aircraft conducting CCA.

But the bulk of the training occurs when the JFO teams with a JTAC to coordinate an air attack. This event demonstrates the criticality of teamwork and the practical demarcation of roles between the JTAC, JFO and attacking platform. Once trained, a JFO must work with JTACs and aircraft periodically to exercise the skills he has learned. Figure 3 provides an example of how a JFO provides information to the JTAC for Type 2 CAS control.

JAGOG currently can train 12 JFOs per course under a provisional syllabus agreed upon by JAGOG and the FA School. Initially, the JFOC syllabus supports training Army FOs—to date, only those preparing for deployment have attended.

The FA School and JAGOG have established an additional JFOC at Fort Sill with the pilot course held starting on 29 August. The Army's Training and Doctrine Command (TRADOC) is adding the JFOC to the Army training requirements and resources system (ATRRS) for Soldier enrollments.

This second JFOC location will allow for an additional 17 classes a year with an annual throughput at Fort Sill of more than 500 JFOs, bringing the total throughput

between the two locations to more than 600 JFOs a year.

However, at some point in the future, the intent is to modify the Army FO syllabus to train selected combat arms personnel as JFOs to increase the JFO capability for warfighting organizations. The proposed new syllabus for JFOC is at Air Combat Command for final approval, which is expected within the next few months.

The Air Force detachment at Fort Sill eventually will grow into a training squadron size, and Fort Sill is improving the installation's runway and other air-ground related facilities. Fort Sill also is in the process of increasing the number of targets in the impact area and modifying the airspace over Fort Sill and southern

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target's location and coordinates and understands the capabilities of the aircraft and weapons. For this vignette, the aircraft will be two A-10s with GBU-12s. The company JTAC (Gator 21) is the primary JTAC for all controls in the town with the battalion tactical air control party (TACP) (Gator 01) as the back-up.

The center platoon's lead elements are engaged with insurgents with rocket-propelled grenades (RPGs) and heavy machine gun fire on the southeast corner on the roof of Building 8 and are receiving automatic fire from the building immediately south of Building 11. The JFO (Bull 21) develops a call-for-fire for each target.

The JTAC confers with the company commander and fire support officer (FSO) and decides CAS is the best weapon to destroy the targets. The JTAC submits an immediate air support request (ASR) to the air support operations center (ASOC) on the joint air request net (JARN).

The ASOC sends back that "Hog 11" (two A-10s) will support.

The JTAC continues coordination with the JFO to build a picture of the target area, establish the laser designation code and discuss ordnance restrictions and battle damage assessment (BDA) requirements. Note: All JTAC and JFO communications occur on an FM fire support net. If the JFO can, he monitors the CAS strike net (usually UHF).

The attack aircraft has checked in with the JTAC; the JTAC and JFO coordinate:

JTAC to JFO: "Bull 21, Hog flight has checked in. Two times A-10s with four times GBU and 1200 rounds of 30-mm; 40 minutes play time."

JFO to JTAC: "Gator 21, Roger. Laser target line for automatic weapon is 300, laser code is 1234, friendlies are all east of PL Charlie."

JTAC to Attack Aircraft: "Hog 11, this is Gator 21. Type 2 in effect; advise when ready for 9-line."

Attack Aircraft to JTAC: "Gator 21, Hog 11 ready to copy."

JTAC to Attack Aircraft (9-Line Briefing):

"Mazda" [Initial Point (IP)/Breaking Point (BP)—not shown on the City Map]

"340 Left" [Heading]

"9.9" [Distance]

"1200 Feet" [Target Elevation]

"Dismounted personnel with automatic weapons and RPGs" [Description of the Target]

"NB 704726" [Target Location]

"Laser code 1234, laser-to-target line 300" [Type of Mark, Laser Code, Laser-to-Target Line]

"East 1.3" [Position of Friendly Forces]

"Egress east to Chevy; make your final attack heading southeast to northwest" [Egress Route and Remarks—Route not Shown on City Map]

Attack Aircraft to JTAC: "1200 feet, NB 704726, final attack heading southeast to northwest."

JTAC to Attack Aircraft: "Read back, correct; TOT 45." [Time on Target]

Attack Aircraft to JTAC: "Roger, TOT 45."

[The attack aircraft plot and validate the target location.]

Attack Aircraft to JTAC: "Hog 11, IP *inbound*."

JTAC to Attack Aircraft: "Hog 11, continue."

JTAC to JFO: "Bull 21, standby for laser calls; Hog flight is IP *inbound*."

[Both aircraft will attack the target; therefore, JTAC sends adjustments received from JFO immediately after the lead aircraft attacks to direct the wingman onto the next/adjacent target or sends fighters back to the IP for a

new 9-line.]

JFO to JTAC: "Gator 21, standing by."

Attack Aircraft to JTAC: "Hog 11, *10 seconds*."

JTAC to JFO: "Bull 21, *10 seconds*."

JFO to JTAC: "Gator 21, *10 seconds*."

Attack Aircraft to JTAC: "Hog 11, *laser on*."

JTAC to JFO: "Bull 21, *laser on*."

JFO to JTAC: "Gator 21, *laser on*."

[Before weapons release, the attack aircraft provides the JTAC with an "in" call—aircraft nose pointed at the target, ready to fire.]

Attack Aircraft to JTAC: "Hog 11's *in* from the southwest."

JTAC to JFO: "Bull 21, Hog 11 is *in*."

JFO to JTAC: "Roger."*

Attack Aircraft to JTAC: "Hog 11, *spot*."

JTAC to Attack Aircraft: "Hog 11, *cleared hot*."

JFO to JTAC: "Gator 21, Hog 11's bomb hit the target."

JTAC to JFO: "Bull 21, *terminate*."

JFO to JTAC: "*Terminate*."

JTAC to Attack Aircraft: "Hog 11, good bombs."

JFO to JTAC: "Gator 21, Hog 11's bombs neutralized the target; have Hog return to IP and prepare for the next target."

[The JFO provides targeting information to the JTAC for automatic fire south of Building 11. The JTAC passes the 9-line and continues the process. The JFO provides BDA on the second attack to the JTAC who relays the information to the attack aircraft before they egress from the area.]

If required, the JFO may pass an abort call to the JTAC or, if capable, directly to the CAS asset.

Figure 3: Example of How a JFO Provides Targeting Data to the JTAC in a Type 2 CAS Control

Oklahoma to allow for fixed-wing CAS sorties to support JFO training.

The return of fixed-wing CAS sorties to southern Oklahoma not only supports JFO training, but also supports Fort Sill's designation as the Army's Center of Excellence for Joint Fires and Effects.

The battlefield of today and tomorrow will require highly trained personnel at all echelons to be joint fires experts. Joint interdependence is not a buzzword, it is the future of our armed services, and we need a formal process to gain and maintain the degree of training needed to ensure Soldiers are capable of leveraging all available fires.

JFO training will increase the ability of Air Force JTACs to manage critical CAS fires in combat and, ultimately, allow ground commanders to win quickly and decisively on tomorrow's battlefields.

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Lieutenant Colonel Steven P. Milliron, Aviation (AV), is the Commandant of the Army

Joint Support Team-Nellis (AJST-N), part of JAGOG at Nellis AFB. He is the Senior Army Liaison to the Air Force's JAGOG. He is responsible for the Army academics that support JAGOG's Joint Terminal Attack Controller (JTAC) Course, Air Liaison Officer (ALO) Qualification Course and the Joint Firepower Course. His previous as- **signments include serving as the Executive Officer of the 6th Cavalry Brigade and S3 of the 3d Squadron, 6th Cavalry, (3-6 Cav), both in the 2d Infantry Division in Korea. He commanded three troops: D Troop, 3-1 Cav, Fort Polk, Louisiana, and D and F Troops, 2-1 Cav, Fort Hood, Texas.**

CAS Terminal Attack Controls

There are three types of terminal attack controls for close air support (CAS): Types 1, 2 and 3. Each type has associated risks and a set of control procedures specified.

The ground commander considers the situation and issues guidance to the joint terminal attack controller (JTAC), based on recommendations from his staff and the risks identified in the tactical risk assessment.

Within the constraints established during risk assessment, the intent is to offer the lowest level supported commander the latitude to determine which type of terminal attack control best accomplishes the mission. The three types of control are not aircraft- or ordnance-specific.

Type 1 CAS. JTACs use Type 1 control when the risk assessment requires them to visually acquire the attacking aircraft and the target under attack. The tactical risk assessment may determine that analysis of the attacking aircraft's nose position and geometry is the best method of ensuring first-pass success and mitigating fratricide in the situation.

Examples of situations making Type 1 controls the best choice are when there are language barriers when controlling Coalition aircraft; the JTAC lacks confidence in a particular platform for the situation or confidence that the pilot positively identifies the target; aircraft are operating in adverse weather; the JTAC knows the situation is demanding for the aircrew's capabilities; or troops are in contact, calling for rapid, danger-close air power. In many cases, Type 1 controls actually negate the technological capabilities of the aircraft and munitions.

Type 2 CAS. This type of control is used when the JTAC wants to control individual attacks but assesses that either the visual acquisition of the attacking aircraft or target at weapons release is not possible or when attacking aircraft are not in a position to acquire the mark or target before releasing or launching their weapons.

Examples of situations calling for Type 2 CAS controls are when the aircraft attack at night or during adverse weather, must employ tactics to counter threat aircraft or air defense weapons, or are operating at high-altitude and (or) employing standoff weapons.

Successful CAS attacks under these conditions depend on timely, accurate targeting data. When delivering global positioning system (GPS)/inertial navigation system (INS) or unguided weapons on GPS coordinates, attack aircraft confirm the target location with the JTAC or forward air controller-airborne

(FAC-A). The JTAC takes into consideration the host aircraft's navigation/weapons system accuracy when employing unguided munitions using Type 2 control.

Time-of-flight for standoff weapons is also a consideration. The weapon's time-of-flight relative to the movement of enemy targets and friendly forces is critical when the standoff weapons cannot receive targeting updates during flight.

The JTAC and aircrew must conduct detailed planning and preparation to identify the situations and locations conducive to standoff weapons attacks and address flight profile and deconfliction considerations (aircraft/weaponry/terrain). Digital or data link systems capable of displaying aircraft track, sensor point of interest, etc. significantly enhance situational awareness, enabling the JTAC to authorize weapons release when he cannot visually acquire the attacking aircraft. (See the article "JCAS Data Link: A Prioritized Approach to Terminal Attack Control" by Perry H. Davis in the July-August edition.)

Type 3 CAS. This level of control may be used when the tactical risk assessment indicates that CAS attacks impose a low risk of fratricide. When commanders authorize Type 3 controls, JTACs grant "blanket" weapons release clearance to aircraft or a flight of aircraft attacking a target or targets that meet the restrictions prescribed by the JTAC. Attack aircraft flight leaders then may initiate attacks within those parameters.

Observers may be equipped and in a position to provide terminal guidance to attack aircraft. The JTAC monitors the radio transmissions and other available digital information to maintain control of the attacks. The JTAC maintains abort authority throughout the attack.

Support of Observers. Because there is no requirement for the JTAC to visually acquire the target or attack aircraft in Types 2 or 3 control, JTACs may coordinate CAS attacks using targeting information from an observer. An observer may be a scout, combat observation lasing team (COLT), fire support team (FIST), or Special Operations Force (SOF) asset, any of whom may be a joint fires observer (JFO), or unmanned aerial vehicle (UAV) or other assets in position to provide the JTAC real-time targeting information.

In Types 2 and 3 CAS, the JTAC maintains control of the attacks, making clearance or abort calls based on the information provided by the observers or targeting sensors.

Two-Level Maintenance

Modularity and the Transformation of Army Maintenance

By Captain Alyssa Y. Astphan, OD

Today's Army is transforming because of the pressures of strategic challenges, combat experiences and technological changes. The goal of the Ordnance Corps' Task Force Modularity is to restructure Army maintenance so tactical-level combat units are more mobile and self-sustaining than ever before.

The Ordnance Corps has been undergoing its own transformation for the past 17 years in response to a growing need for a more versatile and efficient maintenance system. The limitations of the old system are echeloned and redundant maintenance activities that are restricted to actions specified at a particular level. The time spent sending equipment from one activity to the next created longer repair cycles, lower operational readiness rates and, consequently, decreases in combat power.

The solution, first conceived in 1988 by Brigadier General Leon E. Salomon, then Chief of Ordnance, is to merge the four-level maintenance system into a streamlined two-level system focused on reducing repair cycle times.

In the old four-level maintenance system, each maintenance activity was responsible for restoring equipment to the maintenance element's capability, and when factors, such as time or tools and equipment became a roadblock, the equipment was sent to the next higher level. Units spent a lot of time evacuating equipment to higher maintenance levels, waiting for that item to be repaired and then waiting for it to be sent back through the appropriate channels. This process often was prolonged when dealing with large or expensive equipment.

Transforming Maintenance. An integrated concept team (ICT) to transform Army maintenance included personnel from the Army Materiel Command (AMC); Department of the Army (DA) G3; DA G4; Training and Doctrine Command (TRADOC); National Guard Bureau (NGB); Combined Arms Support Command (CASCOM); Office of the Chief of Army Reserves (OCAR);

Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT); and others. The ICT was chartered by TRADOC to research and develop the two-level maintenance concept. The objective was to reduce redundancy and combat inefficiencies. Based on the concept of "Fix Forward/ Repair Rear" coined by the 1998 Chief of Ordnance, Brigadier General Thomas R. Dickenson. Figure 1 shows how the system is transformed.

The change to the two-level maintenance system goes into effect as each division becomes modular.

The old organizational motor pools and direct support (DS) activities essentially have been combined into *Field Maintenance*, characterized by a repair-and-

return-to-user system. Its maintenance relies on line replaceable unit (LRU) and component replacement, battle damage assessment and repair (BDAR), recovery and services. Field Maintenance is performed at all levels of the Army.

Sustainment Maintenance is the second level of maintenance, essentially representing a combination of the old general support (GS) and depot-level activities. It is a repair-and-return to the Army supply system activity that can be brought as far forward as required, based on the mission, enemy, terrain and weather, troops, time available and civilian considerations (METT-TC), but it normally is found above the brigade combat team (BCT) level.

Sustainment Maintenance relies on end item and component repair with some component replacement, whereas Field Maintenance relies only on component

Old System

Depot
GS
DS
Org

Bde | Div | Corps | Theatre

New System

Sustainment
Field

Bde | Div | Corps | Theatre

Legend:
Bde = Brigade
Div = Division
DS = Direct Support
GS = General Support
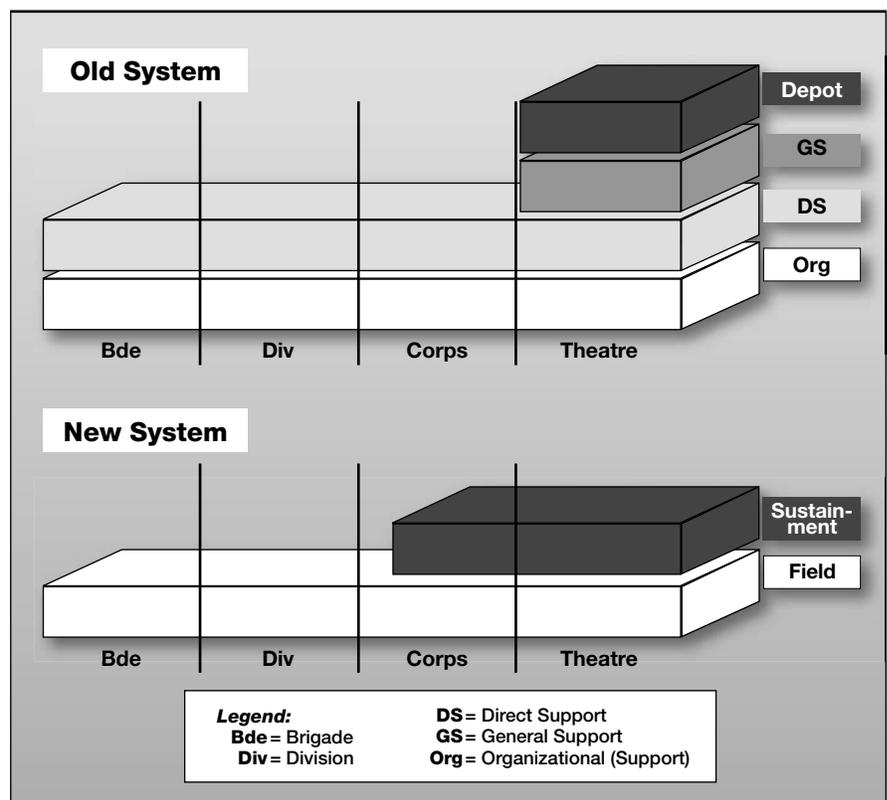**Org** = Organizational (Support)

Figure 1: Maintenance Transformation

replacement.

The most important part of maintenance modularity for the tactical leader is its positive impact on operational readiness. The Army has transitioned to this new system because it provides more maintenance capability to the company level. Company commanders have direct access to the mechanics performing all on-system maintenance. Testing equipment, recovery equipment and higher mechanic skills have been placed at the lowest possible levels, so equipment can be returned to fully mission capable (FMC) status faster.

Maintenance Organization. In the brigade, each maneuver battalion has an attached *Forward Support Company* (FSC) to perform field-level maintenance. (See Figure 2.) Each FSC has a *Maintenance Platoon* that provides the battalion recovery support, automotive and tracked-vehicle repair and ground-support equipment repair.

A *Field Maintenance Team* deploys with each maneuver company and provides automotive and track-vehicle repair support. Each team will have an M88 recovery vehicle and a forward repair system, heavy (FRS-H). If the equipment cannot be brought to FMC status on site, the Field Maintenance Team recovers it to the *Base Maintenance Section* of the FSC.

All ground support equipment repairs will be conducted at the FSC located with the battalion headquarters. The FSC Base Maintenance Section also will perform maintenance for the battalion headquarters.

Currently, low-density military occupational specialties (MOS), such as those for electronics, missile and armament repair, are in the *Brigade Support Battalion* (BSB) within the *Field Maintenance Company* (FMC). These assets can and will detach from the BSB and attach to the FSC or even a Field Maintenance Team, when necessary.

For the two- and three-star units of employment (UEx), field maintenance will be conducted by *Support Maintenance Companies* (SMCs). The SMC has platoons for automotive, ground support equipment, missile and electronics repair as well as an attached test, measurement and diagnostic equipment (TMDE) section.

When a piece of equipment cannot be fixed by on-system repair, it must be returned to the UEx-level to a *Component Repair Platoon* (CRP) or *Component Repair Company* (CRC). Sustainment Maintenance is performed at the three-star UEx level; however, teams may be detached from the CRC and attached to the SMC operating in the UEx.

Merging Maintenance MOS. Before Force XXI, the Army had separate mechanics for the turret and hull of tracked vehicles as well as separate mechanics at each level of maintenance. As the Ordnance Corps transitions toward a two-level maintenance system and combines echelons, MOS mergers are necessary. Trained personnel now can repair a system in one location with units having to evacuate equipment less often.

Under the two-level maintenance system, one MOS maintains the tracked-vehicle system while another maintains wheeled vehicles. (See Figure 3.) These merged MOS are called multi-capable maintainers (MCMs) and can perform all field-level repairs for their maneuver companies wherever they are on the battlefield.

The communications and electronics repair field also has had MOS mergers, increasing the individual mechanic's and maintenance activity's versatility.

Leaders may be concerned that MOS merging and brigade restructuring lead to a decrease in the ratio of mechanic-to-equipment. However, considering critical systems across the Army, there is little
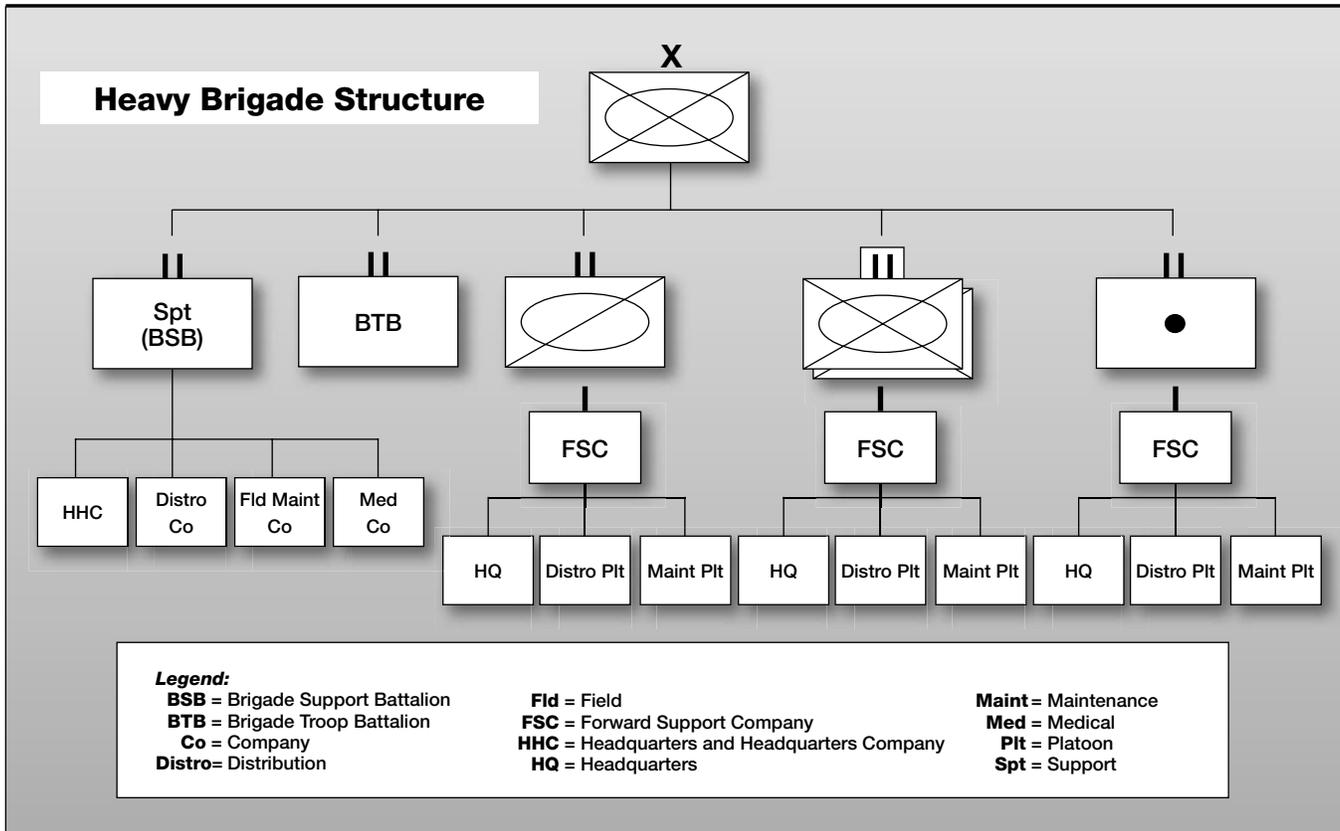

Figure 2: Modular Brigade Combat Team (BCT) Maintenance Organization

change. The key is retaining basic systems design, so the number of mechanics available remains relatively constant. The new ratio of equipment-to-mechanics is almost the same as under the old system with a slight reduction in managerial overhead because shop offices at different levels are combined.

The overriding theme of two-level maintenance and modularity is mobility and versatility. The many benefits of the changes are obvious. Previously, most major end items were repaired at the unit and DS level. Maneuver battalions and brigades now can repair their equipment efficiently at the unit level. As improvements in equipment reliability, maintainability, diagnostics and prognostics continue, the Army's ability to maintain equipment efficiently and reduce repair cycle time will continue to increase combat power for today and tomorrow.

For more information on the Ordnance Corps' transformation to two-level maintenance and maintenance modularity, see www.us.army.mil and follow the links to TRADOC, CASCOM and the Directorate of Combat Developments (DCD), Ordnance (OD).

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Four-Level Maintenance	Organization	Direct Support
Abrams	63E, 45E	63H, 45K
Bradley	63T, 45T	63H, 45K
Artillery	63D, 45D	63H, 45K
Wheel	63B, 63S	63W, 63G
Track	63Y	63H, 63G

Two-Level Maintenance	Field Maintenance
Abrams	63A, 45K
Bradley	63M, 45K
Artillery	63D, 45K
Wheel	63B
Track	63H

MOS Legend:
- **45D** = Self-propelled Field Artillery Turret Mechanic
- **45E** = Abrams System Maintainer
- **45K** = Armament Repairer
- **45T** = Bradley System Maintainer
- **63B** = Light Wheel Vehicle Mechanic
- **63D** = Self-Propelled Field Artillery Repairer
- **63G** = Fuel and Electrical Systems Repairer
- **63H** = Track Vehicle Repairer
- **63M** = M2/3 Bradley Fighting Vehicle System Maintainer
- **63T** = Bradley System Mechanic
- **63W** = Wheel Vehicle Repairer
- **63Y** = Track Vehicle Mechanic

Figure 3: Maintenance Military Occupational Specialty (MOS) Mergers. The functions and capabilities of all the maintenance MOS still exist; they just have merged. For example, 63Gs are being phased out with the MOS tasks migrating to 63Bs and 63Hs.

Master Gunner Division Created

The Commandant of the FA School, Fort Sill, Oklahoma, recently approved the creation of a Master Gunner Division to support FA Master Gunners in units throughout the force. The Master Gunner Division will work under the Director of the Directorate of Training and Doctrine (DOTD) in the FA School and the Command Sergeant Major of the FA.

The division's mission is to provide a "one-stop shop" for the FA community to get information and help and for the division to get feedback from the field. The division will help with Master Gunner programs and provide updates on changes to or new combat systems and publications. Master Sergeant Robert A. Niebauer, FA Master Gunner, is visiting all FA units in the Army to provide assistance and information, such as on the new artillery tables in the draft *FM 3-09.8 Field Artillery Gunnery,* and collect issues and lessons learned. Units can contact him at robert.niebauer@sill.army.mil to schedule a unit visit.

The division also is responsible for providing input to the FA Master Gunner's Course to ensure its contents are current and relevant to the contemporary operating environment (COE). The pilot of the two-week course for senior NCOs (sergeants first class and staff sergeants, the latter by exception) begins 12 October. For more information on the course and other Master Gunner programs and initiatives, see the Master Gunner homepage on the Fires Knowledge Network (FKN) on Army Knowledge Online (AKO).

MSG(R) Gregory D. Plant
Former FA Master Gunner
DOTD, FA School, Fort Sill, OK

US Marine Corps photo by Cpl James L. Yarboro

Afghanistan—Soldiers of F/7 FA, 25th ID, displaced their howitzer to Khowst for training on 9 January 2005.

A Company FSO's IO Experiences in OIF III

By Second Lieutenant Trent R. Colestock, TXARNG

Information operations (IO) and effects-based operations (EBO) were new terms to many students when I attended the Field Artillery Officer Basic Course at Fort Sill, Oklahoma, in the summer of 2004. As eager lieutenants ready to deliver the "Rain of Steel," the sound of anything unrelated to the observation post (OP), fire direction center (FDC) or the gun line seemed dull.

We asked, "Are fire support officers (FSOs) really conducting IO and EBO in Iraq and Afghanistan?" The answer was, "Yes."

At that time, IO was confusing to much of the FA community, especially ground commanders. After serving nine months in Operation Iraqi Freedom (OIF) III, I learned that IO and EBO correlate to familiar FA targeting methods and that both can be rewarding missions for FSOs as assets to maneuver and force protection units.

After nine months in Iraq as a maneuver company IO officer in the Al-Anbar Province (which includes Fallujah), I define the EBO I conduct as the following: "Offensive, defensive stability and support operations (SASO) planned and executed to achieve the commander's desired effects on a threat element, civil leader or population group. Desired effects are achieved through the synchronized, sequential or simultaneous application of maneuver, firepower, IO and civil military operations (CMO)." This definition is a slight revision of that given in the *Center for Army Lessons Learned (CALL) Handbook No. 04-14 Effect-Based Operations: Brigade to Company Level,* dated July 2004. My observer/controller at the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana, gave the handbook to me just before I deployed.

As the IO officer in Iraq, I search, develop, assess and disseminate actionable intelligence applicable to the success of the overall gain of information to support the mission. The key is to help the commander achieve information superiority and seize the ground truth.

For example, an incident will occur in my area of operations (AO) and the commander will ask questions that lead me into my AO's civilian population to probe for information. As the IO officer, I must know exactly what information I need to retrieve concerning the particular incident to formulate my plan of action regarding with whom I must interact.

It is very helpful to use the rapport I have built in my Iraqi communities to investigate or request information tactfully. It is also important that I analyze and propose how to negotiate with "targets" if any were determined for a particular IO mission. Nonlethal targeting is primarily centered on IO in my AO.

IO Officer Operations. I plan carefully when setting engagements with the communities. I do not set a pattern of arrival dates, timeframes and routes taken. It is possible that, either intentionally or unintentionally, any of the population may be able to give those key bits of information to insurgents. Such information could allow the enemy to plan an ambush or complex coordinated attack.

Insurgent activities truly can be interdicted by effective IO. Actionable intelligence through IO helps decide the commander's course of action to deter and disturb the enemy by having information superiority.

Most enemy attacks against Coalition Forces within my AO are carried out indirectly. A commander can set up a textbook operation conducive to search for and retaliate against those responsible after an improvised explosive device (IED) or indirect fire attack. However, IO provides the commander with a specific targeted zone, area or sector of a town and allows for concentrated and decisive operations on smaller areas with exact names and houses to close in on the enemy expeditiously.

Importantly, operating in this manner sustains the hearts and minds of the populace. After a successful rapport is built with a community, the IO officer should not be overly aggressive and show readiness to search and attack citizens without enough information.

Interacting with and understanding the Iraqis and their culture are interesting privileges of being the IO officer. Traits of a successful IO officer include the ability to develop a relationship with the nationals, quality interpersonal skills, a sense of empathy, and a willingness to learn and respect their culture.

The most valuable information that will come the IO officer's way is volunteered information. The populace must trust him.

When I engage with the locals, I always have my trusted interpreter by my side. All IO officers are provided an

The author (far right) meets with local Iraqis with his interpreter as part of his information operations (IO) mission.

interpreter who is a great asset not only for transcending the language barrier, but also for helping me understand the people, their moods and expressions plus providing his own insights and perceptions. My interpreter always keeps me on top of my "A-Game" by ensuring I learn the Arabic salutations and key phrases to enhance my relationship with the populace.

As I constantly interact with the community, it is important that I maintain my spheres of influence (SOIs) and identify new SOIs, if any, that may have a profound effect on the populace. All SOIs automatically become targets. In targeting the SOIs, I (and others) recommend nonlethal operations to the commander as tools, which determine how I will engage the populace and conduct decisive IO. Although the population resides in a very small portion of the overall company area of responsibility (AOR), IO influences operations throughout the entire area. As the IO officer, I contribute across several company lines of operations (LOOs).

CMO. I quickly realized how CMO can be a factor in IO and that I had a role in tracking CMO projects for the company. I learned how to read and execute a "sewer, water, electricity, academic, trash-medical and security/culture, religion, economic and government" (SWEAT-MS/CREG) report. This report is executed after an analysis of the status of the town's SWEAT-MS/CREG.

CMO became a bigger factor in the mix with my IO duties; however, IO was still my main area of concentration.

Civil Affairs (CA). Among other things, the outgoing unit told us how to maintain the CA operations that were just beginning within the entire battalion AOR. As the IO officer, I was to ensure CA projects were being carried out properly. In the beginning of my tour, I had a logical concern. I did not want to mix my role as IO officer with CA and confuse the community.

The battalion does have a CA officer who is our S5. It works out perfectly that while I engage IO in the town, I can monitor and question how the projects are progressing and report any findings of substance to the S5. As I engage more with the community, I have become a liaison between the contractors and (or) community and the S5. At the same time, I am "up to speed" on projects within the company AO that I brief to the commander and Soldiers.

Regardless, CA and IO do correlate in

some aspects for the purpose of aimed effects. Both CA and the local populace understand that I have the authority only to temporarily halt any of the projects if I deem the construction unsafe or a lack of adherence to agreements or if I believe the project is targeted for attack.

Serving as an IO officer in the Al-Anbar Province has been a valuable experience during OIF III. My particular AO consists of two small towns and one fair-sized former resort town along the eastern shore of a lake west of Fallujah. More than 120 large families are pretty much supportive of Coalition Forces operating within their community with a few neutral. The rest of the AOR's population is isolated from this group as the remaining live closer to Fallujah at the battalion's eastern outermost boundary.

Qadisiyah is the larger of the two small towns in my AO that benefited the most from my efforts. Successes achieved during my tenure include the supervision and completion of many residential improvement projects while sustaining low insurgent activities and a stronger pro-coalition populace. Even though these projects are CA essential, they have positive effects in IO.

One success through my IO plan was having the first town in the battalion AOR to establish a town council. The council has proven to be very effective in keeping the town in good order and discipline. A key in starting the council was ensuring there was a representative for all the Sunnis, Shi'a and even for a few Christians residing in the town. I meet with the council during every engagement in the town. Regardless of a set agenda or general visit, it is very important that I maintain relations in Qadisiyah and the other two towns.

Company Intelligence. Besides my duties out of the camp, I have other important responsibilities as the FSO/IO inside the camp. My primary mission (when not operating within the towns) is to inform and update the Soldiers, platoon leaders and the commander of all significant events and new intelligence, not just within our AO, but anywhere that could affect our AOR. In doing so, it is important that I have a working relationship with my battalion S2 to keep up to date on all events.

In turn, I become the "company S2." I assess, develop and disseminate information I learn and provide recommendations to the company and platoon leadership regarding patrols outside the communities. I provide recommendations of how

to conduct operations other than IO engagements to deter enemy activities, such as transporting weapons, emplacing IEDs or conducting small arms fire or indirect fire.

In my company AO, there are five main roads; one is a busy alternate supply route. Recommendations I may be able to provide include: where to emplace a snap vehicle checkpoint or a trap vehicle checkpoint, when to execute patrols or checkpoints, or where named areas of interest (NAIs) are to execute a screen or observation post.

To track what specific missions are being conducted in EBO, I created and use a two-week patrol tracker. All elements of the company can see the tracker to reduce any repetition of EBO and evaluate how the previous EBO affected the area they will operate in the day after.

Lastly, as the company S2, it is imperative that I ensure the maneuver elements are updated on new tactics, techniques or procedures (TTPs) of the enemy so Soldiers know what specifics to be aware of during patrols. I do this while I conduct the patrol briefs and debriefs. My intent is to ensure every Soldier understands the current IO themes and messages, priority intelligence requirements (PIRs), serious incident reports (SIRS) and indicators to observe.

Army operations on and off the battlefield will continue to change. The Field Artillery has adopted tactical IO, and it makes sense. Redlegs are experts in using the traditional decide, detect, deliver and assess (D^3A) targeting methodology. IO uses the same familiar target listing, target numbering, and task, purpose, method and effects (TPME) template to get the job done.

On today's battlefield, the FA has proven itself effective using our own TTPs to conduct IO and EBO for nonlethal targeting or lethal effects. No matter the changes in time, the FA will adapt and roll on as the *King of Battle!*

Second Lieutenant Trent R. Colestock continues to serve as a **Company Fire Support Officer and Information Operations Officer** at **Camp Taqaddum, Iraq,** assigned to the **3d Battalion, 133d Field Artillery (3-133 FA), 56th Brigade Combat Team,** which is part of the **36th Infantry Division, Texas Army National Guard (TXARNG).** He was a Sergeant in the 10th Mountain Division Artillery before attending Texas Christian University in the Army ROTC. In May 2004, he graduated and received a commission as a Second Lieutenant in the Field Artillery.

"Come On, Boys!"

Give the Guard a Fighting Chance

Fight alongside Your Friends
Fill up the National Guard

ALL BRANCHES OF ARMY SERVICE ARE OPEN TO YOU.

Mobilizing a Transforming Force:

32d Division Redlegs in The Great War

Wherever the batteries of the 32d were located they stood their ground and fired shot-for-shot with the Germans. If rumors were true, they also fired at targets in enemy territory which had never been shelled before.

G. W. Garlock,
Tales of the Thirty-Second, 1927

"The Yanks are coming!" These words of hope swept across the torn battlefields of France in the spring of 1918. For almost four years, the Allies had been bogged down in a murderous embrace with their German foes across no-man's land. But now, the Yanks were coming. They brought a breath of fresh air and a combative insolence born of innocence and high ideals. More importantly, their individualism, self-reliance and "can-do" spirit provided an impetus that promised to turn the tables in this terrible, tired war.

Many incoming American combat divisions were formed from units of the National Guard. This is the story of the Artillerymen in one such unit: 57th FA Brigade of the 32d Division, a division that was comprised of regiments and battalions of the Wisconsin and Michigan National Guard, many of whom had seen

By Major Prisco R. Hernandez, ARNG

distinguished service in the Civil War.

The story has great relevance for today. Then, as now, America was facing national security challenges at home and abroad. Then, as now, the US Army was in the process of reorganizing to adapt to changed operational conditions and new technologies that were transforming the face of battle.[1] Then, as now, the nation had to rely on the National Guard to provide disciplined manpower—a National Guard that had to reorganize and train its citizen-Soldiers quickly to fight in a changed and lethal operational environment. By examining how these leaders and Soldiers adapted and overcame the challenges of mobilizing and reorganizing while transforming the force, we may gain insights into the present situation and be inspired by these past successes.

On the Border: Homeland Security, 1916 Style. The American Army of the early 20th century consisted of a small cadre of regular units most recently employed in the power-projection wars and peacekeeping expeditions resulting from the Spanish-American War of 1898 and America's subsequent emergence as

a colonial power in the Pacific and Caribbean.[2] The organized state militias, later called the National Guard, augmented this small professional force.

In March 1916, America's southern border was disturbed by raids and violence fueled by social unrest and revolution in Mexico. Francisco "Pancho" Villa, a charismatic rebel leader, raided the town of Columbus, New Mexico, robbing and killing American citizens to finance his revolutionary forces. In response to a public outcry for assistance in securing the border and maintaining peace, President Woodrow Wilson mobilized the National Guard.

Less than a year later, a German U Boat torpedoed and sank the passenger liner *Lusitania,* killing many civilians, including 128 Americans.[3] This was the first in a series of attacks leading to a public outcry that caused the isolationist Wilson administration to declare war on Germany. In a short period of time, America had to react to emergency situations requiring a military response at home and abroad. The National Guard proved essential in this response.

As has frequently occurred throughout its history, the organized state militia had just survived another attempt to

dismember it, emerging a stronger and more integrated force, officially known as the National Guard.[4] Under the provisions of the National Security Act of 1916, state militias forming the National Guard were organized in battalions and regiments under their own officers and would be available for both state duty under each state's governor and federal duty within the United States and abroad when the president called.

The ink was still fresh on the National Security Act when President Wilson ordered a major mobilization of the National Guard on the Mexican border.[5] America's citizen-Soldiers again proved their value in time of war and national emergency as they had done throughout the nation's history.

Units from many states, including Wisconsin and Michigan, were mustered for border security duty.[6] They then organized for duty and went to military camps in the southwest to continue training on basic Soldier skills. After intensive training, including forced marches, musketry, field sanitation and small unit tactics, they were assigned to various posts along the Mexican border.

Border service mainly involved long days of guard duty under the unforgiving southwestern sun but proved invaluable to officers and men as they adapted to military life. When war came, this pool of disciplined and trained citizen-Soldiers, hardened by field conditions and discipline, formed the core of the new National Guard.

Change of Mission: Organizing and Training for a Major Theater War. When America entered The Great War in 1917, the nation had to organize quickly for a major land struggle in the European theater against a premier military—the German military machine. It required new skills and a new, larger organization.[7]

Again, the nation had short notice to respond to a major security emergency. Again, it relied on the National Guard. Many units saw border service and, thus, were more prepared than would have been otherwise.

But a European war required a more complex organization than the companies, battalions and regiments that constituted the Regular Army and National Guard. The infantry division became the basic unit of action, structured as an integrated combined arms organization with its own artillery and logistical support.[8]

A 32d Division bugler plays as a Milwaukee group prepares to leave for camp in 1925.

Divisional Troops	63d Infantry Brigade
Headquarters Troop	125th Infantry Regiment
119th Machine-Gun Battalion	126th Infantry Regiment
107th Engineer Regiment	120th Machine-Gun Battalion
107th Field Signal Battalion	
Combat Service Support Trains	
57th Field Artillery Brigade	64th Infantry Brigade
119th Field Artillery Regiment (75-mm Guns)	127th Infantry Regiment
120th Field Artillery Regiment (75-mm Guns)	128th Infantry Regiment
121st Field Artillery Regiment (155-mm Howitzers)	121st Machine-Gun Battalion
107th Trench Mortar Battery	

Figure 1: Organization of the 32d Infantry Division

The 32d Division was formed from traditional National Guard units from Wisconsin and Michigan, officially organized on 18 July 1917, and sent to Camp McArthur near Waco, Texas, to train.[9] (See Figure 1.)

After the division reorganized, training for war began, training that focused on battlefield conditions Soldiers might encounter in France. Three pressing challenges were basic: Artillery training, new equipment training and survivability training for the battlefield, including using protective equipment against a terrifying new weapon—poison gas.

The large-scale European war not only required more manpower, but also Soldiers and officers trained in skills other than infantry and cavalry, which represented most National Guard Soldiers. In particular, artillery would be essential to the war effort and artillerymen were in short supply. Many National Guard cavalry or infantry regiments were hastily converted into artillery to meet the new structure's needs. For example, the 1st Cavalry Regiment of the Wisconsin National Guard became an artillery regiment on 28 August 1917.[10]

As the regimental history records, "On September 28th, after a few days of intensive planning and organizing on the part of the staff, the First Wisconsin Cavalry ceased to be, the One Hundred 20th Field Artillery was born and, with the 119th from Michigan and the 121st from Wisconsin, the 57th Field Artillery Brigade was formed."[11] When the 32d Division arrived in Waco, officers and NCOs began training as artillerymen.

The new artillerymen faced daunting challenges. After the Spanish American War, the US Army reacted slowly to changes wrought by the indirect fire revolution in the science and art of war. The result was the creation of the modern fire support system. Despite resistance to change "… between 1898 and 1918, the War Department introduced new field pieces, adopted indirect fire, organized the School of Fire for Field Artillery, separated the Field Artillery from the Coast Artillery, grouped batteries into battalions and regiments, and integrated the Field Artillery into the division. Even with these reforms, the United States entered World War I in 1917 without sufficient Field Artillery and had to rely upon the Europeans to arm its batteries."[12]

The extension of the tactical battlefield in depth was perhaps the most revolutionary development of the early 20th century. The refinement of indirect fires techniques for artillery, the introduction of the airplane and new communications systems, such as reliable field telephones and radios, led to the creation of the fire support system in its modern form.[13]

Basic artillery training programs became more specialized and specific for gunners, surveyors, communications specialists, ammunition specialists, mule drovers and others. American artillerymen were given equipment, such as the famed French *soixante-quinze* (75-mm gun) and new communications equipment.

The training regime was stepped up, and Soldiers at all levels paid attention. The diary entry of the 120th Field Artillery for Monday, September 24, 1917, sets the tone, "New drill schedule adopted. As we are to become artillery, the 1916 Cavalry Drill Regulations, in which our units have become well schooled, must be replaced by the Artillery Drill Regulations, of which copies are at a premium."[14]

Artillery training was conducted as outlined in publications, such as the Field Artillery manuals, published by the War Department. Some incorporated doctrine based on the combat experiences of the British and French armies.[15] Despite these efforts, artillery units in the National Guard did not have enough trained leaders, especially at the higher levels, so some officers from the Regular Army were assigned command of artillery brigades. As National Guard Historian Jim Hill notes, "Through the failure of the [Army] General Staff to provide artillery equipment to the States by way of implementing the Dick Act of 1903, few, if any, of the States had a National Guard Brigadier General with artillery service or training."[16]

Battlefield conditions on the Western Front required mastery of the techniques of entrenchment, cover and concealment, and, above all, protection against poison gas, in addition to artillery training. Trainers attempted to recreate battlefield conditions, so "A trench system was constructed just outside the camp, and in this system, trench warfare was practiced. Infantry and artillery target ranges were prepared early in the training period. And a thorough course of instruction in firing was given to every man in the Division." The division history adds, "From these two features of the training program, excellent results were obtained."[17]

The knowledge, skills and cohesion developed during this time were critical in ensuring the future success of the division in combat. That the regiments of the 32d Division were well established National Guard units undoubtedly had a positive effect in shaping its character and cohesive spirit.

In the words of General Haan, the Division commander and a Regular Army officer, "The 32d Division, as it went into battle, was composed of approximately three-fourths National Guard and one-fourth drafted men. The spirit of the Division was due entirely to the spirit that was built up in the Division when it was composed wholly of National Guard troops and before it left Camp MacArthur, Texas."[18] He adds, "To these officers, as well as to other National Guard officers of high grade, must also be given credit for their conscientious assistance in eliminating officers unfit for war service."[19]

"Over There": Reception, Staging, Onward Movement and Integration (RSOI), 1918 Style. By January of 1918, the advanced elements of the 32d Division were already in France and soon were joined by the main body. Once in theater, the Soldiers joined other members of the American Expedition-

ary Forces (AEF) under General John J. Pershing.

Pershing's challenge was to maintain the integrity of the AEF and ensure his Soldiers would not be committed to combat piecemeal but would be employed as an independent and effective operational command.[20] As a result, the First US Army was created and became operational in September of 1918. However, by May of 1818, some American divisions were committed to combat as part of French and British corps to help defeat furious German attacks. The 32d Division was one of these units.[21]

American artillerymen's greatest challenge in theater was to continue training in the art and science of artillery and ensure the highest state of individual and collective combat readiness. To understand the enormity of this challenge, we must remember that warfare was undergoing a remarkable transformation with the coming of the deep battle and advent of the modern fire support system. In addition, many National Guard Redlegs had seen their first real guns only a few months before.

In the shadow of war, American artillerymen had to learn their craft and master the many technical challenges required by the expanded battlefield and fire support environment. To meet these challenges, training continued at an increased pace and American Redlegs were placed under the tutelage of experienced French instructors. Most units received French equipment—including the famous rapid-firing 75-mm gun that was the workhorse of Allied Field Artillery.

For example, the Soldiers of the 120th Field Artillery Regiment were staged at a French training center in Corquidan, Brittany. There, they "acquired more artillery technique than in all other training camps together."[22]

The training progressed to actual live-fire exercises with aerial observers.[23] By late spring, 32d Division artillerymen were as ready as they ever would be—as attested by this Soldiers' diary entry, "2d Battalion fires battalion problem, consisting of registration, zone fire for effect, destruction of M.G. [machine gun] emplacement, normal barrage and offensive counterpreparation."[24]

By late May 1917, less than a year after the citizen-Soldier cavalrymen became National Guard artillerymen, they were well on their way to mastering the latest Field Artillery equipment and tactics, techniques and procedures (TTPs). Orders assigning combat duties were imminent.

The Test of Battle. At last, all the training and preparation for combat were put to the test—the AEF, including the National Guard Redlegs of the 32d Division, took their place at the front. It is difficult to assess the relative performance of a specific combat unit vis-à-vis its sister units. Many factors influence such an assessment, including the strength and nature of the opposition, variations in weather and terrain, equipment status and the type of operations the unit is conducting.

Despite the subjective difficulties of such an endeavor, it is evident that the 32d Division performed very credibly. In his comprehensive study of the combat effectiveness of units in the AEF, Colonel Paul F. Braim ranks the 32d Division in the upper third of all American divisions committed to combat. Using indicators such as distance advanced against the enemy while under fire, awards for valor conferred on Soldiers, casualties taken and number of captured prisoners of war, the 32d ranks sixth of 18 divisions.[25]

Interestingly, the 1st Division ranks second. This was the Division to which many of the finest officers and NCOs of the 32d were assigned when it was used briefly as a replacement division.[26] Apart from these performance indicators, the 32d frequently was cited favorably in dispatches and was commended by both the French High Command and General Pershing, earning its sobriquet *Les Terribles* (The Terrible Ones) for its indomitable spirit in battle.[27]

The division infantrymen's courage was matched by its artillerymen's skill. Eyewitness accounts testify to the terrible effectiveness of the 32d Division artillery fires.

For several hours before the attack, a powerful artillery preparation devastated the entire area ahead of the troops. Low ground, caves, dugouts and trenches thought to conceal Germans were designated for concentrations of gas shells and high explosives. The enemy was worn down, stunned and harassed without respite during this period.[28] Later, this general fire plan changed to a rolling barrage to protect the infantry's advance.

"At 4:00 p.m., the crashing fire of the artillery preparation changed to the ordered arrangement of the barrage. In front of the right came the steady, stationary falling of shells; in front on the left the same broad belt of 'hideous ruin and combustion.' From it came the drumming roar of continuous explosions as of the progress of a mighty storm. That curtain of flame and smoke and dust shot through and through with screaming shards of steel rolled majestically away toward the east."[29]

American fire planners were willing to experiment with new methods of massing effects. In one instance, the 57th FA Brigade used a technique called the triple barrage. The triple barrage was three successive lines of fire before the infantry assault; when the defenders emerged from overhead cover to man their weapons, they were caught in the fires of the second and third barrages.

Interviews with German survivors of this inferno testified to its effectiveness. Some thought the Yanks had a machine

This painting by artist Joyce Kreafle depicts the backbone of light Field Artillery during World War I, the French 75-mm M1897.

gun that sprayed 75-mm shells. Their officers characterized the American artillery fire as crazy and frankly admitted they did not know what was happening during that terrifying afternoon. The Germans' morale was badly shattered by the tremendous pounding, and prisoners expressed satisfaction with the fact that they were behind, not in front of, the American artillery.[30]

The 57th FA Brigade further fully demonstrated its technical competence when it proved fully capable of serving as controlling headquarters for additional artillery battalions. During the Aisne-Marne offensive, "The 147th Field Artillery, 41st Division, was attached to the 57th Field Artillery Brigade for the entire operation."[31] When the division was granted a reprieve and moved to the rear, the artillery continued to support the new unit in sector.[32] The technical and tactical competence of the 57th FA Brigade's leadership is illustrated in the combat order shown in Figure 2.

By 11 November 1918, when the last shot of the terrible struggle was spent, 32d Division National Guardsmen had reason to be proud. They literally had "broken every enemy line" and proved superior to the enemy and equal to their Regular Army and Allied counterparts.[33]

The More Things Change …. "Army Records show that our Brigade, the 57th FA, fired more rounds than any other American Brigade; well over half a million shells thrown at the enemy."[34]

Because of fiscal constraints, cultural preferences and constitutional traditions, the United States rarely has fielded a standing Regular Army that could tackle worldwide crises. This was true in 1917 and remains true of our current "capabilities-based force."[35] Even the large Cold War Army relied heavily on allies, the Reserve Component and America's nuclear deterrence. Our nation always has depended on the citizen-Soldiers, especially the National Guard.

America's first large-scale overseas commitment, The Great War, posed enormous challenges to the nation. The demands of a major European war against the foremost military power in the world required an unparalleled commitment of human and material resources.

In the case of the artillery, the challenge was triple: to rapidly reorganize infantry and cavalry units into artillery battalions and brigades, train officers and enlisted men in the new indirect fire artillery techniques and integrate these units into a combined arms and multi-national team. And, for the first time, our Soldiers faced the possibility of fighting in a chemically contaminated environment.

That the division met all these challenges at all is remarkable. That it met them so successfully is incredible.

Because of a similarity in the conditions of the early 20th and early 21st century, lessons learned strongly resonate today.

A war or national emergency does not wait for an army to transform. In 1917, both the Regular Army and National Guard were forced into accelerated transformation by the pressing needs of war. The need for transformation was acute, particularly for the artillery, because of the development of the indirect fire system, new equipment and new communications technology. The lack of artillerymen and trained artillery units exacerbated the problem.

Today's process of transformation, begun in the mid-1990s, is under increased pressure because of the need to maintain a credible deterrent capability for a major land war and conduct a wide-ranging campaign against terrorists and the states that sponsor them. However, transformation remains imperative for the future force's viability.

Cohesive units enable transformation. National Guard units traditionally have displayed a special cohesiveness born of the citizen-Soldiers' long service together. Among US military organizations, National Guard battalions and regiments are the closest to a true regimental system containing long-serving members who know and trust each other. This *esprit de corps* always has been key in its members' motivation and battle performance. The transformation of the 1st Wisconsin Cavalry into the 120th Field Artillery shows it is much better to transform cohesive units from one type to another than to create them *ex nihilo*.

Battle-focused post-mobilization training is essential to success on the battlefield. The National Guard faces a critical challenge in maximizing limited training time. This is as true today as it was in the early 20th century. Intense, battle-focused post-mobilization training, both in the United States and in theater, is critical.

SECRET

Headquarters 57th F. A. Brigade
AMERICAN EXPEDITIONARY FORCES
FRANCE

30 October 1918

MEMORANDUM: Supplementing Operations Orders No. 12.

1. Preparation
(a) From this date until "D" day, all Division Artillery will maintain a continuous bombardment, harassing and interdiction fire on all enemy organizations within the sector.
Shrapnel will be freely used by 75's during this period. Non-persistent gas will be used on all woods, organized towns and other points where enemy forces are located.
The Commanding General of the 58th F. A. Brigade and the commanders of the light and heavy artillery of the 57th F. A. Brigade will submit at once plan for use of gas for approval.
(h) On "D" day minus one day, at an hour to be designated later, intensive bombardment of 15 minutes will be executed by all Divisional Artillery with a view of obliging the enemy to reveal his batteries by counter-preparation fire.
Bombardment will be by both shell and shrapnel.
I. A. L. fuses will be used whenever possible.
2. When the 57th F. A. Brigade is relieved after having fulfilled the first day's mission it will be arranged that no ammunition is left in the battery positions vacated.
3. The dividing line in this Division sector same as division for Infantry Brigades shown on revised map.
The 57th F. A. Brigade will cover the right sub-sector and the 58th F. A. Brigade the left.
5. All fire, bombardment harassing and interdiction, prior to "D" will be conducted by Brigades in their normal sectors.

By Command of Brigadier General Irwin:
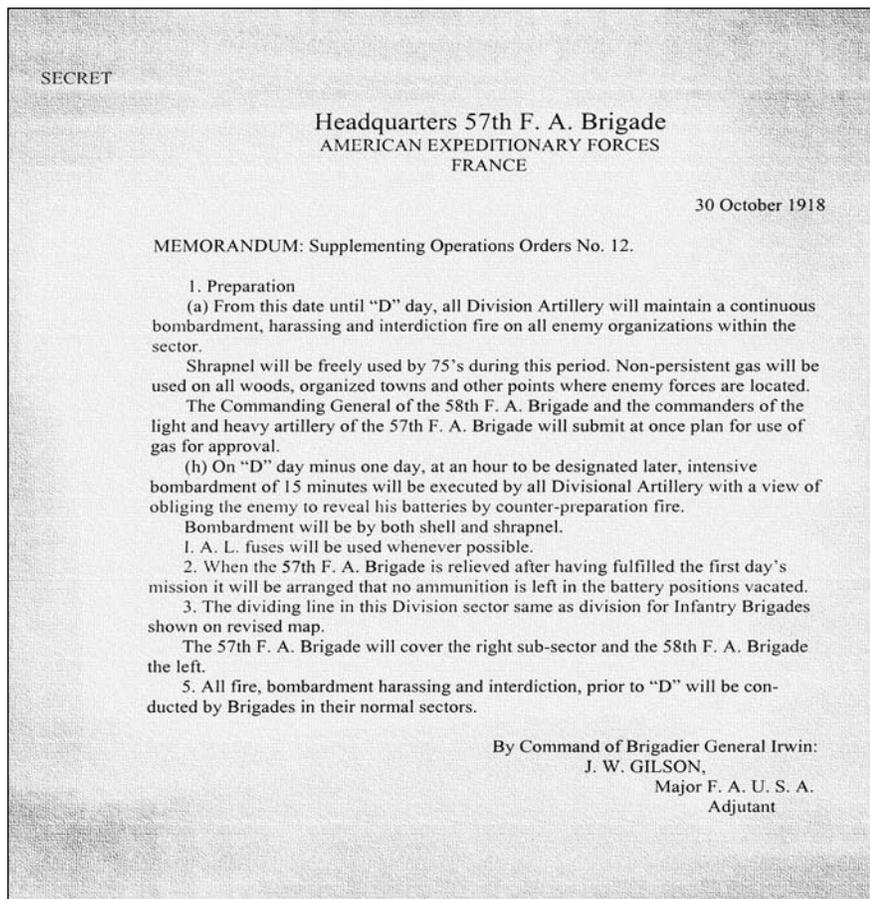J. W. GILSON,
Major F. A. U. S. A.
Adjutant

Figure 2: This order demonstrates the confidence the 3d Division Commander had in the skills and capabilities of the 57th Field Artillery Brigade.

Considering that artillery units in the 32d Division recently had been converted from infantry and cavalry, it is evident that intensive, purposeful training was imperative.

Today the challenge is no less formidable. Although approximately 70 percent of all the Army's artillery is in the National Guard, many units do not have adequate legacy systems and most lack the capability for digital connectivity with modernized FA units and other members of the joint fire support team. Given this situation, post-mobilization training can be an intimidating proposition.

In peacetime, units must be as near their wartime capabilities as possible because of time's importance in warfare and the demands of the contemporary operational environment.

RSOI. The process by which units are received, staged and moved to their area of operations and integrated into the order of battle remains critical to battlefield success. While the current acronym did not exist in 1917, units of the AEF faced the same deployment challenges today's expeditionary Army experiences.[36] Past experience must serve as an institutional memory to help anticipate and prepare for future challenges.

Leader development remains the most challenging and important training re-sponsibility for the Army in peace and war. The lack of peacetime preparedness and sluggish modernization efforts caused a shortage of trained artillery officers and NCOs in 1917. The fact that the artillery and fire support systems, in particular, require an abundance of liaison officers compounded the problem. In 1917, this challenge was met by rapidly commissioning and training new officers.

Today we do not have the luxury of time. To maintain combat capability, we must continue to attract and retain quality officers and Soldiers in the Field Artillery. The future lies not so much in weapons platforms, but in the ability to acquire and engage targets in a timely manner through integrated joint fires. Trained leaders are essential to success in this task.

Human Factors continue to dominate the battlefield. Finally, the magnificent battlefield performance of the National Guard artillerymen of the 32d Division resulted from the patriotism, fighting spirit and the dedication of each individual citizen-Soldier and officer. These same factors continue to make the National Guard Artillerymen a viable force today and on future battlefields.

History confirms the value of past experience as the guide to tackling contemporary problems. We must resist the temptation to treat transformation during war as a purely technological problem and pay attention to the human dimension. By identifying commonalities with our past experiences, we may find guidelines to help solve contemporary problems rooted in the realities of human nature and the enduring values, patriotism and devotion to duty of both our Active and National Guard Redlegs.

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Endnotes:

1. The most significant new technologies with military applications included the use of radios, improved telephones, trucks, long-range indirect fire artillery pieces, improved high explosives, poison gas, effective machine guns and airplanes. Taken together, these technologies produced a new battlefield paradigm—the deep battle.

2. Ivan Musicant, *The Banana Wars* (New York, NY: McMillan, 1990).

3. S. L. A. Marshall, *The American Heritage History of World War I* (New York, NY: American Heritage Publishing, 1964), 106.

4. The National Defense Act of 1916 reorganized the various state militias as the National Guard of the United States and allowed its use at home and abroad when federalized by the president. This legislation marks the origin of the modern National Guard. For a concise treatment of the events that led to this legislation, see Jim Dan Hill, *The Minuteman in Peace and War: A History of the National Guard* (Harrisburg, PA: Stackpole, 1964), 207-222.

5. The National Security Act was signed on 3 June 1916. But already on 9 May, due to continuing raids by Mexican rebels, the president asked the governors of Texas, New Mexico and Arizona to mobilize their National Guard troops to help federal troops secure the border. Ibid., 230-231.

6. National Guard units from Wisconsin were ordered to active federal duty on 19 June 1916. Carl Penner, Frederic Sammond and H.M. Appel, *The 120th Field Artillery Diary: 1880-1919* (Milwaukee, WI: Hammersmith-Kortmeyer, 1928), 23.

7. "Six of the nine infantry regiments and most of the cavalry, the artillery, engineers, and auxiliary troops had this Border experience." Joint War History Commission of Michigan and Wisconsin, *The 32d Division in the World War* (Milwaukee, WI: Wisconsin Printing Company, 1920), 27.

8. General Pershing, the supreme commander of the American Expeditionary Forces (AEF), decided to structure all divisions according to the "square" concept. Thus, a division consisted of four large infantry regiments of 3,720 men, each organized two regiments to a brigade. Each brigade was supported by a regiment of 75-mm guns with a third regiment of 155-mm howitzers in general support of the division. Hill, 27.

9. Joint War History Commission of Michigan and Wisconsin, 27.

10. Penner, 67.

11. Ibid., 27.

12. Boyd L. Dastrup, *King of Battle: A Branch History of the U.S. Army's Field Artillery* (Fort Monroe, VA: United States Army Training and Doctrine Command, 1992), 145.

13. "The deep or long range battle was the creation of the First World War, made possible by new techniques of target acquisition and increased range." J. B. A. Bailey, *Field Artillery and Firepower* (Oxford, PA: The Military Press, 1987), 151.

14. Penner, 65.

15. For example, the series of artillery manuals that were published in Paris specifically for the AEF were direct translations of the French manuals used at the Saumur Artillery School. See Saumur Artillery School, *Manual of Artillery* (Paris, France: Imprimairie Nationale, 1918).

16. Hill, 268.

17. Joint War History Commission of Michigan and Wisconsin, 31.

18. Ibid., 151.

19. Ibid.

20. Historical Section, Army War College, *The Genesis of the American First Army* (Washington DC: United States Government Printing Office, 1938).

21. After having served in a quiet sector of the front in May, the 32d Division first saw combat in the Aisne-Marne offensive on 27 July 1918 when serving as part of the French XXXVIII Corps, Sixth French Army. American Battle Monuments Commission, *The 32d Division: Summary of Operations in the World War* (Washington DC: United States Printing Office, 1943), 8.

22. Penner, 29.

23. Ibid., 116.

24. Ibid., 114.

25. Paul F. Braim, *The Test of Battle: The American Expeditionary Forces in the Meuse-Argonne Campaign* (Newark, DE: University of Delaware Press, 1987), 176-183.

26. Joint War History Commission of Michigan and Wisconsin, 34-35.

27. The 32d Division patch is a Red Arrow "… signifying that the Division shot through every line the enemy put before it." Penner, 26.

28. G. W. Garlock, *Tales of the Thirty-Second* (West Salem, WI: Badger Publishing Company, 1927), 216.

29. Ibid., 216-217.

30. Joint War History Commission of Michigan and Wisconsin, 85.

31. American Battle Monuments Commission, 9.

32. "The 57th Field Artillery Brigade, which, after the relief of the division, served successively with the 28th and 77th Divisions and in III Corps reserve." Ibid., 24.

33. The 32d Division earned its nickname *Les Terribles* when members of the 64th Infantry Regiment broke through a strong enemy line during the Aisne-Marne offensive in August 1918. A French corps commander apparently first used the term to describe the 32d Division doughboys, and it was soon adopted by General Mangin, French X Army Commander, and all the men of the 32d Division. Joint War History Commission of Michigan and Wisconsin, 70.

34. Penner, 10.

35. Richard Hart Sinnreich "Capabilities-Based Planning: Home Run or Humbug?" *The Lawton Constitution* (5 January 2003)

36. "The Army's deployment is the surest sign of America's commitment to accomplishing any mission that occurs on land." General Eric K. Shinseki, "The Army Vision: Soldiers on Point for the Nation: Persuasive in Peace, Invincible in War" (October, 1999), online at http://www.us.army.mil/csa/vision.htm.