Field Artillery

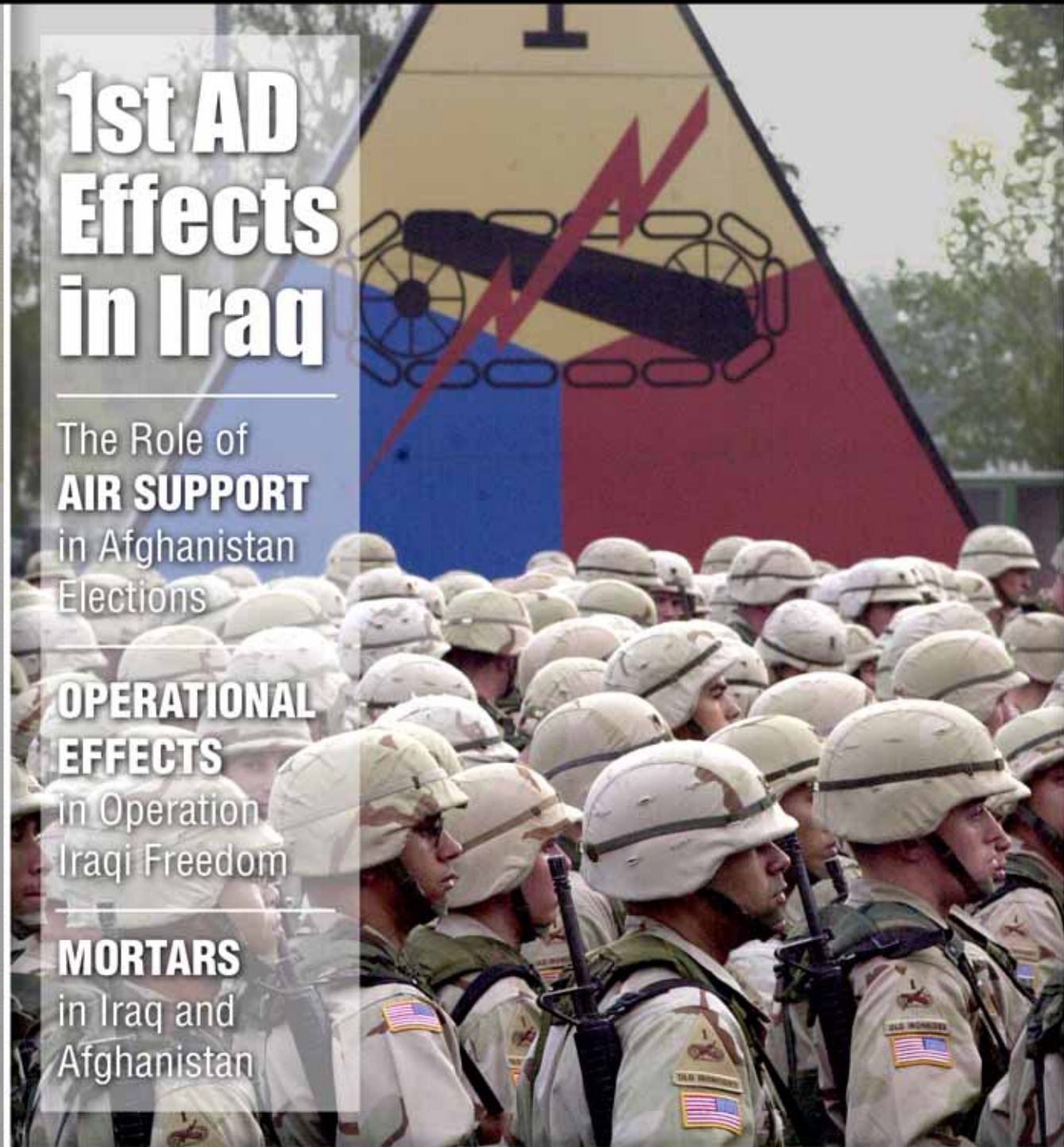*A Joint Magazine for US Field Artillerymen*   *January–February 2005*

1st AD Effects in Iraq

The Role of **AIR SUPPORT** in Afghanistan Elections

OPERATIONAL EFFECTS in Operation Iraqi Freedom

MORTARS in Iraq and Afghanistan

Field Artillery

A Joint Magazine for US Field Artillerymen

January-February 2005   HQDA PB6-05-1

Front Cover: Soldiers of V Corps' 1st Armored Division stand in formation during the dedication of a memorial to division Soldiers killed in Operation Iraqi Freedom on Minue Field in Wiesbaden, Germany on 7 October 2004. The dedication was part of a day long celebration to welcome the division's troops home from Operation Iraqi Freedom. (Photo by SPC Kristopher Joseph)

Redleg Hotline & Email
(Organization, Material, Doctrine and Training)
DSN 639-4020 or (580) 442-2204 (24-Hours)
redleg@sill.army.mil

CounterStrike Task Force
https://counterstrike.army.smil.mil

***Field Artillery* Home Page & Email**
sill-www.army.mil/famag; famag@sill.army.mil

Field Artillerymen as Force Multipliers

I'd like to begin this column by saluting our artillery leaders, Soldiers, Marines and allies who have closed ranks to take the fight to our enemies across the globe, particularly in Iraq and Afghanistan. Everyday they write new chapters of heroism, performance of duty under fire and tremendous adaptability to accomplish our core mission of delivering accurate, timely lethal fires as well as coordinating all effects for our joint commanders.

I have said for some time that we, Field Artillerymen, are in the middle of a "perfect storm." The movie *Perfect Storm*—so called because it was three storms combined into one—was the story of a fishing boat caught in the middle of the storms.

Think about what we are in the middle of right now. Our Army is going through its most profound transformation since World War II; we are building modular capabilities to increase our strategic responsiveness and flexibility while rebalancing and restructuring our Active Component (AC) and Army National Guard (ARNG) in the near term; and we are working to improve predictability by stabilizing the force. We are doing all these while in a war that strategic reality tells us will be a protracted one.

And, unlike the fishing boat that was destroyed in the *Perfect Storm*, the Field Artillery is transforming as it goes through its "storms," growing its capabilities for the Army and the joint force.

Transforming the FA. Our formations will remain tremendously capable as we continue to provide persistent all-weather, all-terrain 24/7 responsive fires for our maneuver forces across the battlespace—our delivery of indirect fires remains a staple of the evolving environment.

The transformation proof comes from November 2004's fight for Fallujah in Iraq, a clear example of the irregular fight fought by A Battery, 3d Battalion, 82d Field Artillery (A/3-82 FA), 2d Brigade Combat Team (2d BCT), 1st Cavalry Division. These Redlegs spent 10 months performing nonstandard FA missions while patrolling the streets of Baghdad before they were called to provide FA support to the Black Jack Brigade and 1st Marine Division in their attack to restore Fallujah to legitimate control.

In recalling the 10-day-plus operation, the battery commander stated, "The Marines gave us the exact coordinates and requested fires, and we provided them, destroying the enemy's command and control headquarters, sniper positions, bunkers, mortar positions, maneuver elements—just about anything we were called on to destroy.

"We fired illumination rounds to enhance night-time visibility, smoke rounds to conceal troop movements and precision fires within one meter of intended targets, all with devastating effects."

In fact, some adjustments were less than the traditional 50 meters. They literally walked fires in front of Bradleys and Abrams to clear the way.

The battery commander went on to say, "During the fight, a Marine platoon was ambushed by 70 insurgents all dug-in in fortified positions. The Marines called for close supporting fire, and we responded with superb effects, destroying the insurgents and allowing the platoon to maneuver effectively. Afterward, the Marine commander made it a point to find our firing battery and thank us for doing what we do best.

"Yes, we made history in Fallujah and again displayed that Artillery is and always will be the King of Battle."

This is transformational. But fellow Artillerymen, we are still challenged. Our counterfire capability was designed for the Cold War to fight the Soviets, not a single mortar tube mounted in the back of Toyota pick-up or up on a village roof top. Our ability to counter this deadly, less sophisticated tactic requires new thought and new tactics and

An M109A6 Paladin from A/3-82 FA sends a round down range during combat operations in Fallujah, 6 November 2004. *(Photo by SFC Johancharles Van Boers, 55th Signal Company, Combat Camera)*

capabilities to make sensor-to-shooter transparent. Let me take this one step further: the evolving challenges require the force to develop new *joint* tactics and *joint* interdependent capabilities to make *joint* sensor-to-shooter transparent. This is the irregular challenge—the *contemporary operating environment* (COE). This is the domain of the joint land warrior.

I may be biased, but I think Field Artillerymen always have been transformational in developing new capabilities and adapting current capabilities to accomplish new missions, including joint missions and capabilities.

We are part of the Counterstrike Task Force (CSTF). This task force is integrating existing joint technologies into a networked command and control (C^2) system that will give our commanders a common operating picture (COP) in order to defeat the enemy's indirect fires. At the end of the day, we will achieve horizontal integration of joint sensors and joint responders to address the entire spectrum of indirect fire threats to our forces in theater.

In December 2004, the CSTF completed Counter-Rocket, Artillery and Mortar (C-RAM) demonstrations at Yuma Proving Ground, Arizona. The demonstrations were highly successful, and the CSTF joins the Training and Doctrine Command (TRADOC) in preparing systems for delivery to theater. This effort now has become fully joint as the CSTF is working with the Marine Corps and Air Force to ensure the total integration of procedures and assets and sharing of information in real time.

Transformation Priorities. We have three priorities to accomplish as the Army transforms from a division-based to a brigade-based organization. Our first priority is to grow Fires Battalions organic to the fourth BCTs, next is to establish joint fires and effects cells (JFECs) at all levels, and finally to organize fires for echelons above the maneuver BCTs in the Fires Brigades.

Success in accomplishing these priorities means we must move Soldiers and equipment into those formations. We face some challenges in terms of manning and equipping the growing number of Fires Battalions and establishing JFECs.

In those efforts, we are hosting a Modularity Video Teleconference (VTC) every second Wednesday of the month. These VTCs include representatives of the Department of the Army G3 and G8,

SGT Jason Traywick sights targets for howitzers during an Air Force and Field Artillery training exercise near Camp Caldwell, Iraq, on 14 October 2004. Traywick is with the113th Field Artillery Brigade Combat Observation Lasing Team (COLT), an Army National Guard unit out of North Carolina. The new Fires Battalion and Fires Brigade organizations have the COLTs in the BCT's headquarters and headquarters company (HHC) and the company fire support teams (FISTs) in the task forces' HHCs.

Human Resources Command, Forces Command (FORSCOM) and our fires formations in the field.

As of 23 November 2004, the Army indicated we will likely have 11 Fires Brigades in the Total Force. Although I have consistently stated that in a perfect world we would have a Fires Brigade for every UEx, the realities of force structure constraints have driven the decision to have a smaller number of Fires Brigades. Ongoing efforts will determine the mix of AC and ARNG Fires Brigades and where they will be stationed.

As you know, some Field Artillery force structure has been reduced, particularly echelons above brigade. While we may perceive an overall loss, there actually are more opportunities for Field Artillerymen because we are adding battalions and JFECs. Fires Battalions are now organic to the BCTs; they bring more commands, more Soldiers, a clearer mission and a better organization for training, C^2 and combined arms joint warfighting. Our JFECs are more robust than ever before.

All of this means the addition of more than 400 section chief positions on howitzers, launchers, radars and meteorological systems; of more than 120 master sergeant positions in warfighting units; of almost 250 Field Artillery intelligence and targeting officer positions for our warrant officers; of more than 120 more positions for majors; of 130 more positions for lieutenant colo-

nels in our warfighting divisions and Stryker Brigade Combat Teams; and of 15 more Fires Battalion commands/ command sergeants major positions.

Now having said that, we do have a concern over the reduction in the numbers of Field Artillery colonel commands. We have taken action to continue command opportunities. We have established battlefield coordination detachments (BCDs) as 13A 06 board-selected brigade-level commands, giving us five new 13A 06 commands in the AC and two additional for the ARNG. We are in the process of developing the physical plan to collocate our BCDs with each of the Air Force's combined air operations centers (CAOCs).

I showed you the Fires Battalion and Fires Brigade organizational designs in my July-August column. Most remains the same; however, we recently documented that the BCT combat observation lasing teams (COLTs) are to be located in the BCT's headquarters and headquarters company (HHC) and the company fire support teams (FISTs) at the task forces' HHCs. These changes move us closer to "what *right* looks like," help facilitate training and certification, and ensure that immediately responsive, all-weather, all-terrain close supporting precision fires are available for the BCT.

We are continuing to make steady progress to improve our ability to deliver both precise and more precise area

effects from both our cannons and our launchers. Today's experiences in Iraq and Afghanistan clearly dictate that we must be able to quickly and confidently bring effects into areas where collateral damage is a factor and in close proximity to our Soldiers and Marines.

Two key cannon precision capabilities, the XM982 155-mm Excalibur unitary warhead round and projectile guidance kit (PGK), aka course-correcting fuze, are under development today. Recent Excalibur firings at Yuma impressively achieved 3.4-meter accuracy at a range of 20 kilometers, even during extreme wind conditions. Excalibur is ideal for use in urban and other complex terrain and will serve as the precision "bus" for 155-mm lethal and nonlethal projectiles.

Efforts to develop the PGK are also showing promise, and we anticipate a spring demonstration to determine the validity of a potential design. PGKs will enhance the effectiveness of fielded cannon munitions (155-mm and 105-mm).

Together these capabilities provide the commander with a greater spectrum of cannon effects from conventional "dumb" artillery rounds, to the more precise area effects of PGK-equipped munitions, to the precision-guided capability provided by Excalibur.

On the launcher side, we are expanding our munitions suite beyond the current dual-purpose improved conventional munition (DPICM). It is absolutely imperative that we grow another capability to deliver lethal effects in urban and other complex terrain.

The most recent guided MLRS (G-MLRS) unitary test firing at White Sands Missile Range, New Mexico, on 9 December 2004 achieved an accuracy inside of 10 meters of the aimpoint at a range in excess of 60 kilometers. Its capability in the point-detonating or delay fuze mode allows noncombatant or friendly Soldiers to be within 200 meters of the target. This G-MLRS unitary rocket significantly reduces collateral damage to structures that we don't wish to harm. Fielding for this rocket will start in the 4th Quarter of FY06, if it is not accelerated and fielded sooner to contribute to the fight in Iraq.

Precision fires are crucial, but let's not forget that the roots of our indirect fires lie in the constant of the five requirements for accurate, predicted fires. These five elements apply to our precision-guided munitions and are critical to preserving our ability to provide area

volume fires and suppressive fires to spring maneuver onto its target alive.

Joint Fires Initiatives. The Army-Air Force Warfighter (AAFWFT) Conference at Eglin Air Force Base, Florida, on 29 November 2004 proved to be a great success for our Army. The Air Force was very supportive of all three of our proposals.

First, the Air Force agreed to train Soldiers for all close air support (CAS) missions, to include Type 1 CAS. This is significant as the Air Force now recognizes the requirement for joint terminal attack controllers (JTACs) down to the company level.

Under the Army's new training management cycle, we will make every effort to include the Air Force's enlisted terminal attack controllers (ETACs) in our 36-month unit life cycle. It will be more difficult to stabilize the Air Force air liaison officers (ALOs) who have professional development timelines and aircraft rating requirements; however, I am certain we can work this out over time with our Air Force partners.

We agreed to change the name of the universal observer to joint fires observer (JFO). A JFO is a qualified service member who requests, adjusts and controls surface-to-surface fires, to include Field Artillery, mortar and naval gunfire. A JFO will be authorized to provide targeting information and conduct terminal guidance operations in support of Types 2 and 3 CAS.

Until the JFO concept is fully developed and implemented, Field Artillery officers, warrant officers and enlisted Soldiers will be qualified in enhanced forward observer training (EFOT), including Types 2 and 3 CAS, by completing the Joint Firepower Observer Course conducted by the Army Joint Support Team at the Air-Ground Operation School at Nellis Air Force Base, Nevada. Personnel attending this training will receive a Project Development Skill Identifier (PDSI) of D7B.

Finally, the Air Force enthusiastically welcomed our initiative to align our Army's BCDs with the Air Force's five Falconer CAOCs and two training and experimentation CAOCs being established at Nellis AFB, Nevada, and Hurlburt Field, Florida. This is the right thing to do. We now will align our BCDs geographically with combatant commanders and Air Force training sites..

If you haven't been watching CNN, you missed a great opportunity to see Fort Sill's Joint Fires and Effects Train-

ing System (JFETS) in action. JFETS is part of Fort Sill's capabilities as the Army's integrator of joint fires and effects. ABC and the Discovery Channel also will be providing coverage on this tremendous training system in the near future.

Fires Knowledge Network. The Fires Knowledge Network (FKN) is a dedicated site accessible to all AKO users but targeted at fire supporters and Field Artillerymen. It is an exceptional tool allowing us to link operational forces and the Field Artillery Center and School, providing essential feedback and lessons learned.

FKN is now accessible through the main Army Knowledge Online (AKO) portal. Currently, our 131A Targeting Warrant Officers have established a community of practice on FKN to facilitate professional discussions. In the near future, a similar community of practice will open for our 13F Fire Support Specialists to facilitate communications among fire supporters.

Joys and Sorrow. I want to report that 102 West Point cadets branched Field Artillery. I met with them and am confident that we are getting quality, enthusiastic future leaders. Special thanks to West Point's FA cadre for their efforts and support in welcoming our newest officers into the branch.

I also am pleased to report that 283 ROTC cadets selected FA. What's interesting is that this year, the Army Accessions Command (AAC) guaranteed ROTC cadets their choice of branches if they selected them by August 2004, applying to certain branches, including ours. I am proud to say that 155 cadets branched Field Artillery using this selection program. I want to thank the many Field Artillery units and Soldiers who supported cadet training this summer on Warrior Forge 04— their quality training execution made a difference.

In a sad note, the Army and our Field Artillery community lost a talented leader and friend—Brigadier General Charles "Ben" Allen. General Allen was the Assistant Division Commander of the 4th Infantry Division at Fort Hood, Texas, and was killed along with six other Soldiers in the Blackhawk helicopter crash in central Texas in December.

At a Fort Sill Memorial Service for Ben, many praised him, and I want to share a few of their comments for they capture his qualities, not only as a great

Photo by SPC Rhea Anderegg, Headquarters and Headquarters Company, 4ID

Brigadier General Ben Allen coins dining facility Soldiers on Thanksgiving Day 2004 at the 1st Brigade, 4th Infantry Division dining facility, Fort Hood. Allen was the Assistant Division Commander and was killed along with six other Soldiers in a Blackhawk helicopter crash in central Texas in December.

leader, but also as a good man.

One said, "Ben Allen was known to be a Soldier's Soldier. He cared about his troops, and he enthusiastically led his troops to achieve victory, both on and off the battlefield. He was also a Soldier's son. Ben was the beloved son of a career Army officer, the late Colonel Allen."

Another said, "Ben had a special talent for maintaining friendships. When he arrived at a new duty station, he made a special effort to seek out and reconnect with friends and colleagues from previous assignments. Whether on a golf course or standing on the bank of one of his favorite fishing holes, Ben could make you feel as though only days had passed since he last saw you."

Finally one attendee said, "Ben was a man of faith and had a great sense of humor. He worked hard and expected the best from himself and his troops. He loved his family, the Army, his life and his country."

Brigadier General Ben Allen will be sorely missed among our ranks.

One Final Thought on FA Transformation. We, as a branch, have organized a fire support network that, over the years, has been recognized throughout the joint force as the leader in truly understanding the complexity of the warfight at all levels and throughout all phases. When it comes to understanding the threat or the "real FLOT [forward line of own troops]" or where we stand on battle damage assessment, Field Artillerymen, quite simply, "*Get* It."

This feel for the battle—a deep understanding that we share instantly at every level—is what truly separates us from the other branches. As we transform, we cannot lose this force multiplying capability upon which the Army has come to depend.

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Joint Fires and Effects Seminar Slated for April

As the Army's Joint Fires and Effects Center of Excellence, the US Army Field Artillery Center will host a Joint Fires and Effects Seminar from 5 to 7 April. The seminar will be held in the Reimer Conference Room at the FA School, Fort Sill, Oklahoma.

The seminar will focus on fires and effects in the current operational environment, specific aspects of fires and effects studies, and fires and effects issues related to modularity. Invitees will include senior commanders and leaders, fires and effects coordinators, and a number of representatives from the joint, allied and retired communities. Industry representatives will be invited to display products relevant to the issues being addressed.

Invitations to the seminar with an agenda will be sent in February. As more details become available, information will be posted on the seminar's website on the Fort Sill Home Page: sill-www.army.mil.
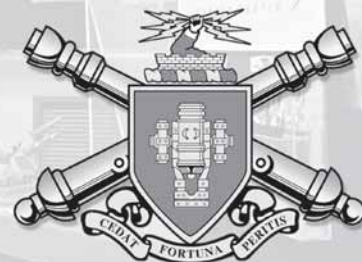
Photo by Fred W. Baker III

Major General Martin E. Dempsey
Commanding General, 1st Armored Division in Iraq

Fires and Effects for the
1st Armored Division in Iraq

Interview by
Patrecia Slayden Hollis, Editor

Task Force 1st Armored Division was the largest division-based task force in US Army history and was deployed the longest since World War II, nearly 15 months. The task force had 36,000 Soldiers and 14 brigade headquarters. Each brigade had a combination of mortars and artillery that fired counterfire and harassment and interdiction fires.

Task Force 1st Armored Division was deployed to Iraq from May 2003 until arriving back in Germany in August 2004, spending the first 12 months rebuilding Baghdad. Then for Operation Iron Sabre, the task force moved south for three months to defeat an uprising of Muqtada al Sadr's radical militia and insurgents who were attacking supply routes and controlling a number of cities in an area of operations that spanned more than 20,000 square kilometers, including the cities of Najaf, Karbala, Kut, Mahmudiah and Iskandaria. Within 15 days, supply lines were reopened; within 30 days, those attacking the supply lines were on the run; and within 60 days, the militia was defeated.

Q*While the 1st Armored Division was in Iraq, what were the division's greatest successes?*

AWe had successes at all levels. Every Soldier saw himself as a warrior and embraced the Chief of Staff of the Army's Warrior Ethos. We were able to conduct some training while in contact with the enemy to ensure Soldiers received the right skill sets for fighting the insurgency.

In an environment where precision effects, as opposed to massed fires, were key, our artillery organizations and Soldiers were able to adapt as much or more than any Soldiers in theater—

quite an accomplishment.

But our biggest success was in adapting our technologically heavy division intelligence system to absorb human intelligence. About 80 percent of our intelligence, our actionable intelligence, came from human sources with 20 percent from technology. At the organizational level, that was a great success.

Then, at the upper level where the division connected into the operational level, our greatest success was in balancing kinetic energy with other less lethal effects to develop the synergy to move Iraq toward stability.

So, our JFEC [joint fires and effects cell] migrated from focusing on deep attack and kinetic energy to focusing more on other tools, to include the economic development of Iraq, information operations, engagement activities, meetings with tribal leaders and so forth. As our JFEC focused on those less lethal tools, we became better at influencing the populace—a necessity in this kind of warfare.

Q*What were your greatest challenges?*

AMaking those adaptations. When you go to the combat training centers in peacetime, the mantra is that you have to see yourself, see the terrain and see the enemy. In a high-intensity fight, your greatest challenge is to see the enemy because you know about yourself; once you know about the enemy, you can react to him.

When fighting insurgents, the biggest challenge is seeing yourself. You have to understand what you are about and then adjust your methodologies and the application of your tools.

Case in point: when we arrived in Iraq, we initially conducted a lot of cordons and searches, traffic control points, sweeps, presence patrols—we were almost ubiquitous. That was in June 2003 right after all the grotesque looting had occurred. Our mission was to stabilize the environment.

I think history will say that we did that, that we tamped down the lawlessness, which is really what it was. But in doing so, we were a bit imprecise, which caused us problems later. So in that environment, we had to see ourselves—what we were doing and what the intended outcome was, which was different than what we initially thought.

Now let's "fast forward" to Operation Iron Sabre in April 2004 when we had to deal with the radical militia of Muqtada al Sadr in the south. First, I would suggest that what we did in April 2004 we could not have done in June 2003. It was true that by April we had grown as an organization and as leaders and had become battle-hardened, but by then we also understood how all things fit together in that culture and could "see" our part in it. So we took a

deliberate approach—very patient, very precise and open to Iraqi solutions. We wanted to be seen as taking into account all the different elements of power and applying them. That sent the right messages to the Iraqi people and the world.

At the tactical level, the individual Soldier level, we wanted to be seen as relentless and aggressive. Now, you might ask, "How do you reconcile deliberate, patient and precise with aggressive and relentless?" That's the art of warfare.

During Operation Iron Sabre, we had five cities to stabilize. We made the conscious decision to work them sequentially, not simultaneously. This allowed us to intervene with local authorities, religious leaders and political leaders—to paint the picture that, eventually, we're coming to "your" city. It's "your" option to fix the problems "yourself" because, eventually, we're going to make our way over there. That was pretty successful, actually.

In terms of precision, at no time did we work our way through a city building by building or room by room. We gathered intelligence on where the pockets of radical militia were and then either stood off and attacked the pockets with precision munitions or penetrated them. But if we did go in on the ground, we penetrated, attacked the militia and then moved back out to minimize the risk of being seen as creating excessive collateral damage or prolonging suffering needlessly.

During Iron Sabre, we established a time threshold, meaning that we understood the 21st century reality—that the operation had a "shelf life" as related to how the American people and international community perceived the operation through the media. You can't get into a fight that takes a long time in this environment. You could if you were fighting the Republican Guards, but not if you're working your way through the Iraqi population.

We did not conduct MOUT [military operations in urban terrain] or combat in cities in the traditional sense; we more accurately conducted "combat among populations." To do that, we sorted through the intelligence and applied combat power with precision only where necessary.

For example, in Najaf in May 2004, we encountered six 120-mm mortar shooters. By analyzing our intelligence,

- Remain on the offensive.
- Balance kinetic and information operations (IO).
- Ensure boundaries do not become barriers.
- Understand that relationships are more important than rewards.
- In combat, lead from the front; in civil affairs, lead from behind.
- Gain contact, maintain contact and finish the fight.
- Maintain precision in all things but especially in language.
- Manage expectations–of Soldiers, Iraqis and families at home.
- Continue to train and develop leaders.

Tenets of Combat Operations in Populations

we verifiably killed five of them. We could not have done that in June 2003.

And then as a parallel line of operation, we worked to build confidence among local leaders, inject money into the economy, rebuild police stations and rebuild the Iraqi security forces, giving them more armament to put them on equal footing with the insurgents.

Using that strategy, we went from Kut to Diwaniyeh to Karbala and back down to Najaf and stabilized all of them. It worked.

Q What did you learn in "combat among populations"?

A We learned so much that if you listed the lessons in bullet format, they would fill up one of your magazines.

One of the most significant lessons was the importance of precision in all things—in intelligence, munitions and especially in the language describing what you are doing. For example, we didn't send Soldiers out on "presence" patrols; we sent them on "reconnaissance" patrols.

We learned to consciously balance our use of our high-end combat capabilities with other tools. Often, we established a theme for a particular period of time, especially in Baghdad. We decided, for example, what we wanted the people of Baghdad to feel about Baghdad in about 90 days—it takes that long to turn public perception in a big city. Baghdad is a city of six million

people compressed into an area about the size of Detroit. Traditionally, we plan military operations and then somebody turns to one of the staff officers and said, "Ah geeze, we need an information operations annex. Write one up, and we'll stick it in the operations order." But the annex really had no bearing on the intended results.

While in Iraq, we often determined our theme and devised the information operations plan to support it and, last, built our combat operations to support that theme. We reversed the paradigm. We still had to be able to apply that blunt instrument called combat power, but we had to apply it to gain the "prize"—inspiring public confidence and moving the Iraqi people toward democracy.

These probably are the biggest lessons learned, but I've got about nine that I've briefed in several forums. [See the figure.]

Q How important are precision fires in that environment?

A Absolutely crucial. In general, we learned the more precise we could be, the better off we were. You must take into account the potential consequences of your actions.

Precision is a tool, not the "silver bullet." There were times when we were consciously imprecise. Case in point: early on in our deployment, we cordoned and searched the Adamia area of Baghdad—imprecise operations consciously applied.

You can choose to be imprecise, but you better have the ability to be precise too.

Q What indirect fires did you employ in the southern region of Iraq during Operation Iron Sabre?

A The simple answer is we used everything we had: mortars, 105-mm towed and 155-mm Paladin howitzers, Apache attack helicopters, the Air Force's AC-130 gunships (with great effect) and Predator UAVs [unmanned aerial vehicles] armed with Hellfire missiles.

On occasion, we employed F-16 fighter aircraft with ISR [intelligence, surveillance and reconnaissance] pods. We dropped a few JDAMs [joint direct

attack munitions], but that's a munition you have to be careful with in an urban environment.

Each of our FOBs [forward operating bases] had a "Hot" section or platoon of artillery ready to provide immediate counterfire. Our FOBs took a lot of enemy rocket and mortar fires.

In Baghdad, we had about 22 FOBs; when we went south, we consolidated into nine FOBs. During the fight against Sadr's radical militia, one of the base camps in Najaf took as many as 50 rounds of mortar fire per day from rooftops, alleyways and the back of pickup trucks.

We had a very carefully constructed and robust suite of counterfire radars that we built and rebuilt into different architectures as we learned more about the enemy's capabilities: Q-36 and Q-37 Firefinders and, during Operation Iron Sabre, LCMRs [lightweight counter-mortar radars]. We also had OH-58-D Kiowa Warrior helicopters that provided overhead surveillance.

Q *While fighting the radical militia in the south, did you ever have complete situational awareness?*

A Absolutely not—there's no such thing in this region of the world. It's a question of culture.

I lived in Saudi Arabia for two years before deploying with the division to Baghdad for a third year. During that time, I gained an appreciation for the *tapestry* of that society. The tapestry is interwoven with tribal, deep religious and economic relationships with some emerging political aspirations.

So, when you ask someone like me—an Irish Catholic from Bayonne, New Jersey—"Did you ever have complete situational awareness in Baghdad or anywhere else in the Middle East?" the answer is, "Absolutely not." And we never will understand the degree to which their influences intermingle in their culture as compared to ours.

Case in point: In America, religion is an im-portant part of life. In the Middle East, for many, religion *is* life. So the imam from the mosque or minaret with a microphone has far greater impact on them than an American cleric with a microphone would have on us.

Another case: The status of tribal elders or leaders. Once in Saudi Arabia I was in a room of about 300 tribal leaders, sitting on a horseshoe-shaped bunch of couches. Every time someone new walked in, everyone stood up and kissed the new leader and then sat back down, but never in the same place, unless you were one of the top guys. Everyone knew exactly where to sit and exactly where they were in the "pecking order."

Complete situational awareness in the Middle East is not an achievable goal.

Q *How does that affect targeting and precise operation?*

A It requires redundancy in intel. Through intelligence analysis, you determine patterns that over time lead you to conclusions, as opposed to taking disparate sound bytes and trying to piece them together.

In a high-intensity fight, you would see an enemy force moving across the border "here" and then three hours later see a force moving "there" and have confidence that it was the same force—it just had moved.

If you make assumptions based on the same level of "intelligence bytes" in Iraq, you may be seeing two different tribes and two different religious organizations and make more enemies with your actions against them. Counterin-surgency requires a far greater degree of analysis—it is truly a fight for intelligence as much as anything else in Iraq.

Q *What other indirect fire assets would you like to have had organic to your division to mitigate your lack of 100 percent situational awareness?*

A More radars. Over time, we got very good at pattern analysis and very effective with counterfire. We got good at orienting the radars, overlapping their coverage and augmenting them with ground scouts and overhead platforms for reconnaissance and surveillance. We linked all that info back to the Hot guns via ADOCS [automated deep operations coordination system]. Before we redeployed, we had counterfire very, very quickly. Although we did not reach the goal of counterfire in less than one minute, we came close.

Now, we do need to improve our Firefinder radars. For example, the Q-37 is designed to counter a rocket attack. It uses fairly old technology intended to pick up mass barrages of rockets fired in the old Soviet methodology. So the radar has difficulty detecting insurgents firing a single 80-mm or 120-mm rocket off a rain gutter or propped up against an irrigation ditch. My point is, we need to upgrade the radars' technology to make them more precise for use in the Global War on Terror. We also need to increase the range and accuracy of the LCMR, which I understand the FA is working with the LCMR Program Manager to attain.

I'd like more UAVs, an important part of our fight. In one case, a UAV picked up the enemy loading a 120-mm mortar and ammo into a vehicle, followed the enemy to a house, and watched as the enemy emplaced the mortar on the roof of the house. A second UAV, a Predator armed with Hellfire, engaged and destroyed the mortar. These UAVs worked very well in tandem.

So these kinds of systems are critical in an

Photo by R. D. Ward

Major General Dempsey leads the division in a pass-in-review during homecoming ceremonies in Weisbaden, Germany, on 7 October 2004.

urban environment where the fight is vertical more than horizontal.

Now having said all that, when we moved south to quell the radical militia, we were the main effort and well resourced. Although they were not organic, we had more radars and UAVs.

Q *At what level did you integrate your ETACs [Air Force enlisted terminal attack controllers]? Could you have used more?*

A They started at the brigade TOC [tactical operations center], but we shifted them around, based on the missions. The brigade commanders decided where to place them on the battlefield. In some cases, the ETACs were with the company or troop commanders.

It really depended on what kind of aircraft we were getting. The AC-130 pilot has different requirements for clearing fires. He doesn't necessarily need to talk to an ETAC who has eyes on target—the AC-130 pilot is going to have eyes on that target—he can talk to a ground commander.

But the F-16 pilot flying much higher has different requirements—he has to talk to a certified ETAC.

Our ETACs were very effective. We had fairly predictable air assets for our environment, so we could move the ETACs around as we needed them.

But I would have liked to have had redundancy in ETACs. When you have a 20,000-square-kilometer battlespace with five cities to stabilize that are from 100 to 150 kilometers away from each other, you always run some risks moving ETACs around.

I think the future suggests that we need more ETACs—and, in addition to redundancy, I am a big believer in habitual relationships—routinely training and working together.

The Chief of Staff of the Army's goal is to be joint interdependent, not just interoperable. Our 13 Foxes [13F Fire Support Specialists], who are the Army's forward observers for indirect fires, make a logical choice for JTACs [joint TACs], increasing the ground force's capability to terminally control

Soldiers of A Battery, 1st Battalion, 94th Field Artillery, 1st Armored Division, conduct a night patrol in Baghdad on 3 February 2004.

Photo by SFC Alexander Rucker, 982d Signal Company

air attacks and increasing joint interdependence.

I understand that some 13 Foxes are training to qualify as JTACs—a great initiative.

Q *For the close fight, we're developing a 155-mm Excalibur precision-guided unitary round with a range out to about 40 kilometers and an accuracy of 10 meters or less at all ranges, a round that is optimized for use in urban and complex terrain. Would that round have been useful to you in Iraq?*

A Absolutely—it's right on the mark. It does not produce duds, and it's precise, making it very useful for combat operations in populations.

Many of our fights had a certain flow to them. Two RPG [rocket propelled-grenade] shooters would be on a rooftop with two snipers with AK-47s and then a little farther down the street and in an alleyway would be another RPG shooter with a sniper in a window just a little farther. In this scenario, we were using a tank's main gun with a 120-mm heat round in the direct fire mode instead of the .50-cal machine gun to take out the window sniper; the .50-cal travels farther and penetrates more of the poorly constructed buildings, potentially creating more collateral damage. I also used Apaches firing Hellfire missiles to counter that threat.

But if I had had Excalibur unitary, I could have fired from kilometers away with a 10-meter circular error probable [CEP], that would have been *huge*—I

could have used it for rooftops. Most of the bad things that happen to you in a city happen to you from a rooftop.

With some practice, I probably could have dropped it into the front door of a building.

Q *We're in operational testing of a long-range 15- to 70-kilometer precision-guided MLRS [multiple-launch rocket system] unitary rocket that you can employ close to friendlies with confidence that is optimized for urban and complex terrain. Could you have used this rocket in Iraq?*

A Oh, Lord, *yes*. In Baghdad, the enemy did too much damage with his SS-30 Brazilian-made 127-mm rocket launcher that has a range of 30 kilometers. Thirty kilometers exceeds Paladin's range. We generally had to fight the threat with either rotary- or fixed-wing aircraft or UAVs. I am not convinced we were very effective against the 127-mm rocket launchers.

If I could have shot MLRS at these rocket launchers with no submunition problems, we'd have been far more likely to get a kill.

The MLRS unitary rocket will give us the advantage.

Q *You deployed to Iraq with your Div Arty [division artillery] serving as a maneuver brigade combat team while also serving as your force FA headquarters. How important is it to have a force FA headquarters and why?*

A Very important. The counterfire fight requires the expertise of the senior artilleryman in a force FA headquarters. I needed advice on indirect fire issues; I needed the division FSE [fire support element]; and I needed Chief [131A Targeting Warrant Officer] to tell me how to overlap and focus our radars. I cleared fires in Baghdad with my FSCOORD [fire support coordinator] as my executive agent for clearing fires.

When we moved south for Operation Iron Sabre, I delegated the authority to clear fires in such a large battlespace down to five commanders, mostly lieu-

tenant colonels. But before I did, my targeting officer with a team of experts trained the five in clearance of fires and counterfire procedures.

The force FA headquarters gave me the assets and expertise I needed to adapt to the situation.

Q *What unique missions did you give Field Artillerymen, and how did they perform?*

A You already mentioned I gave the Div Arty commander double duty as force FA commander and maneuver brigade commander responsible for his own segment of Baghdad.

The DS [direct support] FA battalion commanders each had a neighborhood or multiple neighborhoods in Baghdad and were expected to establish a safe and secure environment the same as their infantry or armored battalion counterparts. They had cross-attached maneuver and other forces under their command, whatever the mission called for.

They initiated civil projects and monitored them, they did governance work, established neighborhood councils, met with local tribal sheiks and political and religious leaders, and ran their own FOBs They conducted reconnaissance missions, raids, cordons and searches, and cordons and attacks.

Simply stated, these Field Artillerymen performed the same jobs as well as their fellow combat arms officers who wore Armor or Infantry brass.

Q *As the Army's integrator of Joint Fires and Effects, the Field Artillery is transitioning to JFECs. How important is the JFEC for the UEx commander on today's battlefield and why?*

A Its importance depends on the environment—the UEx commander must have the ability to conduct deliberate military decision making in high-intensity conflict, in which case the JFEC remains important as the integrator of all lethal and less lethal fires and effects for the division.

But in a counterinsurgency environment, the JFEC is the catalyst for everything the division does.

In 15 months in Iraq, we wrote 12 operations orders. Contrast that with my targeting meetings with the JFEC every 48 hours and my once-a-week

targeting briefings while in Baghdad— about 80 meetings. Just running the numbers, which one do you think is more important?

Q *At the 11th hour, the Army extended your division's tour in Iraq from 12 to nearly 15 months. Why?*

A In April in an uprising in the south, the radical militia took over the governments of five cities. The declaration of sovereignty while part of the country was under insurgent control would have made it a document with no real meaning. So, we had to defeat the insurgents. The seasoned 1st Armored Division was the logical force for the mission.

The Iron Soldiers reacted to their sudden extension in Iraq as professionally as any group of Soldiers I've ever been around. They took it like a blow to the stomach knocking the wind out of them temporarily, but very temporarily.

One of the realities of the 21st century is that your families kind of go to war with you. It was common for Soldiers to email their families 30 minutes before or after a patrol, checking in with them. With families so involved, leaders have to manage their expectations and keep them informed in a way that we never had to before.

When the division got extended, we sent one of the ADCs [assistant division commanders] back to Germany to meet with the family members at each of our nine kasernes and explain the reason for the extension. The families not only took the extension well, but they also encouraged and empowered their Soldiers to accomplish the mission. It was great.

At the end of the day, what got us through those 15 months, including 130 Soldiers killed and 798 Purple Hearts, was focusing on communications and being absolutely honest about what was going on and why.

Q *What message would you like to send Army and Marine Field Artillerymen, either fighting in GWOT or getting ready to?*

A We are winning in Iraq. Without the Coalition Force moving Iraq toward democracy, that part of the world likely would have become a sanctuary

and crucible for terrorism for the next century. For the good of the 21st century and the Western world and its eventual reconciliation with those in the Middle East, we absolutely are doing the right thing.

The most powerful influence in that region right now is American Soldiers and Marines. You are black, white, males, females, Christians, Muslims or Jews, all working together as a team— there is no other example of such diversity in that part of the world.

Our nation's at war—for the most part, a ground war—and you Soldiers and Marines are the ones fighting it. Thank you for your service.

I also compliment you on your adaptability. In this environment, you Field Artillery Soldiers and Marines have had to adapt the most and have been most successful at it.

And finally, you must maintain your ability to provide full-spectrum fires and effects whenever the ground force needs them, including massed fires and precision lethality. We are counting on you as the King of Battle.

★★

Major General Martin E. Dempsey is the Commanding General of the 1st Armored Division in Germany and deployed the division to Operation Iraqi Freedom II from June 2003 until August 2004. In his previous assignment, he was the Program Manager for Saudi Arabian National Guard Modernization in Saudi Arabia for two years. On the Joint Staff at the Pentagon, he was the Special Assistant to the Chairman of the Joint Chiefs of Staff and Assistant Deputy Director for Politico-Military Affairs, Europe and Africa (J5). He commanded the 3d Armored Cavalry Regiment at Fort Carson, Colorado, and the 5th Battalion, 67th Armor, 1st Armored Division in Germany. He Also served as the Chief of Armor Branch, Officer Personnel Management Directorate, Total Army Personnel Command in Alexandria, Virginia. During Operations Desert Shield and Storm he was the S3 of 3d Brigade, 3d Armored Division in the Gulf. He holds master's degrees in National Security and Strategic Studies from the National War College in Washington, DC; in English from Duke University, North Carolina; and in Military Arts and Sciences from the Command and General Staff College, Fort Leavenworth, Kansas.

4-27 FA in Iraq

Applying D³A to Counterinsurgency Operations

By Lieutenant Colonel
Brian J. McKiernan
and Major M. Scott Patton

Azhar, a young man of 17, looked through the rocket-propelled grenade (RPG) launcher site, took aim at the column of three 1st Armored Division high-mobility multipurpose wheeled vehicles (HMMWVs) traveling down Haifa Street, gently squeezed the trigger and watched as the RPG sailed down from the window of his fifth-floor apartment. The RPG impacted two feet behind the last HMMWV with a thunderous blast that sprayed shrapnel and pavement for yards. Azhar and his cohorts followed the explosion with a sustained volley of AK-47 rifle fire.

The Soldiers in the two lead HMMWVs quickly recovered the wounded and evacuated them to the combat support hospital (CSH) a few kilometers away. One innocent Iraqi man who had been sitting on a park bench nearby lay dead in a pool of blood, and 12 other Iraqis lay wounded in the street, including a beautiful four-year-old girl.

The ghosts of Sheikh Maruf had struck again!

Within minutes, the battalion quick-reaction force (QRF) and the battalion tactical command post (TAC) arrived at the scene and found that insurgents had set the disabled HMMWV on fire with Molotov cocktails. A large crowd had gathered, angered not at the insurgents who had attacked, but at the Coalition Forces who were conducting consequence management.

The QRF quickly established a 360-degree perimeter to control the growing crowd that included as many as 20 news crews. Battalion leaders conducted onsite interviews with the ever-present press corps and directed the division air QRF (OH-58Ds).

No friction training event at one of our combat training centers (CTCs) could have prepared us for that hot summer day in Baghdad.

This scenario represents some of the many challenges the 4th Battalion, 27th Field Artillery (4-27 FA), 1st Armored Division, faced in the early months of our 15-month deployment for Operation Iraqi Freedom (OIF). The enemy conducted hit-and-run attacks on a daily basis using everything from improvised explosive devices (IEDs) and RPGs to drive-by-shootings. Our Soldiers were wounded and killed. In most cases, we had no idea who was attacking us or how to prevent the attacks.

As leaders, we asked ourselves: How can we determine who this enemy is? How can we acquire him? What is the best way to kill or capture him?

We were a direct support (DS) artillery battalion performing an infantry battalion mission without the same tools or training. We had limited "own-the-night" equipment, only basic skills in patrolling, limited proficiency in military operations in urban terrain (MOUT) and only rudimentary skills in close quarters marksmanship. Our modified table of organization and equipment (MTOE) was for a DS battalion in high-intensity conflict.

Initially, we viewed these as handicaps in a zone populated by some of the poorest citizens in Baghdad living alongside a large population of former regime loyalists and a fair number of religious extremists. We later learned that these perceived weaknesses were actually the very ingredients that allowed us to "think outside the box," adapt to our terrain, adapt to our enemy and tame Zone 8-South in central Baghdad.

We used what we had and applied what we knew.

Seeing Ourselves. Our greatest advantage was that, as an artillery battalion, we had no preconceived notions about the best ways to conduct patrolling, area and zone reconnaissance, cordon and attacks, cordon and searches or

raids. Fortunately, we retained all our fire support teams (FISTs) and combat observation lasing teams (COLTs). Only the fire support elements (FSEs), company to brigade, remained with their supported maneuver units.

We consolidated our FISTs into separate platoons under the command of the headquarters battery commander. Initially, the COLT platoon served as our task force (TF) scouts and QRF and the two remaining platoons augmented the battery patrols.

We also looked for ways to capitalize on the inherent skill sets of our Soldiers and battle staff. By our very nature, fire supporters have a unique understanding of the targeting process. We leveraged this as we designed our battle rhythm, which was based on a weekly targeting cycle.

We took the basic principles of the normal high-intensity conflict 24-hour battle rhythm but modified it into a weekly battle rhythm because it takes much longer to develop targets in counterinsurgency operations. We called this our weekly effects tasking order (ETO) cycle, and it was nested within the brigade combat team (BCT) battle rhythm. (See Figure 1.)

Our COLTs and FISTs were very skilled at occupying observation posts (OPs), detecting and observing named areas of interest (NAIs) and using tactical triggers. Capitalizing on this, we maximized the use of OP surveillance in our zone and area reconnaissance. This later proved to be one of our most effective techniques.

Most of our Paladin howitzer sections were manned with eight personnel. We didn't have the combat strength of an infantry squad or Bradley fighting vehicles as troop transports. We parked our Paladins, removed the ammunition racks from our FA ammunition supply vehicles (FAASVs) and fitted them with bench seats, converting them into armored personnel carriers. This provided our Soldiers some protection from IEDs and small arms attacks and the added firepower of a .50 caliber machine gun.

We developed an intense patrol master training program that centered on movement techniques, hand and arm signals, populace engagement, understanding the assigned priority intelligence requirements (PIRs), surveillance of NAIs and reaction-to-contact drills. This emphasis later paid huge dividends.

Shifting the targeting methodology to a low-intensity counterinsurgency fight

Sun:	Brigade Targeting Board
Mon:	Brigade Targeting Meeting
	Brigade Effects Tasking Order (ETO) Operations Order (OPORD) Published
Tue:	Battalion Targeting Board
Wed:	Battalion Targeting Meeting
Thu:	Battalion ETO OPORD Published
Fri:	Brigade Recon/Surveillance Backbrief
Sat:	Battery Commanders' Target Backbrief

Figure 1: Weekly Battle Rhythm

1. Are there paramilitary and terrorist groups operating in our area of responsibility (AOR)?

2. What individuals or groups are controlling improvised explosive device (IED) attacks in our AOR?

3. Is there a catastrophic attack planned against a BCT forward operating base (FOB) or mission area?

4. Is anyone planning a coordinated attack against a BCT checkpoint or isolated force (i.e., convoy, patrol, etc.)?

5. Are there any attacks planned to disrupt the power grid?

6. What organized criminal gangs are operating in the BCT AOR?

7. Is anyone planning or executing a civil disturbance in the BCT AOR?

Figure 2: Brigade Combat Team (BCT) Commander's Priority Intelligence Requirements (PIRs)

was not as complicated as you might think—our doctrine is sound. The basic model of Decide, Detect, Deliver and Assess (D^3A) works and can be applied to a myriad of problem sets. The weekly ETO cycle was the mechanism for applying this model.

Decide. Just as in high-intensity conflict, the Decide function is the first step in the targeting process for counterinsurgency. Likewise, the Detect function provides the overall focus and sets priorities for intelligence collection and attack planning.

In Baghdad, we used two of the traditional visual products from the high-intensity conflict targeting process to reflect these Decide decisions: the high-payoff target list (HPTL) and the intelligence collection plan. The intelligence collection plan answers the commander's PIRs, which became the central focus of all TF operations. Every member of the TF had to understand the next higher commander's PIRs. (See Figure 2 for the BCT commander's PIRs.)

Due to the asymmetrical nature of the battlefield in counterinsurgency, you never know who will find the answer to a commander's PIR. It could be a member of the intelligence section, a battery commander on patrol, a member of a security patrol, a combat service support (CSS) Soldier on a logistics, personnel and administration center (LOGPAC) mission or a member of the civil affairs (CA) team.

Everyone in the TF had to think like an intelligence officer, and every movement out of the forward operating base (FOB) was considered a patrol, a patrol that had to be debriefed by the battery patrol master when it returned to the FOB.

For most of the time, we operated in Zone 8-South. The BCT commander's PIRs listed in Figure 2 helped us form our intelligence collection plan and establish priorities of work for the battle staff and commanders. At that time, all of the targets in PIR 1 were former regime loyalists or religious extremists. Pursuing information related to these requirements ensured we met the commander's intent of identifying, capturing or killing these insurgents.

Prioritizing the HPTL helped us further refine the intelligence plan and allocate our resources as we built our weekly ETO. The BCT commander published his HPTL in an ETO order each week after his Targeting Board (Sunday) and Targeting Meeting (Monday). The BCT commander's published target categories further refined the type of targets that we selected for the following week's TF ETO cycle. (See Figure 3 on Page 12.)

For example, if we developed intelligence about individuals who conducted attacks against Coalition Forces or individuals linked to Al Qaeda, we assigned target numbers, built target folders and developed our reconnaissance and surveillance plan.

We formalized the Decide step of the process in our TF Targeting Board (Tuesday) and our Battalion Targeting Meeting (Wednesday). At the Battalion Targeting Meeting, the battalion commander approved the prioritization of targets and the method of surveillance and attack for each target. This also

ensured the TF was operating inside the BCT commander's intent for the coming cycle. The TF S3 then published the TF ETO order to the batteries on Thursday and also back-briefed the BCT commander on the TF reconnaissance and surveillance plan for the next week.

In addition to kinetic operations, during the Decide phase, we determined our nonlethal effects priorities. We prioritized our civil works projects based on the effect of shaping attitudes and sentiments of the population.

For example, if we had a neighborhood that was hostile to the Coalition, we targeted that neighborhood for mosque and school renovations and solved water and sewage problems that had been neglected for the past 30 years. In some instances, we rewarded neighborhoods for good behavior and cooperation.

Bottom-line: we deliberately decided the effect we wanted to achieve and linked it to our kinetic and nonkinetic effects in zone.

Detect. This is the next critical function in the targeting methodology. When artillerymen think of "detection," we immediately envision our Q-36 and Q-37 Firefinder radars with overlapping range fans, carefully planned critical friendly zones (CFZs) and call-for-fire zones (CFFZs) covering templated enemy artillery and rocket positions. We also envision our COLTs with their ground/vehicular laser locator designators (G/VLLDs) in concealed OPs looking for the enemy's forward security elements exiting the Whale Gap at the National Training Center (NTC), Fort Irwin, California. If there is a major adjustment in the targeting process in counterinsurgency operations, it starts with the Detect function.

Human Intelligence (HUMINT). This is the most important component of targeting in counterinsurgency operations. Our enemy was elusive, and he seldom maintained contact. Our enemy in Baghdad also was not concerned about collateral damage. After he shot an RPG, detonated an IED or threw a grenade, he simply melted into the crowd or the maze of blind alleyways. Hence, our moniker, "The Ghosts of Sheikh Maruf."

To fight this enemy effectively, we built an extensive human intelligence network. At the TF level, we seldom could rely on receiving division assets to augment our intelligence collection efforts. Additionally, there were only two tactical HUMINT teams (THTs) to support the entire BCT. To succeed, we had to cultivate our own sources to augment our reconnaissance patrols.

During June 2003, insurgents attacked our Soldiers on 40 occasions resulting in 12 friendly forces wounded in action and zero insurgents captured—not a very encouraging statistic. In contrast, during October 2003 when our HUMINT network was in full swing, we suffered only 11 attacks and captured 33 insurgents and terrorists. More importantly, in the aftermath of the 11 attacks, we normally captured the attackers within 24 hours.

HUMINT starts with building relationships. Every contact is a potential source and must be looked at for his or her potential intelligence value. This includes local contractors, interpreters, traffic police, coffee shop owners, imams and petty criminals. Soldiers treated them with dignity and respect while gradually working them for intelligence. Any of these sources could be the one who identifies the insurgent who is planning to attack a LOGPAC convoy with an IED.

Evaluation of source information can be tedious and taxing at times. Every person who provides information about the enemy is motivated by something. If you know your source and understand his or her motives, this greatly helps your evaluation of the reliability of the information. It is also good practice to confirm the information with independent sources, if possible. This may preclude you from unwittingly serving the source's purposes instead of vice versa.

As in high-intensity conflict operations, you must emphasize protecting your detection assets; they are most certainly HPTs for your enemy. Commanders must implement control measures to protect sources and protect the methods for deriving information. Most

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With actionable data, engage as acquired:

- Attackers of Coalition Forces Resulting in Serious Injury (SI)/Killed in Action (KIA)
- Ansar al Islam/Al Qaeda or Terrorist
- IED Maker
- Black List

With actionable data, plan in ETO cycle:

- Former Regime Loyalist Leader
- Former Regime Loyalist Operator
- Demonstration Agitator
- Demonstration Facilitator
- Ba'ath Members/Meeting Places
- Weapons/Ammo Caches
- Criminals

Figure 3: BCT Targeting Categories of High-Payoff Targets (HPTs)

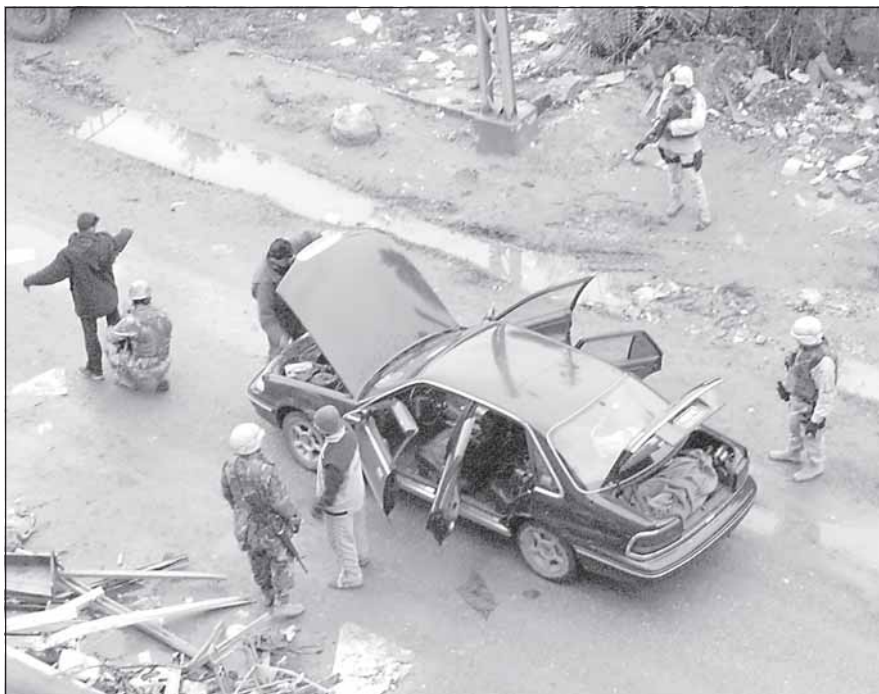

Soldiers of 4-27 FA and the Iraqi Civil Defense Corps (ICDC) search vehicles at a temporary control point south of Salhiya, Iraq, 23 January 2004 during Operation Iron Resolve.

Photo by SPC Darryl T. Magby, 982d Signal Company (Combat Camera)

of the measures we implemented involved controlling how information was passed to our staff.

Observation Posts. One of the greatest strengths of our FIST Soldiers is their ability to establish and stealthily occupy OPs and observe NAIs.

We faced two challenges in using OPs in urban terrain. First, it is very difficult to emplace observers in densely populated areas without being detected. Observers must plan their routes and occupation times to avoid detection. Second, to avoid detection, observers often had much longer dwell times at their OPs. This made it imperative that Soldiers occupy their OPs with enough combat power to protect themselves for long periods.

We used observers in the OPs to trigger the execution of raids to capture or kill insurgents. A good example of this was when we captured a division target named "Firyal" (a key Ba'athist financier and operative). Firyal was suspected of financing and coordinating attacks against Coalition Forces throughout the summer of 2003.

Using TF sources, we refined the location of her residence and learned she often moved between three different homes. We conducted surveillance of her home in our zone using a COLT on an OP. After 48 hours of continuous observation, COLT Three observed six males entering the home and reported it to the TF TOC. This met our execution criteria trigger to conduct a raid. Two hours later, we captured our target.

Patrolling. This was our most conventional means of detection. The main challenge we faced was transitioning from mounted operations to dismounted patrols. The learning curve was steep, but within months, the firing batteries were the main assets answering the PIRs.

We quickly transitioned to operating from a patrol base. The patrol dismounted its vehicles at a patrol base that was easily secured and then conducted a dismounted zone reconnaissance for periods of up to four or five hours, attempting to answer specific PIRs. By conducting dismounted patrols, we consistently maintained contact, reduced our risk from RPG and IED attacks and, most importantly, engaged the population.

Engaging the people is talking to and getting to know as many people as possible without compromising the mission or security of the patrol. This was one of the greatest training challenges for our Soldiers—you won't find the task, conditions and standards for this in any mission training plan (MTP).

Engaging the people offers a unit several advantages. A unit can enhance its detection by meeting new contacts or sources in zone, and by greeting them and conducting the patrol in a respectful, friendly manner, it sends a positive message and facilitates the process. We were not out solely to win the hearts and minds of the people, but we did want their cooperation and assistance.

Synchronizing Detection. During the weekly targeting meeting, we synchronized our detection assets and developed our collection plan. An important visual tool we used to synchronize our collection assets was the synchronization matrix. (See Figure 4.) The syn-

#	PIR/IR	NAIs/TAIs*	Battalion (Bn) and Other Detection Assets												
			Patrols	Biggin	Tia	FS	Lote	D.T.	Domino	T.P.	Pele	Fatty	P.P.	T.C.	MP/IZP
1	**Are there paramilitary & terrorist groups operating in our AO?**														
	1a. What groups are they?	AD1065	A	X				X	X		X	X			X
	1b. Where are they meeting/planning?	TD1295	Bn		X			X							
	1c. Who are the leaders?	AD1210	A, B, HHB												
	1d. Where will they attack?	TD1410	B, HHB		X		X	X				X			
	1e. What type of attack?	AE1150	B, HHB				X					X	X		
	1f. Is the group responsible for previous attacks?	AE1141	A, B, HHB				X								
	1g. Does the group have a financier?	AE1142	B, HHB					X							
	1h. What types of attacks have they conducted in the past?	TD1415	B, HHB				X			X					
		C1709	C	X									X		
		C1708	C	X									X		
		T117	B, Bn	X				X	X					X	X
		T121	Bn, HHB			X			X					X	X
2	**What Individual or groups are controlling IED attacks in our AO?**														
	2a. What methods are being used to conduct attacks?	TD1295	Bn		X			X							
	2b. What types of IEDs are being used?	AD1065	A	X				X	X		X	X			X
	2c. How are they being detonated?	T402	A, B, HHB				X	X				X			
	2d. Where are they meeting/planning?	TD1375	A, HHB		X		X	X				X			
	2e. Who are they?														
	2f. Where will they attack?														
	2g. Is one group responsible for the attacks?														
	2h. Who is funding the attacks?														
	2i. Who manufactures the devices?														
	2j. Where are the devices stored before pickup?														
	2k. Where are the high-density areas or business that Coalition Forces are congregating?														
3	**Is there a catastrophic attack planned against our FOB or mission area?**														
	3a. Who is planning the attack?	T311	B, Bn			X	X	X			X				X
	3b. When and how will they attack?														
	3c. Where will they attack?														
	3d. What type of attack?														
	3e. Is anyone conducting surveillance of our FOB, fixed site or US facility?														

*Named Areas of Interest/Target Areas of Interest

Figure 4: Detection Synchronization Matrix. Detection assets were synchronized during the weekly targeting meeting. The battalion assets went to the specified NAI or TAI and talked to sources to determine the answers to the questions about each PIR or IR.

chronization matrix matched specific PIRs to NAIs, and we could task collection assets accordingly. For example, we listed all of our NAIs for PIR 1 and designated a unit for that particular NAI or some battalion asset to observe the NAI. We also considered other assets that might be available.

Another important aspect of detection is building the case for a target. The PIRs were designed for each target, so if they were answered, we had relative certainty that the target would actually go to prison if we captured him. Physical evidence always served as the optimal manner to build a case (i.e., IED-making materials, documents, cell phones, computers, etc.).

The enemy was adept at hiding contraband and, in most instances, these items were difficult to locate. To counter this problem, we relied heavily on sworn statements from multiple sources. Once we had enough evidence to keep the target in captivity, the statements became execution criteria for a raid.

Deliver. Although it seems the greatest difference between D³A methodology in high-intensity conflict and counterinsurgency would be in the deliver function, there are actually more similarities than differences. According to *FM 6-20-10 Tactics, Techniques and Procedures (TTPs) for the Targeting Process,* "The deliver function of the targeting process executes the target attack guidance and supports the commander's battle plan once HPTs have been located and identified." It is no different in counterinsurgency operations.

The tactical decisions concerning the deliver function in counterinsurgency ops more or less mirror the tactical decisions made in high-intensity conflict (time of attack, the desired effect and the attack system to be used). The only major difference in counterinsurgency operations is the method of delivery. Rather than speak in terms of volleys of indirect fire, close air support (CAS) sorties or attack aviation missions, we generally spoke of platoon raids or battalion cordons and attacks.

As we transformed from a DS artillery battalion to a maneuver TF, we developed TTPs and battle drills that addressed this fundamental difference. In the early stages, we relied mostly on cordons and searches and cordons and attacks because we lacked precise intelligence. Both of these missions are very deliberate and resource-intensive. If you lack precise intelligence and have the

time and available combat power, they are appropriate methods.

However, our targets were often time-sensitive targets (TSTs) or targets of opportunity. The amount of time it takes to set the outer and inner cordon in a densely populated city hindered our ability to capture some of the elusive targets we sought. To address this, we developed a TST force based on our COLT platoon.

Our goal was to be able to attack a TST within one hour after we met our execution criteria for that target. The key to making this a reality was developing a TST raid battle drill and training the force.

This TST raid force provided a flexible combat force postured to quickly execute targets based on actionable intelligence. By the time the TF redeployed, this TST force was responsible for capturing approximately 85 percent of the 450 insurgents the TF captured.

Assess. Assessment during counterinsurgency operations is probably the most difficult task we undertook. The difference in targeting is that we were not assessing a formation or an enemy that we could see. Most of the time, we were assessing covert enemy cells that are adept at disguising their intentions and furtive in the conduct of their operations.

Similar to D³A methodology in high-intensity conflict, many of the detection assets also served as assessment assets. Although we seldom had additional D³A assets from higher headquarters, the assess function was the exception.

We relied heavily on our BCT headquarters and division headquarters to help with assessment. When we captured an insurgent target, our S2 conducted TF level screening of the prisoner and set the conditions for BCT interrogation. If the BCT interrogators thought the individual had intelligence value, he was sent to the division interrogation facility. The division interrogation facility completed the process and published the results on the tactical worldwide web (TACWEB) in the form of summary interrogation reports (SIRs). These SIRs played a vital role in our ability to assess the effects of our targeting and operations in our zone. We used the SIRs to develop relationships between individuals and determine the structure of the cells operating in our zone.

Another important assessment is the number of attacks committed in our zone. The frequency and type of the

attacks in zone provided an indicator of the insurgent activity. This can be tricky. For instance, in some cases the insurgents lived in one zone and operated in another. Also, the type of attacks they committed could be a result of friendly forces changing their tactics. As we evolved from mounted to dismounted patrols, IED and RPG attacks decreased dramatically but hand-grenade and small arms attacks increased.

A final indicator came from the attitudes of the population as patrols engaged locals in their neighborhoods.

Each zone in Operation Iraqi Freedom has its own unique challenges. For us, adjusting our established targeting doctrine helped in our fight in Baghdad.

This article in its entirety is online at the Army's Counterstrike Task Force website: https://counterstrike.army. smil.mil. The article online includes more detailed tactics, techniques and procedures for engaging locals to secure maximum intelligence information, protecting sources and establishing and employing a time-sensitive target force to engage a counterinsurgent threat rapidly.

Ed.
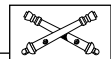
Lieutenant Colonel Brian J. McKiernan commands 4th Battalion, 27th Field Artillery (4-27 FA) which is direct support to the 2d Brigade Combat Team (BCT), 1st Armored Division Artillery (Div Arty) in Germany, and recently returned from 15 months in Iraq. In his previous assignment, he was the S3 of the 2d Infantry Div Arty and S3 of 6-37 FA (Multiple-Launch Rocket System), both at Camp Stanley, Korea. Among other assignments, he commanded B/3-319 FA in the 82d Airborne Division, Fort Bragg, North Carolina. During Operations Desert Shield and Storm, he was an Assistant Brigade Fire Support Officer (FSO), also in the 82d Division.

Major M. Scott Patton is the S3 for the 1st Armored Div Arty in Germany. Until recently, he was the S3 of 4-27 FA, deploying with the battalion for 15 months to Iraq. Also in the 1st Armored Division, he was the Brigade FSO for the 2d BCT. Among other assignments, he commanded a Paladin Battery and served as a Battalion FSO and Battalion Fire Direction Officer in 2-82 FA, 1st Cavalry Division, Fort Hood, Texas. During Operations Desert Shield and Storm, he was a Company FSO in the 101st Airborne (Air Assault) Division.

Afghanistan

The Role of "Show-of-Presence" Aircraft in the First Democratic Elections

By Captain Joseph A. Katz

In the spring of 2004, members of the 25th Infantry Division (Light) headquarters element arrived in Bagram, Afghanistan, and replaced outgoing elements of the 10th Mountain Division (Light Infantry) as part of Operation Enduring Freedom (OEF). At the time, Operation Mountain Storm—a spring offensive against remnants of the Taliban and Al Qaeda—was taking shape. The effects of this operation would pave the way for Operation Lightning Resolve designed to establish safe and secure conditions for the first democratic elections in Afghan history.

Throughout this build-up to election day, the joint fires element (JFE) of Combined Joint Task Force-76 (CJTF-76) worked closely with task force-level fire support elements (FSEs) as well as multiple Air Force components to create an air support plan that would ensure mission success. When executed, this plan to use fixed-wing air in "shows of presence" would provide maneuver units an overwhelming advantage over the enemy.

The goals of this pre-election air support would be three-fold: provide security to Coalition Forces operating throughout the combined joint operations area (CJOA); instill a sense of instability and insecurity in anti-coalition militia attempting to disrupt election safety and participation; and provide a sense of security and support to local nationals as they prepared to participate in their first-ever democratic voting experience.

Intelligence Preparation of the Battlefield (IPB). The integration of fixed-wing air support into the elections process began with an analysis of the terrain and historical enemy activity. Terrain analysis was modified from its standard observation, cover and concealment, obstacles, key terrain and avenues of approach (OCOKA) that dealt with slope grade, foliage, etc. Rather, our terrain analysis was quite unconventional and tied into the effects-based goals of providing the greatest security to the greatest number of voters in the highest threat areas.

To that end, the realization that population centers would be the primary focus areas of air support took hold. Terrain analysis, therefore, came in the form of gathering census data and considering where the greatest effects of air coverage would be throughout the country.

This terrain analysis, however, conflicted somewhat with our ongoing enemy analysis started well before our arrival in country. We were very aware of where the enemy operated from, where he considered his safe-havens and where he likely would try to attack and influence the elections. Maneuver FSEs wanted as much air support as possible over these high-threat areas. They surmised that this would enable their friendly elements freedom of maneuver while they patrolled the villages and main supply routes (MSRs) in and around their high-threat regions.

Historically, the anti-Coalition militia has operated in low-population density areas. Yet to create a globally recognized impact on elections, we believed they had no choice but to focus their attention on harassment and intimidation in main population centers (given

the increased number of targets that these centers presented).

Incorporating both the supported regional command's operational requirements and overarching election coverage mandates presented a dilemma for the allocation of resources. The bottom line was there simply were not enough assets to provide every task force all the air support requested and still provide adequate cover over the population centers in their areas of operations (AOs). The decision was made to keep aircraft planning under centralized control at the CJTF-76, thus providing theater-wide support where it would best be used to achieve the objectives.

Pre-Election Build Up. To best employ air coverage leading up to the election, the tactic of shows of presence would be established over the main population centers of the country. Shows of presence are non-threatening, lower level aircraft flights that ensure ground personnel are keenly aware of aircraft in the area. Specific guidance during Afghan election flights was for A-10 pilots to fly no lower than 5,000 feet above ground level (AGL) and B-1 pilots to fly no lower than 8,000 feet AGL. This ensured the aircraft would establish both a visual and audible presence without being overbearing on the local populace.

Exactly where these flight patterns would take place was still undecided. A compromise was devised between maneuver unit requests and population analyses as pre-election routes were created. (See the map.) These routes were over distinct regions of the country and incorporated all major population centers in the CJTF-76 AO.

Many of the largest cities in the country are located in the International Security Assistance Force's (ISAF's) AO, and fixed-wing assets where specifically allocated for them to support these areas. Therefore, while British GR-7 Harriers and our F-16s worked in both ISAF and CJTF-76 AOs, there was no integrated planning effort between the two organizations.

Analyzing the areas inside the specified air routes, major cities were selected and designated for at least daily shows of presence. Guidance to pilots would be for their aircraft to be seen and heard from within the city as they flew overhead, maintaining their presence in each area for approximately 10 minutes. This tactic of low-altitude missions could only be possible with a lack of a substantial surface-to-air threat; intelligence provided such an assessment for those flights. Once outside the city, aircraft would climb back to cruising altitude and proceed to their next designated target area.

Air requests were created by CJTF-76 Fires and passed through the battlefield coordination detachment (BCD) and air support operations center (ASOC) on DD Form 1972 Air Support Requests (ASRs). The newly created routes were submitted in early September and provided to the Air Force master air attack plan (MAAP) cell as well as aircraft squadrons so they could become familiar with the desired effects. At the same time, task force FSEs continued to submit their own ASRs, based on their evolving tactical picture and in synchronization with friendly operations.

Bottom Up Revisions. With everyone on board, the show-of-presence flights began approximately three weeks before election day. At the same time, battalion fire support officers (FSOs) and air liaison officers (ALOs) continued to work their elements' fire plans and submit their requests to CJTF-76 Fires.

CJTF-76 Fires then "flexed" air support in combination with the show-of-presence routes throughout the country. This flexibility was key and likely could not have been possible had there not been a well founded relationship between CJTF-76 Fires, the BCD and the ASOC. Communications with the BCD and ASOC about operational plans and their integration into those plans paid enormous dividends that continued in future operations.

Pre-Election Fixed-Wing Aircraft Show-of-Presence Routes
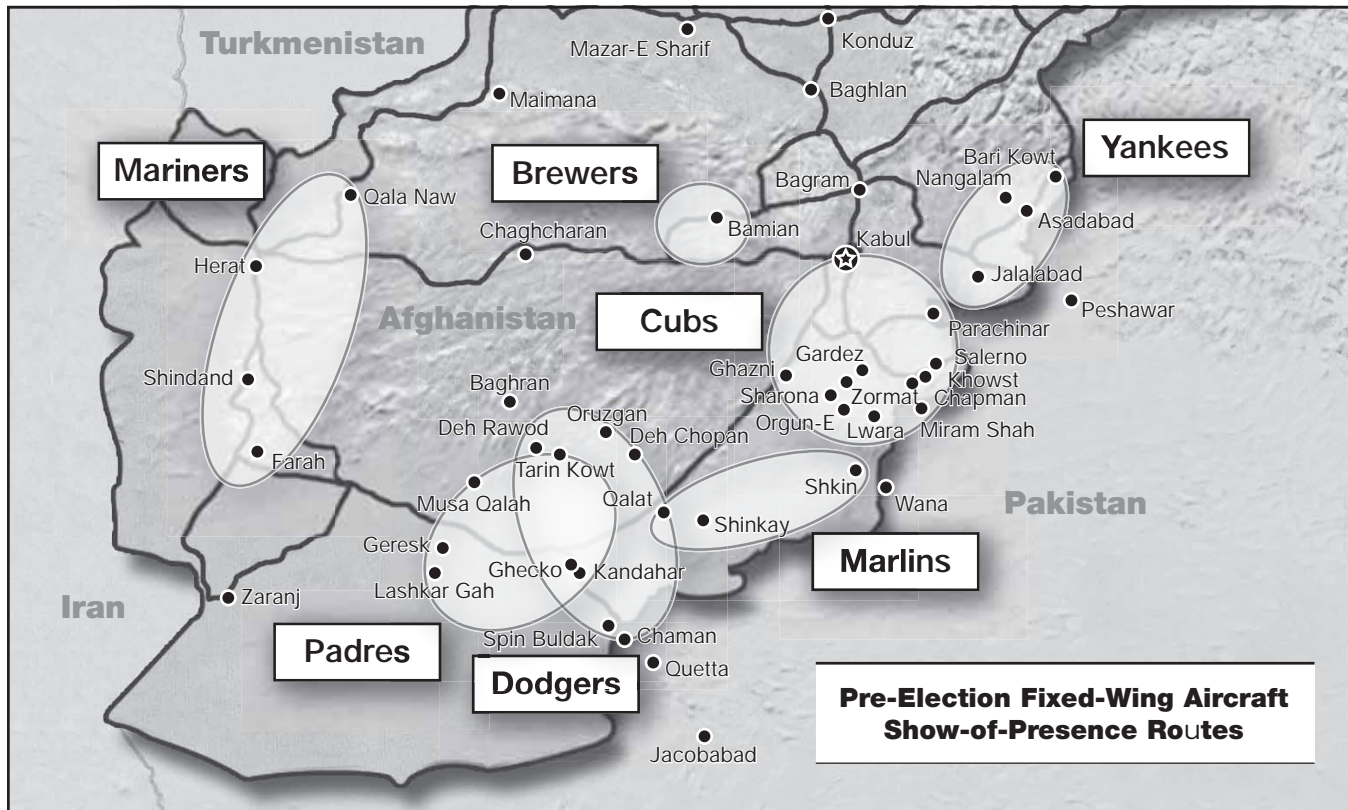
Implementing the Election Plan.
Feedback on the shows of presence from the ground was almost immediate. The local populace conveyed to civil affairs and provincial reconstruction teams (PRTs) the feeling of safety they received from the air presence over their cities and villages.

Freedom of movement for locals to carry out their daily activities without the threat of attack was a great burden lifted from their shoulders. The realization that coalition Forces were in Afghanistan to help protect its citizens, ridding them of terrorists who had tormented them and their way of life for so long, truly had sunk in.

Additionally, with this increased force protection, coalition elements moved freely on their presence patrols with little harassing fire or engagement from the enemy. The immediate results validated the tremendous psychological effects air presence can have. Even without the coalition's employing munitions, the anti-coalition militia respected the quick-strike capabilities and devastation close air support (CAS) can produce when incorporated into a ground maneuver plan. These low-level flights reinforced not only the possibility of coalition air responses to the enemy, but also served as a visual presence and the ultimate deterrent.

To capitalize on the success of this pre-election support, a significant increase in fixed-wing air coverage was requested as the election drew near. Our intelligence reports and enemy analyses pointed toward the likelihood of increased enemy activity on the days immediately preceding and directly following election day.

With help from the air combat control element (ACCE) and BCD, requests for additional air strike assets were sent to and approved by the combined air operations center (CAOC). The tactical nature of exact missions, flight hours and locations will not be discussed in this forum; however, the average daily CAS flight hours nearly doubled for what we deemed an "election surge."

These additional flight hours came from extended A-10 sorties, additional B-1 sorties and the added presence of GR-7s as well as F-16s in the ISAF AO. Based on the high enemy presence in the Jalalabad-Asadabad and Khowst regions along the Pakistani border, A-10s were primarily employed along

An Afghani man votes at an election site in the Gayan District of Afghanistan on 9 October 2004. An estimated 80 percent of the 10.5 million registered voters cast ballots in the presidential election.

Routes Yankees and Cubs. With their high-fuel capacities and ability to provide extended time on station, B-1B platforms were employed mostly throughout the expansive south and west of the country. The GR-7s remained primarily in the southern regions of the country and provided significant support along Routes Padres, Dodgers and Marlins. With air assets continually supporting these varied regions, ground elements were never far from the nearest aircraft.

Election Success. The increase in air presence allowed CJTF-76 to simultaneously support multiple areas throughout the theater of war. Due to the considerable size of the country and the significant dispersion of friendly forces throughout, this was a necessity. The country is approximately the size of the state of Texas and contains more than 3,000 separate polling sites. Maneuver units were stretched remarkably thin as they patrolled their AOs and neutralized the anti-Coalition militia threat.

However, with CAS integrated into task force maneuver planning and the continuous presence of air operating throughout the AO, response to all enemy activity was swift and decisive.

The actions and effects of ground forces leading to and during election day on 9 October 2004 were nothing short of exemplary. Battling a decentralized, innovative and determined enemy, forward planning and preemptive striking stopped many enemy attacks. Coupled with the overwhelming effects of increased air support throughout the theater, the enemy threat was greatly neutralized.

Yet on the occasions when the enemy was able to engage, CAS was strategically positioned and tactically flexible to provide near-immediate support. In one instance, air was positioned in such an opportune location and was overhead eight minutes after the initial call for support. And while the longest recorded CAS response time to any reported enemy activity during the six-day "air surge" was 39 minutes from air request to on-station time, the average response time during the two-week period preceding election day was 28 minutes. That translates to a joint terminal attack controller (JTAC) or ground commander first picking up the radio and requesting air and having a fast mover over his head in less than half an hour.

With the relatively small amount of aircraft in theater and the significant amount of enemy engagements that took place, this was amazing.

While Soldiers, Sailors and Marines took the fight to the enemy on the ground, CAS was only a radio call away and ominously circled the skies over a desperate enemy. Backed by the most powerful Air Force in the world, a potential for catastrophic election-related violence turned into a great step forward for a new democratic nation.
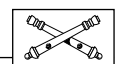
Captain Joseph A. Katz is a Combined and Joint Task Force-76 (CJTF-76) Fire Support Officer in Bagram, Afghanistan, serving in Operation Enduring Freedom. In his previous assignment, he was as a member of the 25th Infantry Division (Light) Fire Support Element (FSE) in Schofield Barracks, Hawaii. He was a Platoon Leader and Executive Officer in C Battery, 1st Battalion, 37th Field Artillery (C/1-37 FA), part of the 2d Infantry Division Stryker Brigade at Fort Lewis, Washington. He is a 2003 graduate of the Infantry Captain's Career Course, Fort Benning, Georgia, and the Ranger School, also at Fort Benning.

JTAC
MOA vs JTTP
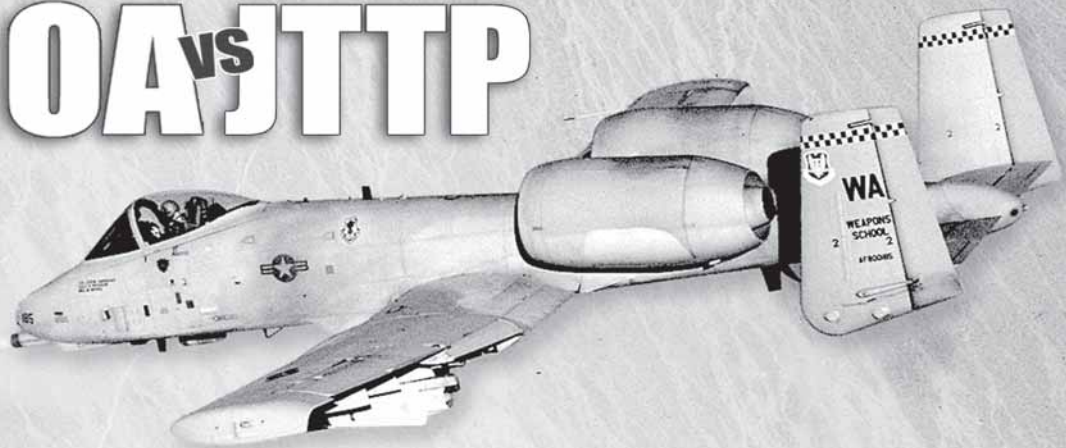
By Colonel David R. Brown, USAF

During recent combat operations, a force multiplier has emerged on the battlefield in the form of ground-based terminal attack controllers (TACs). These individuals integrate US, allied or Coalition air power with ground unit fire and maneuver by controlling close air support (CAS) against enemy targets during joint combat operations.

Recognizing joint TACs' (JTACs') importance during combat operations in Bosnia-Herzegovina, the services have tried to standardize the training and qualification of these individuals as well as increase the number of controllers in the arsenal. However, the services' ability to increase the numbers of JTACs to support all user requirements is encumbered by service parochialism and limited training resources.

During Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), air and ground commanders realized the need for these controllers to train and fight jointly to achieve tactical objectives. Dependent upon Air Force controllers by inter-service agreement, several Army ground unit commanders said they did not have enough JTACs to conduct terminal attack control in support of their forces.

In recent months, the Army has established the requirement for JTACs down to the company level vice the task force level now resourced by the Air Force.

In a 29 November 2004 Army-Air Force Warfighter Conference at Eglin Air Force Base, Florida, the Air Force agreed to train Soldiers as TACs and recognized the requirement for JTACs down to the company level.

Although the formalized terminal attack control skill sets exist in the Air Force, Navy and Marine Corps, the Army needs clear joint skill sets in a joint training program to train Soldiers as JTACs to fill out the required numbers. The Army's choice for such training is Field Artillery 13F Fire Support Specialists who already are trained and qualified to call for and coordinate other joint fires and effects.

Drawing on the lessons from Bosnia and the Persian Gulf, the services continue to wrestle with how to produce, train and maintain combat-ready JTACs.

Efforts to resolve the JTAC training and manning issues has spanned six years. The 2003 revision of *Joint Publication (JP) 3-09.3 Joint Tactics, Techniques, and Procedures [JTTP] for Close Air Support* defined JTACs and identified their functions and responsibilities. As part of this ongoing effort, the services recently drafted a JTAC Memorandum of Agreement (MOA) to better define the JTAC's training, qualification and currency requirements. Senior service staffs have signed the JTAC MOA, and we are awaiting implementation instructions from the Joint Force Command (JFCOM).

This article compares and contrasts the JTAC definition and capabilities listed in JP 3-09.3 with the training and certification process outlined in the JTAC MOA. Identifying the differences between doctrine and the MOA should facilitate the services' efforts in refining and synchronizing JTAC requirements.

Joint Doctrine and the JTAC. Although the definition of a JTAC exists in JP 3-09.3, the term is not yet defined in *JP 1-02 DOD Dictionary of Military and Associated Terms*. JP 3-09.3 defines a JTAC as "a qualified (certified) service member who, from a forward position, directs the action of combat aircraft engaged in close air support (CAS) and other offensive air operations. A qualified and current joint terminal attack controller will be recognized across the Department of Defense as capable and authorized to perform terminal attack control." This definition from JP 3-09.3 GL-12 has been approved for inclusion in the next edition of JP 1-02.

For a more detailed understanding of the JTAC's key duties and responsibilities, JP 3-09.3 includes a list. (See Figure 1.)

The JTAC may be external to the tactical air control party (TACP). Currently, TACs are found in the Marine Corps (forward air controller, or FAC), Air Force (enlisted TAC, or ETAC) and

selected Special Operations Forces (SOF) personnel from three service components: USAF Special Tactics, USN Sea-Air-Land (SEAL) teams and US Army Special Forces.

A single joint course for JTAC qualification training does not exist. TACs normally attend their individual services' schoolhouses.

JTAC duties appear similar to other fire support specialties. They must maintain situational awareness (SA), know the supported unit's plans and validate and execute targets of opportunity. The specialization that sets JTACs apart from their fire support counterparts is the skill sets associated with air strike control, which includes in-depth knowledge of the capabilities and limitations of air power and advising the maneuver commander how best to employ it.

JCAS JTTP stipulate that JTACs be able to control both fixed- and rotary-wing aircraft in the application of CAS. When performing air strike control, JTACs must be able to incorporate laser designators and infrared (IR) pointers and generate precise coordinates for weapons using global positioning system (GPS) receivers and laser rangefinders.

JTACs also coordinate and employ appropriate fire support coordination and airspace control measures and demonstrate proficiency with artillery and mortar calls-for-fire to mark CAS targets and suppress enemy air defenses. JTACs must be capable of employing digital TAC targeting systems being developed and fielded by the USMC and USAF. When fully fielded, these systems will help the JTAC reduce the probability of fratricide through increased SA, allow greater fidelity in battle tracking and, when coupled with compatible airborne systems, provide a conduit for the digital transfer of targeting data.

JTAC MOA. The baseline capabilities associated with JTAC must identify the joint skill sets or core competencies needed to plan and conduct terminal attack control in a joint environment—which is the next step.

The MOA contains actions designed to standardize the training of JTACs throughout the services, US Special Operations Command (USSOCOM) and other DoD agencies. The MOA also provides a detailed outline of the JTAC certification and qualification process. It further outlines the JTAC

The JTAC MOA and JTTP fall considerably short of addressing some important areas regarding rotary-wing CAS.

joint mission task list (JMTL) that provides guidance to develop an academic training syllabus for certification and unit appraisal for maintaining qualification. The MOA breaks down the JTAC JMTL into eight specific duty areas that have associated sub-tasks. (See Figure 2, Page 20)

During initial certification training, candidates must conduct a minimum of 12 fixed-wing Type 1 or Type 2 controls. (See Figure 3, Page 20 for the definition of the types of CAS control.) Four of these controls must expend live or training ordnance. One of the 12 controls must be conducted at night.

After completing the academic syllabus and associated live controls, each candidate receives a comprehensive evaluation, either at the associated

schoolhouse or home unit, to obtain certification. JTACs retain their qualification as long as they successfully complete their recurring evaluations and maintain the minimum control requirements of six Type 1 or Type 2 controls within the past six-month period.

The MOA also provides for the creation of a standardized JTAC evaluation folder (training jacket). This folder will document the individual's certification, qualification and currency status. JTACs must keep their training jackets up to date and, most importantly, log the specifics each time they conduct terminal attack controls. They may have to present their training jackets to unit commanders, range control personnel and (or) designated representatives before conducting terminal control operations.

JTAC Shortfalls. The MOA and JTTP fall considerably short of addressing some important areas.

Rotary-Wing CAS. While JP 3-09.3 provides extensive information on the special considerations of rotary-wing CAS, the MOA does not require a JTAC to control rotary-wing CAS in either initial or continuation training. This approach may not support current and future requirements for rotary-wing convoy escort and CAS applied in very close proximity to friendly positions.

More specifically, not providing or requiring rotary-wing CAS training stands in stark contrast to the following extract from JP 3-09.3 V-48: "It's likely that a JTAC using rotary-wing CAS will be marking and engaging targets within 100 meters of his own position, within Danger Close parameters. His-

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The TAC must:

1. Know the enemy situation, selected targets and the location of friendly units.

2. Know the supported unit's plans, position and needs.

3. Validate targets of opportunity.

4. Advise the commander on the proper employment of air assets.

5. Submit immediate requests for close air support (CAS).

6. Control CAS with the supported commander's approval.

7. Perform battlefield damage assessment (BDA).

Figure 1: Terminal Attack Controllers (TAC). The TAC is the forward Army ground commander's CAS expert. TACs provide the ground commander recommendations on the use of CAS and its integration with ground maneuver. They are members of tactical air control parties (TACPs) and perform terminal attack control of individual CAS missions. (Information taken from **Joint Publication 3-09.3 Joint Tactics, Techniques and Procedures for CAS**, Appendix II-10 – (b), Page 32.)

torical studies prove that 90 percent of all urban engagements occur where friendly and enemy forces are within 50 meters of each other and that urban engagements using supporting arms occur with less than 250 meters between the same."

The omission of rotary-wing CAS controls is an example of the difficulty in developing and supporting a joint standard. While it is clear that rotary-wing CAS training is necessary to grow a more versatile JTAC, not all services unilaterally can support their own training. The Marines and Army have plenty of rotary-wing assets to train their JTACs, yet the Air Force and Navy do not.

It should stand to reason that the Army that lacks fixed-wing attack aircraft and the Air Force and Navy that lack rotary-wing attack aircraft could work out a sortie exchange to satisfy the needs of all three services. As the program continues to grow and evolve, consideration should be given to a future requirement for rotary-wing CAS training.

Urban CAS. Yet another shortfall between the JTAC MOA and 3-09.3 is a lack of training on how to plan for and control CAS in an urban setting. Urban CAS is addressed at length in JTTP but is nowhere to be found in the JTAC JMTL. The JMTL is described in the MOA as: "…instrumental in developing a schoolhouse academic syllabus for JTAC certification and for unit appraisal for maintaining JTAC qualification."

Every future conflict will have its own set of enemy, terrain and weather considerations, but one can say with a high degree of certainty that JTACs will face some form of urbanized terrain in the next conflict.

Training Resources. Herein lies another problem in institutionalizing the JTAC program: training resources. The nation's range infrastructure is vast and capable but not necessarily for JCAS training. A cross check of the JMTL and the ranges in the continental US capable of supporting training quickly shows there are only a few places capable of running a JTAC through his paces in a realistic, combat-like environment that includes urban terrain. These are our service combat training centers. Yet the services will be highly dependent upon home-station ranges to keep their JTACs current as required by the MOA.

The services and the DoD range managers must take a hard look at their ranges to improve their ability to support the JTAC program. Sufficient airspace for many types of fighters, live-ordnance impact areas and laser employment are all factors that must be considered to support JTAC training.

Joint Conditions and Standards for JTAC Tasks. While the MOA provides a core JMTL for training and certification, it does not provide conditions and standards for each task. As a result, each of the services trains to JMTL tasks differently in its respective JTAC training courses.

The MOA permits a new trainee to complete initial certification requirements using Type 2 vice Type 1 control techniques, which are considered more demanding by seasoned controllers. Under this MOA, ground combat forces could be supported by JTACs who received certification without being exposed to all the types of controls they are likely to be called upon to perform in combat.

Joint Fires Training. Finally, the JTAC MOA falls short in its initial JTAC qualification training by not requiring trainees to control and integrate attacks by multiple fire support assets—artillery, mortars, naval surface fires, rotary- and fixed-wing CAS. The JTAC's ability to execute calls-for-fire, mark CAS targets and suppress enemy air defenses is absolutely critical to JCAS execution.

Under the proposed MOA, a JTAC can achieve qualification without demonstrating these combat skills. Again, this seems in direct conflict with JP 3-09.3.

Joint doctrine is evolving for CAS, and the standardization of JTAC training and certification outlined in the JTAC MOA is a major step forward for the services. However, the differences

1. Plan, develop and assess CAS requirements in support of the ground combat maneuver plan.

2. Plan CAS and suppression of enemy air defense (SEAD) missions in support of the ground combat maneuver plan, based on knowledge of the enemy situation: ground order of battle and air defense posture.

3. Conduct target analysis relative to CAS to make weaponeering recommendations for employing CAS in support of the ground combat maneuver plan.

4. In preparation for CAS, advise the ground maneuver element commander on the proper employment of CAS assets in support of the ground combat maneuver plan.

5. Plan and coordinate CAS missions in support of the ground combat maneuver plan.

6. Request CAS missions in support of the ground combat maneuver plan.

7. Provide terminal attack control of CAS missions in support of the ground combat maneuver plan.

8. Conduct post-strike assessment for BDA and follow-on entry into the targeting process.

Figure 2: The Joint Terminal Attack Control (JTAC) Memorandum of Agreement (MOA) Eight Specific Duty Areas

Type 1

Used when risk assessment requires TACs to visually acquire the attacking aircraft and the target under attack.

Type 2

Used when the TAC desires control of individual attacks but assesses that either 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/mark the target prior to weapons release/launch.

Type 3

Used when the tactical risk assessment indicates that the CAS attack imposes a low risk of fratricide.

Figure 3: Types of Terminal Attack Control

between the JTAC definition, tasks and capabilities required by joint doctrine and the provisions of the JTAC MOA are significant. These differences reaffirm much work is yet to be done in the services' quest to adequately train and sustain enough JTACs.

While the MOA is a significant first step, the services and joint staff should consider reassessing the JTAC program after its inception to address critical JTAC training and certification requirements, such as rotary-wing, laser and AC-130 gunship controls and the integration of live artillery or mortars for marking and SEAD.

A joint training standardization team or working group should be formed to develop tasks, conditions and standards for JTAC training that reflect the skills and capabilities outlined in JP 3-09.3.

The services have achieved much in this critical JTAC mission area, but they should not wait another six years before realizing true joint standardization in JTAC training and certification.

The Joint Close Air Support (JCAS) Joint Test Team, part of the Office of the Secretary of Defense, is based at Eglin AFB, Florida. It is chartered to investigate, evaluate and improve the operational effectiveness of US JCAS. Its work has an impact on joint doctrine, JTTP, training and standardization, equipment and interoperability. The team currently is being transitioned to JFCOM to expand its focus beyond JCAS to joint fire support.

The JCAS Joint Test Team welcomes questions and comments. Readers can contact the team at osd.jcas@eglin.af.mil. The team's website is https://jcas@eglin.af.mil/university/html or telephone number is DSN 872-4089 or Commercial 1-850-882-4089. Readers can fax the team at DSN 872-9117.

Colonel David R. Brown, USAF, is the Director of the JCAS Joint Test Team, Eglin AFB. In his previous position, he was the Deputy Commander of Detachment 2 of the Air Force Operations Test and Evaluation Command, also at Eglin. Among other assignments, he commanded the 82d Aerial Targets Squadron, Tyndall AFB, Florida. He is a Command Fighter Pilot with experience in F-4s, the F-117 and F-106s.

Field Artillery
Photo Contest 2005

Purpose. The purpose of this first 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 help tell the story of today's Army and Marine Field Artillerymen in the Global War on Terrorism or training for GWOT.

The competition is open to anyone, military or civilian, amateur or professional photographer.

Prizes will be awarded in two categories: (1) Training for or Actual Combat Operations and (2) Training for or Actual 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 2 May 2005. Winning photos will be posted on the 2005 Photo Contest Gallery on the *Field Artillery* home page at sill-www.army.mil/famag no later than 30 May.

Rules. The following are the rules for the 2005 photo contest.

• Each photograph must be a full-color jpg or tif image with the subject meeting the requirements of one of the two categories. All images submitted become the property of *Field Artillery*.

• 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.

• Each image must have identifying and caption information embedded in the "File Info." This includes the photographer's name, unit/affiliation, email address and mailing address and caption info of 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.

• Photos cannot be copyrighted or owned by any agency or publication; the images must be cleared for release and publishable in *Field Artillery* and received not later than 2 May 2005.

Judging. Photographs will be judged by a panel of editors and professional photographers. 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.

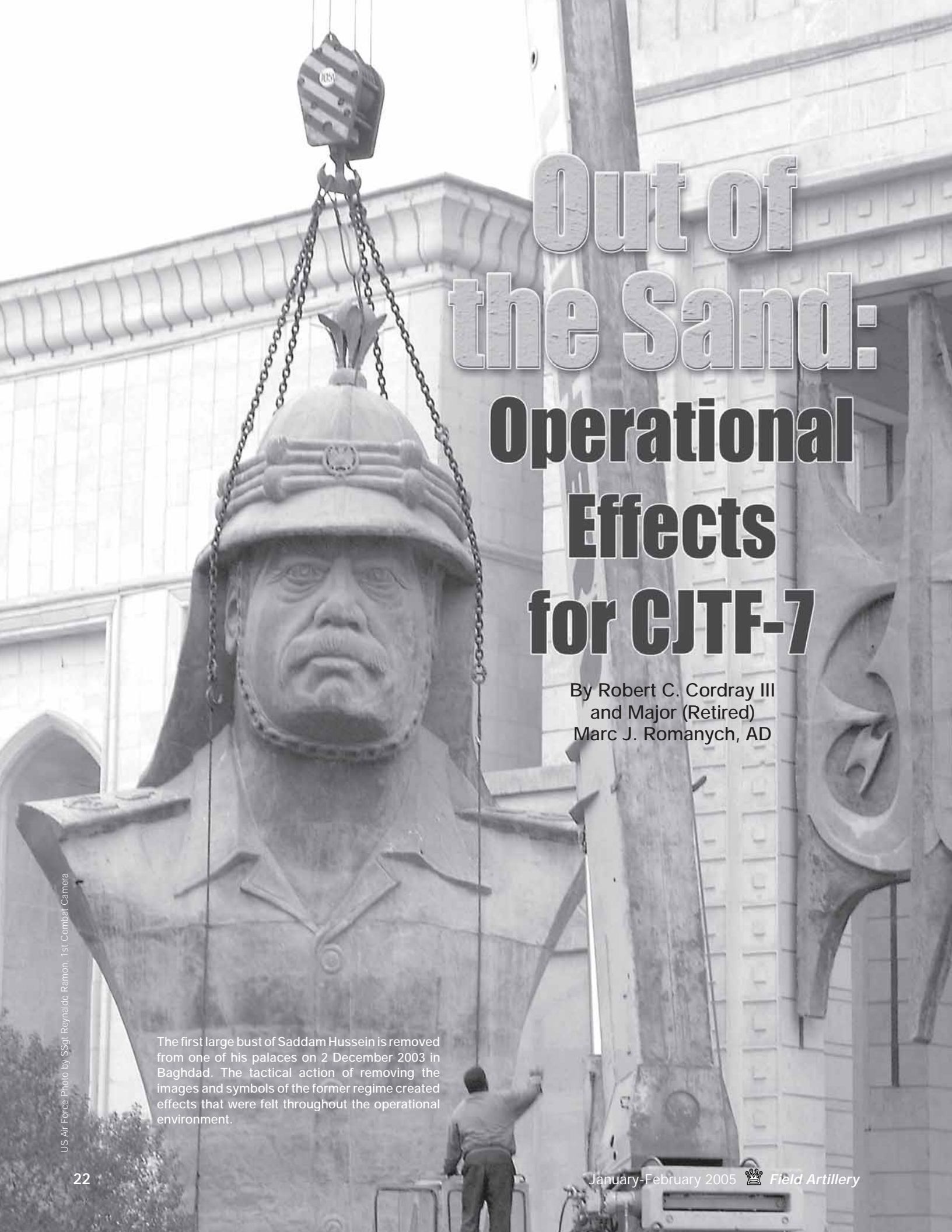• Creativity and originality.

Submissions. Images can be submitted by email, CD, zip disk or file transfer point (FTP). The images, CDs and zip disks become the property of *Field Artillery*.

• Email images to the Art Director fred.baker@sill.army.mil. Please submit only one image per email. Mark the email's subject line as "Photo Contest/Photo #1 [2 or 3]—Your Last Name."

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Out of the Sand:
Operational Effects for CJTF-7

By Robert C. Cordray III
and Major (Retired)
Marc J. Romanych, AD

The first large bust of Saddam Hussein is removed from one of his palaces on 2 December 2003 in Baghdad. The tactical action of removing the images and symbols of the former regime created effects that were felt throughout the operational environment.

During wartime, operational-level targeting is typically directed against enemy forces beyond the range or capabilities of tactical-level commands. These "deep fires" shape the battlespace, setting the conditions for subordinate commanders to achieve their supporting missions.

Yet once conventional enemy combat forces are defeated, the need for operational effects does not end. As the mission transitions to post conflict operations, the effects required by the commander also shift, moving from predominately lethal operations to a mix of lethal and nonlethal options.

Coalition Joint Task Force 7 (CJTF-7), the senior military headquarters in Iraq, recognized the necessity for broad, wide-ranging effects at the operational level of war.[1] Upon the cessation of major combat operations after the invasion of Iraq, the military mission changed from the destruction of Iraqi military forces and the removal of the Saddam Hussein regime to the establishment of a secure environment in Iraq; this was to facilitate the emergence of a self-determined government and Iraqi-led security institutions. This new mission required broad-spectrum targeting options to affect a battlespace in which enemy forces and non-hostile entities coexisted.

Previous post-conflict targeting experience, notably in the Balkans, dealt with nonlethal targeting in support of tactical peacekeeping operations, not with theater-wide operational-level effects necessary for counterinsurgency operations in an area as large and complex as Iraq.[2]

This article discusses how the CJTF-7 information operations (IO) staff built upon tactics, techniques and procedures (TTPs) developed in the Balkans and created a process capable of synchronizing lethal and nonlethal assets in operational-level shaping operations from August 2003 to July 2004.

Operational Effects. The first challenge to developing an operational-level targeting methodology was to define the tactical, operational and strategic levels of operations. Identifying the differences between the echelons established "lanes" and reduced the likelihood that each level of command would delve into its subordinates' responsibilities.

From the CJTF-7 perspective, effects at each echelon were characterized as follows.[3] Tactical effects were those produced by local actions and resulted in effects limited to a subordinate command's area of responsibility (AOR). These effects, planned and executed by division staffs, were typically shorter in duration and required less time to create because of their focused application.

Operational effects addressed threats common across the Iraqi theater or, at the very least, threats that crossed subordinate division boundaries. In addition to geographic considerations, operational-level effects sought to shape long-term missions and events–generally 60 days or more in the future.[4]

Strategic effects were those that addressed threats outside the Iraq theater, to include destabilizing foreign influences. CJTF-7 depended upon its higher headquarters, US Central Command (CENTCOM), to generate region-wide effects in support of operational and tactical-level operations in Iraq.

Guidance. Identifying the operational effects required by the commander began with the CJTF-7 campaign plan. The plan outlined the commander's long-term objectives and supporting key tasks. This guidance served as the commander's intent for developing the broad, theater-wide effects required to support the mission. These planned effects were then periodically validated and refined using other sources of guidance, notably CENTCOM's theater strategic objectives and the Coalition Provisional Authority's (CPA's) goals.[5]

Input from the subordinate commands was another essential planning component. Each division operated in a unique battlespace that required discrete tactical effects.[6] Division staff input was solicited to help CJTF-7 planners tailor operational effects to the threat and conditions present in each division AOR. In this way, the theater-wide plan was nested through a series of locally tailored effects that individually contributed to accomplishing the operational-level mission. Division-level input also helped CJTF-7 planners identify and plan for tactical situations and threats that had the potential to destabilize the entire theater.

Assets and Capabilities. In an ideal situation, each echelon of command
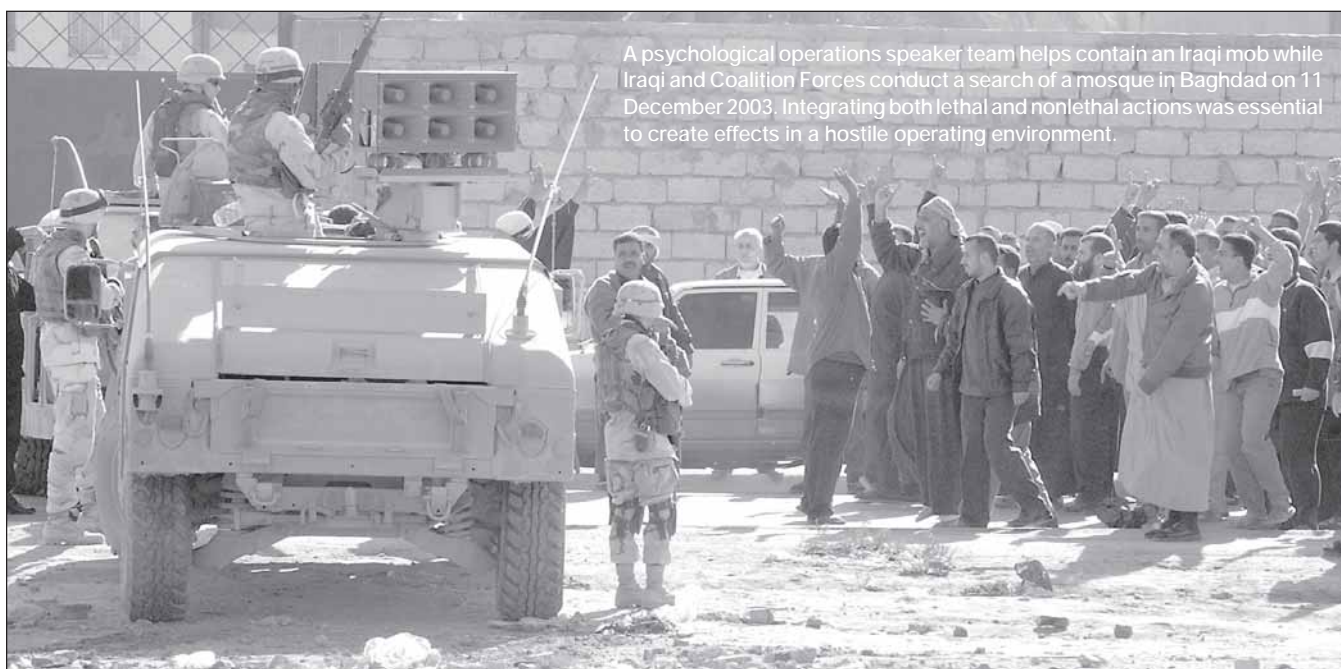
A psychological operations speaker team helps contain an Iraqi mob while Iraqi and Coalition Forces conduct a search of a mosque in Baghdad on 11 December 2003. Integrating both lethal and nonlethal actions was essential to create effects in a hostile operating environment.

Photo by SSG Marvin L. Daniels

has assets that can produce the effects needed for its mission. However, CJTF-7 had only a few organic assets capable of creating theater-wide effects. Most assets, including those commonly assigned at the operational level, could only create localized effects and, therefore, were assigned to the subordinate divisions.

While this increased tactical unit capabilities, it dramatically limited the operational-level commander's ability to produce deep effects with his own assets. Thus, the generation of theater-wide effects was built on the synchronization of tactical assets with the few available operational- and strategic-level capabilities in support. A notable exception was IO, which had the capability to disseminate information throughout the Iraqi theater of operations using national media networks. This gave the CJTF-7 commander the ability to project his message throughout his AOR as well as to counter misinformation directed against Coalition Forces. Even so, because multiple media outlets and other sources of information were available to the populace, theater-wide effects were best supported through the synchronized use of tactical-level media and information assets.

Task: Inform local populace of foreign terrorist efforts to sabotage Iraqi transportation infrastructure.

Purpose: Reduce Sunni populace support for terrorist attacks.

Method: Use local and national media outlets.

Effect: Local populace provides information on foreign terrorists to Coalition Forces.

Figure 1: Example of an Essential Effects Task (EET)

Prioritization. Because operational capabilities were limited, prioritization was essential to plan achievable results. The theater of operation was large, almost 169,000 square miles (slightly larger than California) and complex. At any particular time, there were several major military operations and governance programs in execution as well as a number of Iraqi religious, historical and political events. The result was a layered series of critical events with implications for mission accomplishment. The impact of these events and

the limitations of Coalition Force capabilities required a prioritization of effects in terms of time and space.

Effects planners used a long-range calendar to identify when and where operational effects were needed. The calendar portrayed known critical events and operations for the next six months, to include major coalition operations, planned CPA programs and important Iraqi cultural events.

By organizing these events on a timeline, the timing of their impact on the coalition's mission became apparent. Planners were then able to plan effects that shaped the operating environment in a rational, progressive manner. Furthermore, by knowing where these events were expected to occur, planners could focus the production of effects on specific, manageable geographic areas.

Effects Objectives. Effects objectives (EOs) were used to apply the commander's guidance to the events identified on the future events calendar. Building upon emerging joint doctrine, EOs described the intended results of all lethal and nonlethal actions taken by the command. Rather than using Army essential fire support tasks (EFSTs) that were too prescriptive at the operational level, broader EOs articulated the results needed to shape the battlespace without dictating the specific actions necessary to create the effects.

EOs were effects-based, meaning they articulated the commander's desired outcome or result for both lethal and nonlethal actions in terms of desired effects. Crafted in plain language, an EO consisted of an operational-level *formation*, *function* and *purpose* (i.e., what would be accomplished for friendly forces). An example objective is: Foreign terrorists are unable to attack Iraqi transportation infrastructure in order to maintain coalition freedom of operation.[7]

Method was deliberately omitted from the format of EOs because the objectives were designed to convey commander's intent, not prescribe specific actions. On the other hand, establishing a purpose for each EO enabled each staff element to focus lethal and nonlethal force on the achievement of the effect.

Once EOs were developed, staff element planners determined what lethal and nonlethal actions were needed to support the EOs. These were then written as essential effects tasks (EETs).
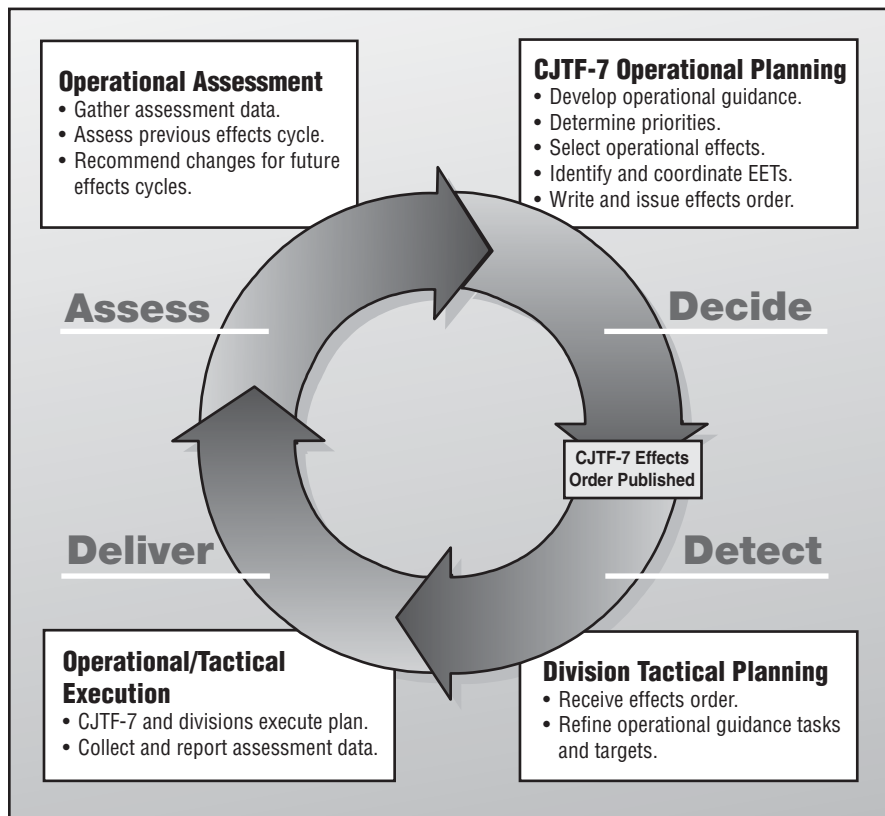

Figure 2: Effects Cycle. To incorporate effects planning into the staff's battle rhythm, planners used a modified Decide, Detect, Deliver and Assess (D³A) cycle.

Essential Effects Tasks. EETs translated the broad concepts of the EOs into discrete actionable tasks. EETs were modeled after EFSTs as described in current fire support doctrine. The main difference between EETs and EFSTs was that fire support tasks were generally planned and executed exclusively through fire support channels with a lethal focus while effects tasks were written to include any available lethal and nonlethal capability, particularly IO and civil military operations (CMO). EETs followed the Army doctrinal format for EFSTs—task, purpose, method and effect—with a few minor adjustments for the realities of the operational mission (see Figure 1).

Task. Tasks were written in the Army doctrinal format of targeting objective, formation and function. However, conventional targeting objective terminology (i.e., destroy, disrupt, delay or limit) proved inadequate to describe actions directed at the non-combatant populace. Therefore, alternative terminology was selected and defined to describe more subtle, nonlethal effects. For example, "inform" was used to explain actions to provide specific information to a target audience.

Purpose. The purpose of each EET was nested to support the purpose of its parent EO. By linking a task's purpose to an EO, planners were able to explain how disparate EETs were focused to support a single effect. Although by doctrine a task's purpose is typically written in terms of the "maneuver purpose," CJTF-7 planners approached this

in terms of the "friendly purpose" because the command needed effects to support nonmilitary entities, such as the CPA.

Method. At the operational level, the method of task execution was broad to avoid micro-management and stifling subordinates' initiatives. CJTF-7 often designated divisions to execute specific tasks, relying on the division staffs to select a method appropriate to their own operations. On the other hand, the method specified for tasks executed by CJTF-7's assets were more detailed.

Effect. Effect was used to describe the condition expected to result from task execution. By identifying the effect, CJTF-7 planners had a baseline for developing measures of effectiveness (MOEs) to assess the operational effects.

Effects Cycle. To incorporate effects planning into the staff battle rhythm, planners used a modified Decide, Detect, Deliver, Assess (D^3A) cycle (see Figure 2). A planning assumption was made that 30 days were needed to create an effect across the theater. With this in mind, CJTF-7 adopted an eight-week cycle that addressed all phases of the targeting process. Divided into two-week segments, a specific targeting function was performed during each segment. Thus, the Decide function was accomplished in the first two-week segment, Detect in the second segment, Deliver in the third and the Assess function was executed during the last two weeks of the cycle.

During the Decide segment, the CJTF-7 staff developed EOs and supporting

EETs based on the commander's guidance, current intelligence estimate and an assessment of the previous effects cycle. This information was written into an order that directed action by operational- and tactical-level commands. This order was issued at the end of the two-week Decide portion of the cycle.

During Detect, subordinate division planners used the two weeks to plan and refine their execution of the CJTF-7 order. The order was then executed during the Deliver phase. As part of execution, assessment data was collected in each division AOR. During the Assess portion, the CJTF-7 staff took the collected assessment data and conducted an assessment working group to analyze the data, estimate the effectiveness of the operation and recommend changes to future effects plans.

Products. The primary product developed by the effects process was an "effects order." Issued every two weeks, the order was critical to the success of the operational-level effects planning process. Without a written document that articulated the commander's intent and concept of effects, subordinate commands could not synchronize operations with each other, thus defeating the purpose of the process.

Written in the standard five-paragraph format, the content of the effects order described the operational-level threat and situation in theater, priorities for the period of execution, a concept of effects, tasks to staff and subordinate commands and coordinating instructions.

To synchronize tasks, an effects syn-

Effects-Based Objective:

1. Foreign terrorists are unable to attack Iraqi transportation infrastructure in order to maintain coalition freedom of operation.

Decide	Detect	Deliver						Assess
Target Set	Target	Location	Asset	Task	Purpose	Method	When	Desired Effect
Sunni Populace	Urban Sunni Populace	Samarra, Bayji, Balad	MND-NC	*Inform* that foreign terrorists are trying to sabotage Iraqi transportation infrastructure.	Reduce Sunni populace support for terrorist attacks.	Division engaged local media outlets.	NLT 10 Dec	Sunni populace provides information on foreign terrorists to Coalition Forces.
		Baghdad	TF Baghdad			CJTF-7 National Media Outlets		
		ITO	CJTF-7					
IED Makers	Muthana al-Haram	Fallujah	MND-W	*Neutralize* ability to plan and C^2 IED attacks.	Maintain security around election polling sites.	Division Raid	08 Dec	Polling sites are not attacked with IEDs.

Legend:			
C^2 = Command and control	**IED** = Improvised Explosive Device	**MND-W** = Multinational Division—West
CJTF = Coalition Joint Task Force	**ITO** = Iraqi Theater of Operations	**TF** = Task Force
	MND-NC = Multinational Division—North Central	

Figure 3: Effects Synchronization Matrix (ESM). These operational effects and tasks are fictitious for purposes of this example.
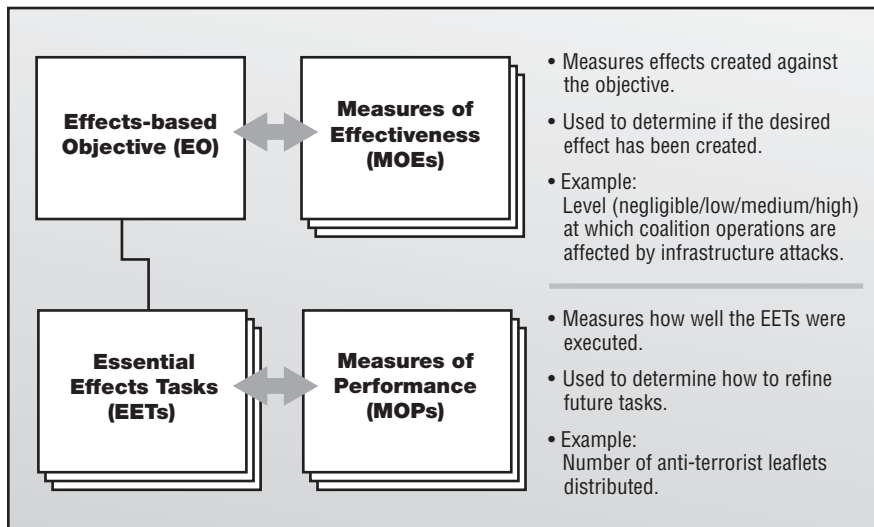
Figure 4: **Assessment**. This process measured actions and effects individually, establishing a correlation between EOs, tasks and effects, when possible.

chronization matrix, or ESM, was attached to the order. This document synchronized EETs between the six subordinate divisions and the CJTF-7 staff. (See Figure 3, Page 25.)

Other attachments to the effects order were a "Commander's Talking Points Card" and assessment requirements. Produced by the IO staff, the talking points card provided messages for leaders and Soldiers to use when interacting with the populace during the effects period to synchronize the message throughout the Iraqi theater. These talking points were tailored to support the effects discussed in the order.

Assessment requirements established the data collection and reporting necessary to evaluate the effectiveness and performance of the EOs and EETs. Because collection and reporting tasks could quickly overwhelm the staffs, reporting was kept to the absolute minimum needed to develop an accurate

picture of the situation across theater.

Assessment. Fundamental to the success of the effects process was an ability to assess the plan's execution and operational effectiveness. By assessing the operation, planners sought to refine effects and tasks planned for the future as well as develop an estimate of how the battlespace was changing based upon the ongoing shaping operation.

However, assessment was a problematic part of the methodology. Because there were multiple variables impacting the operational environment, establishing a linkage between cause (i.e., executed tasks) and effect (i.e., desired effects or observed results) and then measuring the resulting effects was a continual challenge. Not only was evidence of direct cause and effect linkages rare, but many operational-level effects were intangible (e.g., gaining popular support). Thus, identifying discrete, physical criteria to assess effects

was often very difficult, if not impossible.

To address this problem, CJTF-7 planners approached assessment by primarily focusing on measuring both actions and effects individually and establishing correlations between EOs, tasks and effects, when possible. (See Figure 4.) While establishing causality was important, it was more critical to determine whether the intended effect was in place or not and that task execution was synchronized and appropriately supported the commander's intent.

MOEs were used to determine if the EOs had been achieved. Several MOEs were needed to measure each EO, using a variety of objective and subjective criteria.[8] Data to support the MOEs was derived from unit and staff reporting, intelligence analyses and third-party polling statistics.

Measures of performance (MOPs) were used to assess tasks. MOPs measured how well an EET was executed and determined if execution of the plan needed adjustment. To capture data to evaluate MOPs, CJTF-7 depended upon specific reporting from the executing command. An example of a MOP is the number of local media outlets that broadcasted election-support messages (objective metric).

If MOPs indicated that EETs were executed within the plan's intent, yet MOEs indicated that the desired effect had not been created, then planners re-evaluated the effects plan to determine if modifications to the EOs and EETs were necessary. These proposed changes to execution then were incorporated into future effects cycles.

"Effects-based operations" have been buzz words in the joint targeting community for some time. However, most of the discussion has focused on con-

Endnotes:

1. CJTF-7 was the senior military command from June 2003-May 2004. It has since been redesignated Multinational Corps-Iraq (MNC-I).

2. Previous articles in *Field Artillery* discussed the utility of using a targeting methodology to focus and synchronize tactical, nonlethal combat power into an effects-based shaping operation. These writings, based on experiences gained in Bosnia and Kosovo, validated the concept of nonlethal fires in support of tactical operations during a mission in which the populace was generally compliant. However, the Balkan experiences did not address the integration of lethal and nonlethal fires in an environment where hostile and non-hostile entities co-existed. Previous articles addressing nonlethal targeting include: "Integrating Targeting and Information Operations in Bosnia" by Lieutenant Colonel Steven Curtis, IN, Captain Robert B. Curris, and Major (Retired) Marc J. Romanych, AD (July-August 1998); "Nonlethal Targeting Revisited: The Kosovo Experience" by Chief Warrant Officer Two Richard L. Gonzales and Major(Retired) Marc J. Romanych, AD (May-June 2001); and "Information Operations in Bosnia" by Captain Timothy D. LaBahn

(November-December 2001).

3. Effect is "the physical, functional or psychological outcome, event or consequence that results from specific military or non-military actions," taken from "Effects-Based Operations White Paper," Joint Forces Command (JFCOM) J9 Concepts Department, 18 October 2001.

4. The time periods selected for each echelon were not arbitrary. It was thought that 30 days were required to initially create effects at the operational level and an additional 30 days were needed to firmly establish the effect.

5. CPA was the civilian administrative body charged with facilitating the re-emergence of Iraq-led governance. CPA was dissolved after the Interim Iraqi Government took charge at the end of June 2004. Before CPA was replaced, CJTF-7 provided direct support to many CPA programs and activities.

6. Operational-level planners had to remain cognizant that Iraq, as a battlespace, could be divided into several distinct sub-regions. For example, the Kurd-dominated regions in the north, as compared to the Shiite Arab regions in the south, had its own geographic, structural and cultural char-

acteristics that impacted military operations in different ways. Unfortunately, these sub-regions did not neatly correspond to subordinate command boundaries.

7. During their tenure at CJTF-7, the authors developed and crafted many formats for EOs, none of which were completely satisfactory for a joint coalition. During post-deployment analyses, the description for constructing effects from the JFCOM Operational Net Assessment (ONA) study seemed to be a better alternative as outlined in "Joint Warfighting Center or JWFC, Doctrine Pam 4 Doctrinal Implications of Operational Net Assessment," 24 February 2004. This example objective was crafted for this article. It is purely illustrative and was not derived from any real-world operation in Iraq.

8. Objective metrics are those that are discreetly measured using quantitative numeric data and uninfluenced by personal emotions or prejudices. Subjective measures involve qualitative data deduced by an individual or a group based upon their perceptions but are prone to bias. However, subjective measures can account for the nearly infinite subtle elements that cannot be modeled feasibly by objective metrics.

ventional warfighting missions while ignoring the importance of creating operational effects to support post-conflict operations. Experience in Iraq shows that there is a need for theater shaping operations after the cessation of conventional combat.

CJTF-7 successfully interpolated conventional targeting methodology into a theater-level effects process. Some modifications were necessary to account for operational realties, but on the whole, the D^3A methodology proved suitable for use at the operational level.

More work is clearly required to fully integrate lethal and nonlethal capabili-

ties into a unified operation. Task and effect terminology for nonlethal actions is ill-defined and, of course, assessment remains the greatest challenge.
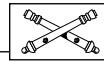
Robert C. Cordray III is a contract employee with US Army 1st Information Operations Command at Fort Belvoir, Virginia. He recently returned from Iraq where he participated in effects planning and assessment efforts at the senior headquarters in Baghdad. He is a former 3d Infantry Division (Mechanized) Field Artillery officer with his last assignment on the battalion staff of 1st Battalion, 41st Field Artillery. Readers may contact him at Robert.Cordray@us.army.mil.

Major (Retired) Marc J. Romanych, Air Defense Artillery (AD), is a contract employee with the US Army 1st Information Operations Command. Since 1998, he has been deployed with Army information operations field support teams to Bosnia, Kosovo and Iraq. He also teaches two courses on information operations at the American Military University online. Major Romanych holds a Master of Arts in International Relations from St. Mary's University in San Antonio, Texas. Readers may contact him at marc.romanych@us.army.mil.

4th ID Stands Up Army's First Fires Brigade

Sixteen December 2004 was the effective date (E-date) for the Army's first Fires Brigade in the 4th Infantry Division (Mechanized), Fort Hood, Texas. The new brigade is part of the modular reconfiguration of the division, including making FA battalions organic to the brigade combat teams (BCTs). The 2d Battalion, 20th Field Artillery (Multiple-Launch Rocket System), or 2-20 FA (MLRS), the former divisional composite FA battalion, is the "base piece" for the new Fires Brigade.

The mission of the Fires Brigade is to plan, prepare, execute and assess precision strike, counterstrike, mobile strike and close fires for a designated joint force commander (JFC), unit of employment (UEx or UEy) and subordinate BCTs (units of action), employing joint and organic fires and capabilities to achieve distributive effects in support of commanders' operational and tactical objectives. The Fires Brigade also must be prepared to execute full-spectrum combat operations as a BCT, if assigned an area of operations or to augment combat or combat support forces.

The modular reconfiguration fundamentally changed the organization, mission, operations and future training of the *Iron Gunners*. The division artillery (Div Arty) transformed into the Fires Brigade, an independent brigade, comprised of 2-20 FA (MLRS); Headquarters and Headquarters Battery (HHB), Fires

Brigade; and A/26 FA (Target Acquisition). The Fires Brigade is standing by to receive personnel and equipment for its brigade support battalion, 589 BSB, and the 324th Network Signal Company. The brigade also may have an organic tactical unmanned aerial vehicle (TUAV) company.

Simultaneously, the Div Arty's M109A6 Paladin battalions have become organic to the 4th Division's BCTs. 4-42 FA is now part of 1BCT, 3-16 FA is in 2BCT and 3-29 FA is organic to 3BCT. Additionally, the Fires Brigade set the conditions for creating a fourth organic Paladin battalion in direct support of 4BCT: 2-77 FA. The new battalion is being established at Fort Hood in the First Quarter of FY05.

The Fires Brigade can serve as the force FA headquarters (FFHQ) for a UEx, provide reinforcing fires to another FFHQ or be assigned to any of the Army command or support relationships outlined in *FM 3-0 Army Operations*. The Fires Brigade task organization could include a combination of one to six rocket/missile and cannon battal-

ions as well as other enablers, such as ground maneuver; reconnaissance, surveillance and target acquisition (RSTA); and information operations (IO) resources. Finally, with augmentation, the Fires Brigade can assume control of and conduct operations in its own area of responsibility.

The brigade has an organic joint fires and effects cell (JFEC). In coordination with UEx, UEy, joint and multinational headquarters, the Fires Brigade employs Army and joint fires as well as Special Operations Forces (SOF), IO, civil affairs (CA), and Army airspace command and control (A^2C^2) elements.

The brigade will be able to integrate the employment of lethal and nonlethal surface-to-surface, air-to-surface and ground maneuver effects in executing the orders of higher headquarters. The Fires Brigade has the organic command, control, communications and information (C^3I) capabilities to receive, plan, coordinate and execute mission-type orders from the UEx.

Intuitively, this new configuration will change the way we train and fight. This force design is critical to the ability of the UEx and supported joint formations to rapidly deploy and employ combat power. *4th Infantry Division Fires Brigade—continuing to lead the Army in Transformation.*

CPT Michael M. Stump
Assistant S3, Fires Brigade
4th ID, Fort Hood, Texas

Operational Effects in OIF

By Lieutenant Colonel
Robert G. Black, Jr.
and Colonel Eugene B. Smith

"I want simultaneous, multidirectional, continuous effects: combined arms maneuver, operational fires, information operations—synchronize conventional, special operational forces (SOF) & other government agencies (OGAs)."

Lieutenant General David D. McKiernan
Commander, Coalition Land Component Command
Operation Iraqi Freedom[1]

A natural gas well fire burns out of control in southern Iraq. Securing the Rumaylah oil fields was an initial critical strategic objective of Operation Iraqi Freedom and one of the greatest successes of full-spectrum effects in OIF. (Photo by SPC James P. Johnson)

O peration Iraqi Freedom (OIF) was planned, coordinated and executed like no other campaign in the history of the United States military, let alone the United States Army. In October 2002, Lieutenant General McKiernan, Commander of the Coalition Forces Land Component Command (COMCFLCC), decided to break the traditional staff organization and planning functions paradigms and organize his staff for combat based on lines of operations versus the traditional linear staff models and principles with which Army officers are most familiar.

Traditionally concerned with lethal fires, the personnel assigned to the Third US Army Deep Operations Coordination Cell (DOCC) became responsible for integrating full-spectrum effects, to include the contributions of information operations (IO), psychological operations (PSYOPS), logistics, engineers and civil affairs (CA)—to name a few of our new targeting partners.

In addition to learning this new way of doing business as part of a staff, the DOCC had to develop a clear and concise method for planning, coordinating, executing and disseminating the concept for all effects.

Executing the commander's guidance and intent for effects proved to be challenging for three primary reasons. First, and most obvious, there are no doctrinal references for integrating full-spectrum effects. Second, and most challenging, was that none of the targeting partners had well defined definitions or methods for describing the effects their specialty could bring to bear on the battlefield. The final challenge was having to rapidly create a functional system that could integrate multiple staff sections and organizations into an effective effects organization.

Transitioning from Traditional Targeting to Effects. Traditionally, the Army has relegated the targeting process to the Field Artillery—to fire supporters who did not incorporate the full spectrum of capabilities available to achieve the commander's intent on the battlefield. *JP 3-0 Doctrine for Joint Operations,* dated 10 September 2001, states that "to facilitate development of effective termination criteria, US forces must be dominant in the final stages of an armed conflict by achieving sufficient leverage to impose a lasting solution." Inherent in determining the "effective termination criteria" is ensuring that the right targets are attacked at the right time by the right systems.

Early in the planning process, we realized our traditional targeting process was outdated and would not fully address COMCFLCC's guidance or fully support combat operations in Iraq. Our traditional effects-based lethal targeting practices then became the basis for the more comprehensive effects process to integrate nontraditional targeting participants.

Effects-based operations, or EBO, is integral to the targeting process. EBO as a concept was first applied in Operation Desert Storm in 1991 and only now is being codified in doctrine.[2] The US Joint Forces Command (JFCOM) defines EBO as "a process for obtaining a desired strategic outcome or 'effect' on the enemy through the synergistic, multiplicative and cumulative application of the full range of military and non-military capabilities at the tactical, operational and strategic levels."[3]

In addition, other doctrine did not have enough detail to guide the effects process in the CFLCC. *JP 3-60 Joint Doctrine for Targeting*, dated 17 January 2002, does provide some guidance for joint targeting, but as is the case with most joint publications, it is far too broad to be useful for actual operations. JP 3-60 does not provide the detail required for full-spectrum targeting or the targeting process in general.

FM 3-31 Joint Force Land Component Commander (JFLCC) Handbook briefly states that the "JFLCC organizes a targeting coordination board (TCB) to function as an integrating center to accomplish targeting oversight functions or as a JFLCC-level review mechanism." Unfortunately, that is the depth that doctrine for the operational headquarters reaches. There is relatively little useful information to guide the COMCFLCC and his staff through the targeting board process, let alone through the entire targeting cycle.

The highest level of doctrine available to an Army staff regarding fires and the targeting process is in *FM 6-20-30 Tactics, Techniques and Procedures [TTPs] for Fire Support for Corps and Division Operations*. This manual has information about fires and deep operations, but it is written for the tactical level, has limited value for operational fires and has nothing about synchronizing operational effects. FM 6-20-30 does not address the integration of full-spectrum effects adequately.

The basis for the CFLCC's targeting process was *FM 6-20-10 TTP for the Targeting Process*. FM 6-20-10 is used throughout the Army and Marine Corps as the baseline document for targeting. This manual transcends all levels of fire support planning, from the joint down through the tactical. The DOCC leadership decided to "go with what we know" and plan, coordinate and execute fires based on FM 6-20-10.

Although this FM does not provide an example of "how to" conduct or execute a targeting board, it clearly lays out the functions that must be executed for successful targeting operations. (See Figure 1, Page 30.)

D³A at the Operational Level. The Decide, Detect, Deliver and Assess (D^3A) functions are the targeting methodology outlined in the FM. The methodology focuses the staff on providing the commander with targeting recommendations and executing his decisions and guidance. The CFLCC DOCC applied this methodology and expanded it to nontraditional targeting participants.

But we still needed a means to articulate the commander's guidance in terms of tasks and objectives. Again, the DOCC went back to its FA roots and adopted conventional fire support doctrine that describes the commander's objectives for lethal fires.

First, we wrote the initial lethal effects-based objectives (EOs). The EOs included a task and purpose and were nested with both the strategic and operational objectives. Once the objectives were mapped out, the DOCC further defined the COMCFLCC's targeting guidance by writing the operational fire support tasks. We used essential fire support tasks (EFSTs) that fire supporters and maneuver commanders at all levels understood as our model for CFLCC targeting tasks. The EFST was

A Soldier guards a burning oil well in southern Iraq. The essential fire support tasks (EFSTs) destroyed enemy units occupying the oil fields. The essential information operations tasks (EIOTs) dissuaded Iraqi military forces from destroying the facilities, while the essential stability tasks (ESTs) persuaded civilian workers to disable or turn off their equipment to help secure the future of Iraq's economy.

easily adaptable for the operational level of war and the COMCFLCC's intent for effects by describing the task, purpose, method and effect (TPME).

With some practice, the TPME was applied to all facets of effects operations. The effects personnel, predominantly fire supporters at CFLCC and at both the V Corps Fires and Effects Coordination Cell (FECC) and the I Marine Expeditionary Force (I MEF) Fires Headquarters, were familiar with and had been trained on TPME at Fort Sill. TPME facilitated the IO section's development of the essential information operations tasks (EIOT) used in OIF. TPME can describe the actions of the many facets of IO, improving understanding of IO capabilities and facilitating the EIOTs' execution.

The DOCC then developed essential stability tasks (ESTs) for use by other nontraditional targeting board members and those functions required to achieve OIF Phase IV objectives. While conceptually valid in practice, only the C7 embraced the use of ESTs and adopted this methodology, which greatly enhanced the understanding of engineer operations by integrating them into the targeting process.

Figure 2 gives examples of an EFST, EIOT and EST in support of CFLCC EOs for Phase II shaping operations in OIF.

Probably the greatest success of the integration of EFSTs, EIOTs and ESTs into a single EO during OIF was in securing the southern oil fields in Rumaylah shortly after Coalition Forces crossed the line of departure into Iraq. The Rumaylah oil fields was an initial critical strategic objective.

The EFSTs focused on destroying enemy artillery units occupying the oil fields and Iraqi military headquarters in order to disrupt the enemy's ability to command and control its forces or conduct a coordinated defense. The EIOTs focused on dissuading Iraqi military forces from destroying the critical facilities, while the ESTs focused on persuading the civilian workers to disable or turn off their equipment and remain on the job to prevent an environmental disaster and help secure the future of Iraq's economy. All three tasks were successfully executed.

CFLCC Effects Organization and

Process. The CFLCC staff had been built around the existing Third Army staff and was organized along traditional staff lines. Within the C3 Operations Directorate, the DOCC and IO cell were the two permanent yet separate staff organizations that routinely focused on lethal and nonlethal fires.

During a series of exercises and internal reviews in the fall of 2002, the CFLCC staff reoriented itself from the traditional C1 through C9 organization and focused on operational functions that had a "czar" designated for each. This fused staff elements and focused efforts on synchronization. A general officer was assigned responsibility for each of the six operational functions: Operational Effects, Operational Maneuver and Movement, Operational Protection, Operational Command and Control, Operational Intelligence and Operational Support. For example, the C3 was the czar for Operational Maneuver and Movement and the C2 was the czar for Operational Intelligence.

The deputy commanding general for operations (DCG-O) became the operational effects czar and chaired the re-
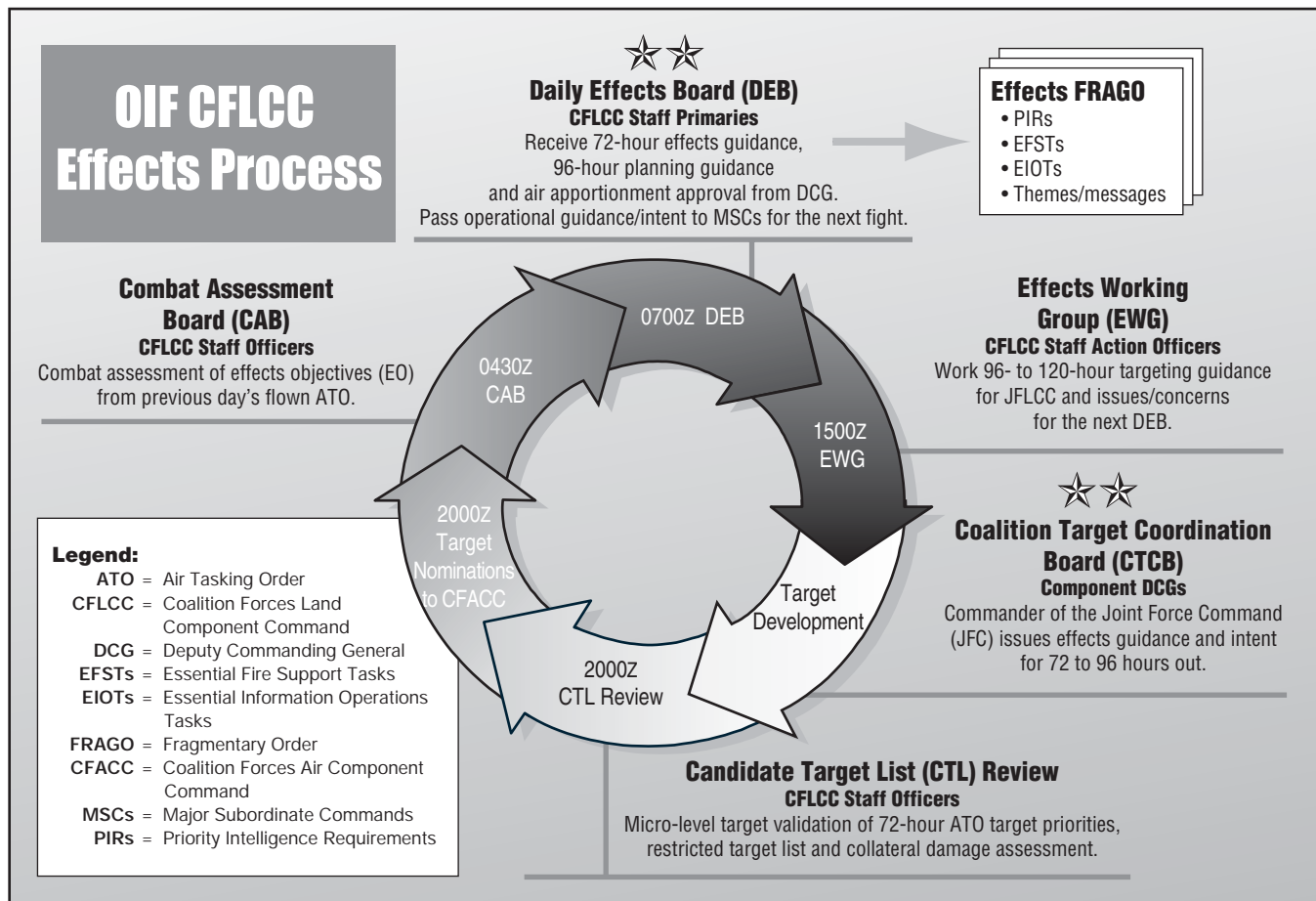

Figure 1: Operational Effects Cycle for the Coalition Forces Land Component Command (CFLCC) in OIF

fashioned daily effects board (DEB). This board reviewed the desired effects daily and provided effects guidance to the staff. Board members routinely included the traditional fires members (lethal and nonlethal) as well as the staff judge advocate (SJA), engineers, civil-military operations (CMO), intelligence collection, targeting and operations representatives, future operations planners, special operations forces (SOF), weather, logistics, nuclear-biological-chemical (NBC), public affairs (PA) and V Corps, I MEF and Coalition liaison officers (LNOs). The DEB was nested in the targeting cycle of the US Central Command (CENTCOM) and the Coalition Forces Air Component Command (CFACC).

The DEB approved the effects to be achieved in 72 hours and provided guidance for the next 96 to 120 hours. These decisions were transmitted to the subordinate commands, other functional components—CFACC, Coalition Forces Special Operations Component Command (CFSOCC), Coalition Forces Maritime Component Command (CFMCC)—and higher headquarters by an electronic daily effects fragmentary order (FRAGO).

The daily effects FRAGO listed the effects taskings to subordinate units as well as the overall effects focus for the next 72 hours. It also provided information on the anticipated focus of CFLCC effects for the 96- to 120-hour period.

Future guidance was given by the effects working group (EWG). The EWG was chaired by the deputy DOCC chief and consisted of action officers and planners from the agencies represented at the DEB. The EWG took the guidance from the DEB and synchronized the effects to be achieved over the next 96 to 120 hours. This effort was worked down to the enemy function or formation level to establish priorities.

The major product of the EWG was an effects synchronization matrix and an attack guidance matrix. Both of these products fed the intelligence collection effort.

The candidate target list (CTL) review board was the final review of targets before they were submitted to the CFACC. This was a technical, tactical and legal review of all targets nominated to ensure they met the commander's intent, were still operationally valid and were consistent with the Laws of Land Warfare.

Although the CTL review board was a formal board in the CFLCC battle rhythm, we found that reviewing targets as they were developed and as the major subordinate commands (MSCs) forwarded them to us was a more effective means of ensuring target fidelity, based upon commander's guidance and restrictions. Targets from the MSCs were deconflicted with CFLCC targets and reviewed sequentially in an effort

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CENTCOM Strategic Objective:
Occupy Key Terrain & Secure Key Nodes

CFLCC Concept of Fires:

Phase II (Shaping Operations): CFC begins a simultaneous attack along multiple lines of operations employing lethal and nonlethal fires on the regime and its leadership. The CFACC is the supported commander for Phase II. CFLCC conducts shaping operations using operational fires. CFLCC's intent is to capitalize on information operations (IO) synchronized with controlled lethal effects to dissuade military forces from supporting Saddam and his regime and prevent the use of weapons of mass destruction (WMD) or regime-initiated catastrophic environmental events. CFLCC lethal targeting must be carefully balanced with the success of nonlethal effects.

EO II-1. Destroy Iraqi Regional Area Command's Headquarters to deny the enemy the ability to conduct a defense in depth, enabling CFLCC freedom of maneuver and to defeat enemy forces in zone.

EFST II-1-A.
Task. Destroy Southern Area Command Headquarters to deny the enemy the ability to command, control and execute a cohesive defense in the southern region of Iraq.
Purpose. Enable the CFLCC to conduct offensive operations, maintain freedom of maneuver and defeat enemy forces in zone.
Method. Primary means is strategic attack (CFACC).
Effects. Southern Area Command destroyed no later than A-Day.

EO II-4. Deny III RA Corps maneuver units the ability to conduct a cohesive defense in order to allow CFLCC freedom of maneuver and to defeat enemy forces in zone.

EIOT II-4-B1
Task. Disrupt ability of III (IZ) RA Corps to conduct a cohesive defense.
Purpose. Enable CFLCC freedom of maneuver and to sequentially defeat enemy forces in zone.
Method. EW
Effects. 51st (IZ) Mech Div, 11th (IZ) IN Div and 6th (IZ) AR Div decision-making process delayed and unable to conduct a coordinated defense.

EO II-8. Protect infrastructure in Phase IV to provide rapid restoration of public services and prevent a humanitarian crisis.

EST II-8-C
Task. Maintain the functionality of the Rumaylah Oil Fields…the off-shore loading platforms, and protect the associated workforce.
Purpose. The preservation of these oil fields and associated facilities is necessary for Iraq to maintain and develop a viable economy.
Method. It is best to reach the oil workforce through a nonlethal process designed to keep them at their workplace. Their presence at work is the best action they can take for their country and their livelihood.
Effects. Preserve the production capability of the South Rumaylah Oil Fields, allowing Iraq an income-producing capability in the future as a nation-state in transition.

Legend:

AR	= Armored	EW	= Electronic Warfare
CFACC	= Coalition Forces Air Component Command	IN	= Infantry
		IZ	= Iraqi
CFC	= Coalition Forces Command	RA	= Regular Army

Figure 2: Examples of Effects Objectives (EOs) with a selected supporting essential fire support task (EFST), an essential information operations task (EIOT) and an essential stability task (EST). The figure leads off with a Central Command (CENTCOM) strategic objective and the Coalition Forces Land Component Command's (CFLCC's) concept of fires to support the objective.

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to improve efficiency.

As restrictions on certain targets were identified by the CFLCC staff, they passed the targets to the CENTCOM J3 Plans for approval before adding them to the final CTL. Simultaneously, the staff identified the restrictions on the individual air support requests (ASRs) to help the CFACC weaponeers and targeting personnel.

After all target nominations had been received and deconflicted, the CTL review board was a final sanity check before sending the list to the CFACC via the battlefield coordination detachment (BCD). The CFACC then prioritized targets nominated for air attack, based on CENTCOM's overall guidance.

The combat assessment board (CAB) was the venue where the CFLCC assessed how well operational effects were being achieved. The DOCC operations officer and deputy C2 chaired the CAB and reviewed a series of measures of effectiveness (MOEs). The MOEs were developed by the C2 battle damage assessment (BDA) cell, C2 collection managers and the DOCC and IO cells.

It was extremely challenging to assess the battlefield in enough time to influence the future effects cycle. Making recommendations for actions to be executed 72 hours out with incomplete, late and (or) contradictory BDA is difficult and laborious. Combat assessment is critical in helping the commander determine the level of risk he is willing to accept as he provides guidance for and directs his subordinate units.

CENTCOM issued guidance for effects through its coalition targeting coordination board (CTCB). The DCG-O normally represented the CFLCC at this meeting, which was conducted daily via a secure video teleconference (VTC).

The intent of the CTCB was to issue broad guidance to the components and provide an assessment of how well effects were being achieved. This board also was used to deconflict issues between the components.

Underpinning this CFLCC daily effects cycle was the DOCC and IO cells. While they retained their old names, by the time OIF started, a land component-level effects coordination center had

been formed.

This larger effects organization had a small plans section, an operations and intelligence section, a fire support element (FSE) and an IO section. The plans section did the staff action associated with the DEB and EWG and also produced the daily effects FRAGO. The operations and intelligence section developed targets and input targets into the advanced FA tactical data system (AFATDS) for transmission to the CFACC. The FSE was located on the current operations floor of the coalition operations and intelligence center and tracked target engagement and, more importantly, prosecuted time-sensitive targets (TSTs). The IO section planned and executed doctrinal IO missions.

Lessons Learned. OIF demonstrated that lethal and nonlethal means can be integrated on the battlefield effectively to achieve the commander's intent for effects. Although this process was very successful, we still can improve the process.

First we need Army and joint doctrine that describes an effects process (from battalion through a regional combatant command) and a language to describe the effects desired. The process and language need to be consistent across the "effects community," lethal and nonlethal. We cannot afford to have an FA process and language and an IO process and language.

Additionally as the Army transforms for the future, it must build in a robust effects cell that incorporates FA, IO, aviation, CA and engineers, to name a few. Merely changing the name of the DOCC to the "effects coordination center" on the table of organization and equipment (TOE) will not be enough.

Achieving the desired effects on the battlefield will require new combinations of skills, personnel and equipment from the lethal and nonlethal effects staff organizations. There is a synergy to having staff organizations located together (either virtually or physically) to produce effects versus the stovepipe approach employed in the past.

Assessment remains the "Achilles Heel" of effects. It is an endeavor that is crucial to achieving effects on the battlefield and requires a lot more work.

The Army must get past using BDA as the primary means for assessing the effectiveness of an operation. Too often, the "number of tanks destroyed" is the sole means to determine success or failure on the battlefield.

The Army must develop MOEs and measures of performance (MOPs) and instruction on how they are attainable from the strategic through the tactical levels. As is the case with the evolution of the effects process, assessment cuts across all lines of operations and all battlefield operators contribute to the process.

Providing relevant and ready land power to the combat commander as part of the joint force will require the Army to develop enduring doctrine and organizations to generate the appropriate effects for the land maneuver and joint force commanders. The effects TTPs and organization used by CFLCC during OIF may provide the foundation for that endeavor.
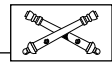
Lieutenant Colonel Robert G. Black, Jr., was a Deputy Chief of the Coalition Forces Land Component Command's (CFLCC's) Deep Operations Coordination Cell (DOCC) in Kuwait during Operation Iraqi Freedom (OIF) and then served as the Chief of the DOCC. Currently, he is Chief of Plans in the Warfighter Division of the G3, First Army, at Fort McPherson, Georgia. He also was a Joint Planner for the Air Force from 1999 through 2002 in the Joint Operations Element, 505th Exercise Control Squadron, US Air Forces Command and Control Training and Innovation Group at Hurlburt Field, Florida, and an Operations Plans Officer at Central Command, MacDill AFB, Florida, during Operation Enduring Freedom.

Colonel Eugene B. Smith was a Deputy Chief of the CFLCC's DOCC in Kuwait during OIF. He currently is an instructor at the Army War College at Carlisle Barracks, Pennsylvania. He commanded the Headquarters Battalion of the US Army Garrison at Fort Belvoir, Virginia, and was a Plans Officer in the J7 on the Joint Staff at the Pentagon. In the 25th Infantry Division (Light) at Schofield Barracks, Hawaii, he served as the S3 for the Division Artillery and S3 for 2d Battalion, 11th Field Artillery.

Endnotes:

1. Colonel Smith's personal notes taken during OIF planning.
2. One of the major initial contributors to the effects-based targeting methodology is Major General David A. Deptula, US Air Force, author of "Effects-Based Operations: Changes in the Nature of Warfare," February, 2001, Defense and Airpower Series, Aerospace Education Foundation. Prior to Desert Storm, targeting and the application of combat power in general were linear and sequential in nature. Major General Deptula espouses parallel warfare and the achievement of effects versus the total destruction of complete target sets.
3. US Joint Forces Command (JFCOM) Glossary at http://www.jfcom.mil/about/glossary.htm#E.

You are the battalion S4 in Iraq. You've just been told to conduct a logistical resupply convoy to a location 50 kilometers away from your base in the middle of the Sunni Triangle. The tactical operations center (TOC) tells you that the batteries have been tasked to provide a heavy expanded-mobility tactical truck (HEMTT), high-mobility multipurpose wheeled vehicle (HMMWV) gun trucks, and a five-ton truck with water trailer for the convoy and you are to bring your HMMWV for command and control (C^2).

During your pre-combat checks and inspections (PCCs/PCIs), you discover that the five-ton has a slow leak on the right rear dual so you inform the TOC, which directs the unit to replace the truck. Now you are running behind and need to leave as soon as possible to maximize daylight hours as it is already past 1400. As soon as the replacement truck arrives, you conduct a quick PCC/PCI on the truck, give the convoy brief and move out.

At around 1500 about 15 kilometers short of your destination and in the middle of an ideal ambush site, your trail gun truck calls to inform you that the five-ton has a flat right front tire.

Your mind races and you begin checking off all the items that need to be done to get back on the road. As you secure the area and begin assessing the problem, you discover that the spare tire for the five-ton is flat. Angry at yourself for not checking that before moving out, you call your destination to see if they have a tire you can use—they do. You take one gun truck and move out to get the spare tire and leave orders to have the flat tire removed so the truck will be ready to have the new tire mounted when you get back.

It is almost 1700 when you return to your convoy after obtaining the replacement tire, and you discover the five-ton is not jacked up and the tire is still not off. None of the vehicles had a working jack or lug wrench. You give them your lug wrench and have the HEMTT come forward to pick up the front end of the five-ton with the crane. In the middle of elevating the HEMTT, the crane jams at a 90-degree angle and will not move. As a last ditch effort, you use the outriggers to elevate the back of the HEMTT. This method used in conjunction with the winch elevates the front of the five-ton, and you change the tire.

It is 1930 and starting to get dark before you are back on the road. You review all that went wrong and how to prevent future similar events. Fortunately for you, the enemy did not become aware of you and your troops as you stretched a 30-minute recovery operation into more than four hours. It is obvious that if you want your Soldiers to survive this tour, you must reduce their exposure to enemy attack during recovery operations.

Could this really happen to you? You better *believe* it! Here is how you avoid exposing your Soldiers so unnecessarily.

We had not been in Iraq long when we discovered the paramount importance of key recovery equipment, good recovery training and rehearsals and effective PCCs/PCIs. See the figure with the list of essential recovery equipment and their national stock numbers (NSNs) on Page 34.

If you are deploying to Operation Iraqi Freedom (OIF) and are not sure what your mission will be, prepare your Soldiers for good vehicle recovery—it is applicable to everything. By ensuring quick, efficient recovery operations, you will not be forced to react to unfolding challenges as in the introductory scenario and will safeguard the lives your Soldiers.

Recovery Operations: A Lifesaver in OIF

By Major Richard A. McConnell
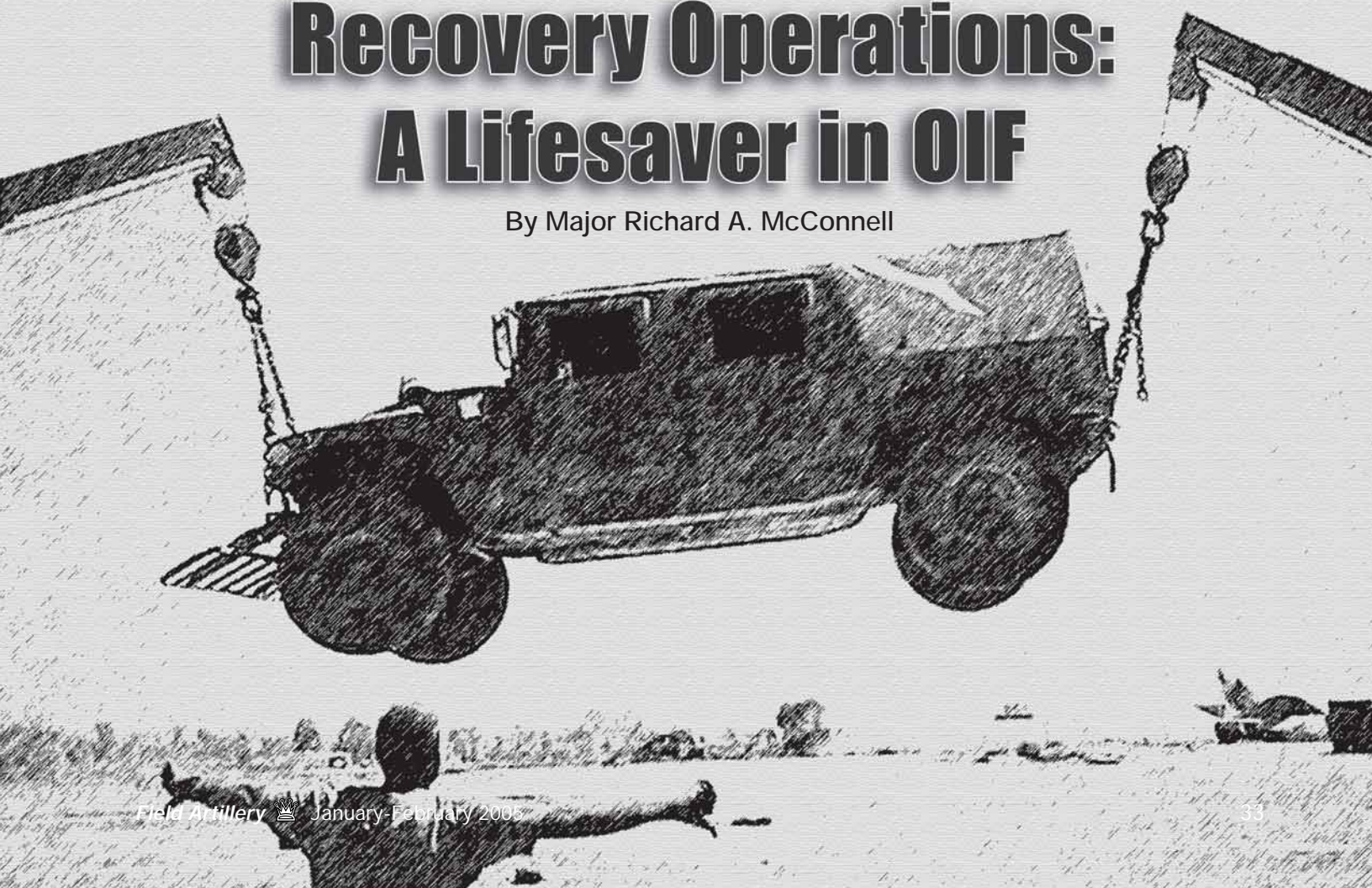
Robo Impact Tools. This is an electric impact type wrench that plugs into the standard slave receptacle of all military vehicles. It radically reduced our recovery time. This tool will not always break the lug nuts loose, but once they are broken, it reduces the time it takes to torque the nuts off and on.

Key to the Robo Tool's use is training and rehearsals. We had recovery teams identified and trained to work as "pit crews" for flat tires. Once we knew we needed to change a tire, the leader with the tool moved to that vehicle and was helped by at least two other Soldiers: one to jack up the truck and another to break the lug nuts loose with a lug wrench. We minimized the time required to change the tires.

To speed this process use a wrecker crane instead of a jack to raise the vehicle.

PCC/PCI: Ensure the tool is present and your pit crew is identified, has trained on the equipment and is rehearsed.

Basic Issue Items (BII). It is very important to inspect your BII and ensure they are complete and will work for your mission. For example, BII for the HMMWV includes a scissor jack. This piece of equipment might work on an empty vehicle, but once it is combat loaded and has force protection measures on it, the scissor jack is inadequate to elevate the HMMWV. We made sure all HMMWVs had hydraulic bottle jacks, which would lift them no matter what their load configuration.

PCC/PCI: Ensure all BII is present and serviceable.

Additional Load List (ALL). There are additional items you could have. For example, HMMWVs usually do not carry spare tires. We never left the perimeter without at least one spare tire for every three HMMWVs in a convoy, and one per HMMWV was preferred.

Also, HMMWVs should carry tow chains as ALL. They can be very helpful when you don't have much time and need to move a short distance to a more secure area.

PCC/PCI: Spare tires should be present and serviceable, tow chains should be present and operators trained in hook-up and tow procedures.

Tow Bars (Light and Heavy). These need to be present and serviceable, and your crews must know how to attach them. An unserviceable or improperly

Medium and Light Tow Bars		
Medium Tow Bar with Standard Foot	NSN 2540-01-267-2912 (1ea)	$1,034.00
Medium Tow Bar Foot	NSN 2540-00-545-2337 (2ea)	$268.26
Light Tow Bar	NSN 4710-01-371-7292/7293/7294	$282.00
Light Tow Bar Foot	NSN 5340-01-022-4686 (2ea)	$126.00
Light Tow Bar Pin Assembly	NSN 5315-00-624-0543 (4ea)	$22.03
M113 Family Tow Bars		
Tow Bar with Standard Foot	NSN 2540-00-936-7801 (1ea)	$997.00
Tow Bar Foot (Light)	NSN 5340-01-046-4770 (2ea)	$163.53
Tow Bar Pin (Light)	NSN 5315-01-031-6207 (5ea)	$9.64
Tow Bar Foot (Medium)	NSN 5340-01-051-3609 (1ea)	$128.49
Tow Bar Pin (Medium)	NSN 5315-01-035-5307 (1ea)	$17.44
Tools		
Robo Impact Tool	NSN 5130-01-299-1675 (1ea)	$2,513.00
12-Ton Hydraulic Jack	NSN 5120-01-146-8096 (1ea)	$142.00

Key Recovery Equipment with National Stock Numbers (NSNs)

attached tow bar can result in a catastrophic accident. Check them often, and replace them if damaged.

Additionally, heavy tow bars use different feet to attach to different equipment (a five-ton requires a different foot attachment for a tow bar than a HEMTT). It is not unusual for tow bars to be missing or to show up through the supply system missing the foot attachments.

The middle of a recovery operation is the wrong time and place to find the tow bar feet are missing or wrong.

PCC/PCI: Be sure tow bars are present and serviceable plus have the proper foot attachments and the crews responsible for their employment are identified, trained and rehearsed.

Crane Operations (HEMTT and HEMTT Wreckers). In the hands of a trained crew, this equipment is invaluable. In OIF, it was not unusual to run out of spare tires.

If you have a deadlined HMMWV and towing assets are committed or the vehicle cannot be towed, you can place that HMMWV in the back of a HEMTT or heavy expanded-mobility ammunition trailer (HEMAT) using two HEMTT cranes. If you are out of HEMAT spare tires, you can stack a HEMAT on another HEMAT. A well-trained crew can load and tie down a HMMWV into a HEMAT or HEMTT in five to seven minutes and stack a HEMAT on a HEMAT in 20 minutes.

Recovery using cranes and carrying everything from HMMWVs to water trailers to HEMATs always gave the convoy commanders options.

PCC/PCI: Ensure that the "Snatch Cranes" are identified along with the carrying HEMTT or HEMTT/HEMAT combination and Soldiers are trained, rehearsed and equipped with enough ratchet straps for tie downs (six ratchets per piece preferable due to road condi-

tions in Iraq).

Obtaining these key pieces of equipment is important, but training and rehearsals are essential. The battalion trained key leaders from each battery on the recovery methods and gave them time to train their batteries on the tasks and display proficiency in a recovery validation. Time standards were established and units were held to them, such as crane operations complete with tie down in 20 minutes or less. Most units were much less.

During our 12-month tour in OIF, we placed a combined mileage of two million miles on our fleet. There were many recovery operations during our year, and our recovery times consistently improved while in country. Before deployment, we trained recovery operations as a part of most training exercises, but these tasks were usually pulling a vehicle out of a ditch, versus loading a HMMWV on a HEMAT, because it was not mission capable (NMC) or disabled due to an improvised explosive devise (IED). Additionally, these training events only included maintenance and not crane operations and the pit-crew concept.

As many operators as possible should be included in recovery training, incorporating it into all training and expanding the number of recovery tasks trained. Additionally, deploying units should conduct a recovery validation, certifying all maintenance teams and operators on key recovery tasks.

One thing is certain: we will continue to train on these recovery tasks to ensure we never will have a convoy like the one described at the beginning of this article.
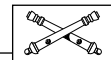
Major Richard A. McConnell returned in April 2004 from 12 months in Iraq as the S3 and then Executive Officer of 1st Battalion, 12th Field Artillery (1-12 FA), 17th Field Artillery Brigade, III Corps Artillery, Fort Sill, Oklahoma. Previously, he was the Operations Officer for the Training and Doctrine Command (TRADOC) Deputy Chief of Staff for Training (DCST)-West at Fort Leavenworth, Kansas. He commanded Headquarters and Headquarters Battery (HHB), 41st Field Artillery Brigade, V Corps Artillery in Germany. He was a battery Fire Direction Officer in 1-320 FA, 101st Airborne Division (Air Assault), in the Gulf during Operation Desert Storm.

A Soldier's Story

SGT Jessy Carr, Launcher Gunner
C/1-94 FA (MLRS), 1st AD, in Iraq

Sergeant Jessy R. Carr from Ramona, California, is a Military Occupational Specialty 13M Launcher Gunner for C Battery, 1st Battalion, 94th Field Artillery (Multiple-Launch Rocket System) in the 1st Armored Division, deployed from Germany to Iraq from 6 May 2003 until 20 June 2004. He is 23 and has been in the battery for three and one-half of his four and one-half years in the Army. This is his story.

I joined the Army initially to fight for my country. Then, after about a year, I began to like the Army a lot—it is a thrill to work with inexperienced younger Soldiers to teach them the things I've learned and make sure they can do their jobs right. Basically, I really get attached to the Soldiers I work with. Taking care of Soldiers is the best job there is.

When we first got to Iraq, the battalion set up camp and, for about a month, guarded an ammo depot. The depot we guarded did not have other troops based there, so it didn't have a real perimeter defense—fencing or anything like that. We had to set up OPs [observation posts] and checkpoints and have dismounted movement patrols to verify security 24/7. Slowly we moved the ammunition to the larger depot at Camp Doha.

Then we began transporting UXO, unexploded ordnance, all the stuff the insurgents like to make IEDs [improvised explosive devices] out of. We got the UXO out of people's backyards and found ammo depots that nobody knew where there and moved them to the bigger depots.

While we were in Iraq, we had many different missions. We conducted patrols, convoys and some cordons and searches, although we never had to bust down the front door or anything.

What was it like in Iraq? As a 13 Mike, my job was very different than what I expected. At first I was "bummed out" because I thought we were going to shoot rockets. Well, we did shoot rockets, but they were training rockets, "telephone poles," just for certification.

But, close combat, reflexive fire and moving dismounted or in a HMMWV [high-mobility multipurpose wheeled vehicle], tooling through the streets of Baghdad, was a real thrill.

It was hot in Iraq, *real* hot. With your flak vest and gear on, you add about 10 degrees. All that dust being kicked up gets in your nasal passages. You can become dehydrated easily. We spent the first two weeks in Kuwait "acclimating," but you never get used to that heat.

We went everywhere as a team—you got assigned to teams and had to get used to working with that team. If one team member wanted to go to chow, the whole team went to chow.

You had to know exactly what to do as a team to accomplish the missions—know your drills. We had to take what we learned in basic training and go about 10 times in depth—down to actually how to move across streets, clear houses and other Infantry tactics. We had to learn urban warfare.

The platoon sergeant knew about the same about urban warfare as his newest privates and had to spin them up as he learned. Our unit did very well because everybody helped each other. And platoon sergeant always said, "If you can think of something better, speak up because this isn't just training now."

When I first went to Iraq, I was a specialist. I only had to worry about my buddies and myself. Well, as an NCO, it's different.

In Iraq, I did every job from driver to team leader and for one day about 12 months into the tour I was the acting platoon sergeant. Before we left the gate, I checked all my guys—PCCs [precombat checks] and PCIs [precombat inspections] to make sure everyone had his equipment and was ready to go.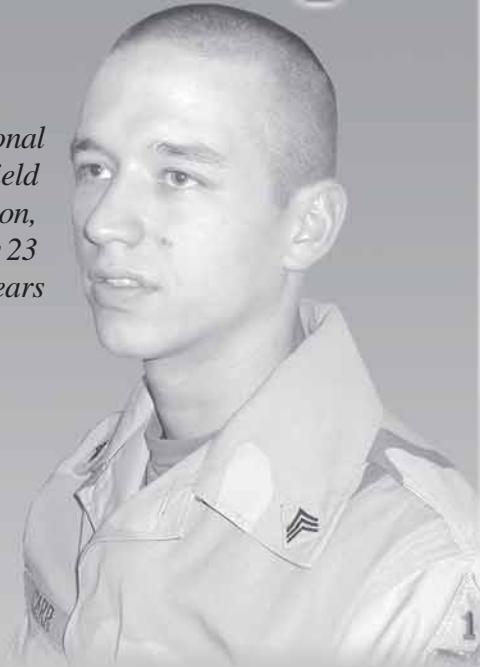 I had to ensure the HMMWVs had the proper maintenance and equipment, that my Soldiers had MREs [meals ready to eat] and everything they needed if they had to camp out somewhere or leave the trucks and go on patrols and much more. That's a lot of responsibility.

I could do the job because I had watched my platoon sergeant doing the job for the past month. That's what I teach my Soldiers to do: train for the job one level higher than yours and watch that next higher leader do his job.

My biggest challenge was leaving my wife and six-month-old daughter back in Germany. It was tough when the order said we'd be gone for 12 months, and after a year rolled around, they told us it was going to be 15 months. That hurt, but I got over it.

I would advise other Soldiers going to Iraq to accept everything they have to do over there and work as a team—listen to your NCOs and get the job done. If you don't, you are never going to feel comfortable—you have to count on yourself, your NCOs and the guy beside you.

Learn everything your NCOs teach you because very soon you're going to be *doing* it. *Now* is the time to learn just a little bit more.

Photo by CW3 Manuel Vasquez

3/2 SBCT and the Countermortar Fight in Mosul

By Captain Roger M. Stevens and Major Kyle J. Marsh

On 3 September 2004, a military police (MP) platoon attached to 2d Battalion, 3d Infantry (2-3 IN) established a countermortar observation post (OP) in Mosul, a city of approximately 1.8 million people. The platoon saw a team of four members of the anti-Iraqi forces (AIF) in a yellow Volkswagen Passat fire three 60-mm mortar rounds at a nearby US forward operating base (FOB).

While the MP platoon engaged the AIF, another platoon maneuvered to the point of origin (POO) to assist. The AIF engaged the patrol with small arms fire but were immediately overwhelmed by superior firepower as the MP's crew-served weapons disabled the vehicle, killing one insurgent and critically injuring the remaining three.

A debriefing revealed interesting tactics, techniques and procedures (TTPs)

used by the 60-mm mortar cell. The AIF insurgents remained in their vehicle with the rear passenger opening the door and direct laying the mortar tube from inside the vehicle. Occupation, launch and march-order occurred in less than two minutes.

The 3d Brigade, 2d Infantry Division Stryker Brigade Combat Team (3/2 SBCT), the Arrowhead SBCT, deployed to Northern Iraq in January 2004 during Operation Iraqi Freedom (OIF) after a series of combat operations in Sammara. The Arrowhead Brigade occupied the division-sized battlespace in northern Iraq formerly occupied by the 101st Airborne Division (Air Assault).

Mosul, the provincial capital of the Ninewah Province, served as the focal point for the organization, consolidation, supply and transit of AIF in the province. Not unexpectedly, the majority of attacks against US and Coalition Forces occurred within Mosul proper.

Second only to improvised explosive devices (IEDs), indirect fire attacks were the next largest casualty producer of

Coalition Forces in Mosul; in excess of 150 coalition Soldiers were wounded or killed over a period of 10 months. AIF attacked US FOBs with mortars and rockets in more than 300 separate incidents.

AIF employed several different weapons systems, including light, medium and heavy mortars (60-mm, 82-mm and 120-mm) and light and medium rockets (57-mm, 107-mm, 122-mm and 127-mm). The predominant type and volume of fire consisted of 60-mm and 82-mm mortars firing one to eight rounds per attack. The use of the 120-mm mortar was limited by the amount of time it took to march order and displace the system, resulting in the employment of one to two rounds per attack.

Due to the complex urban nature of Mosul, the brigade commander restricted the use of all lethal counterfire to reduce unnecessary and likely disastrous collateral damage or ill will on the part of the
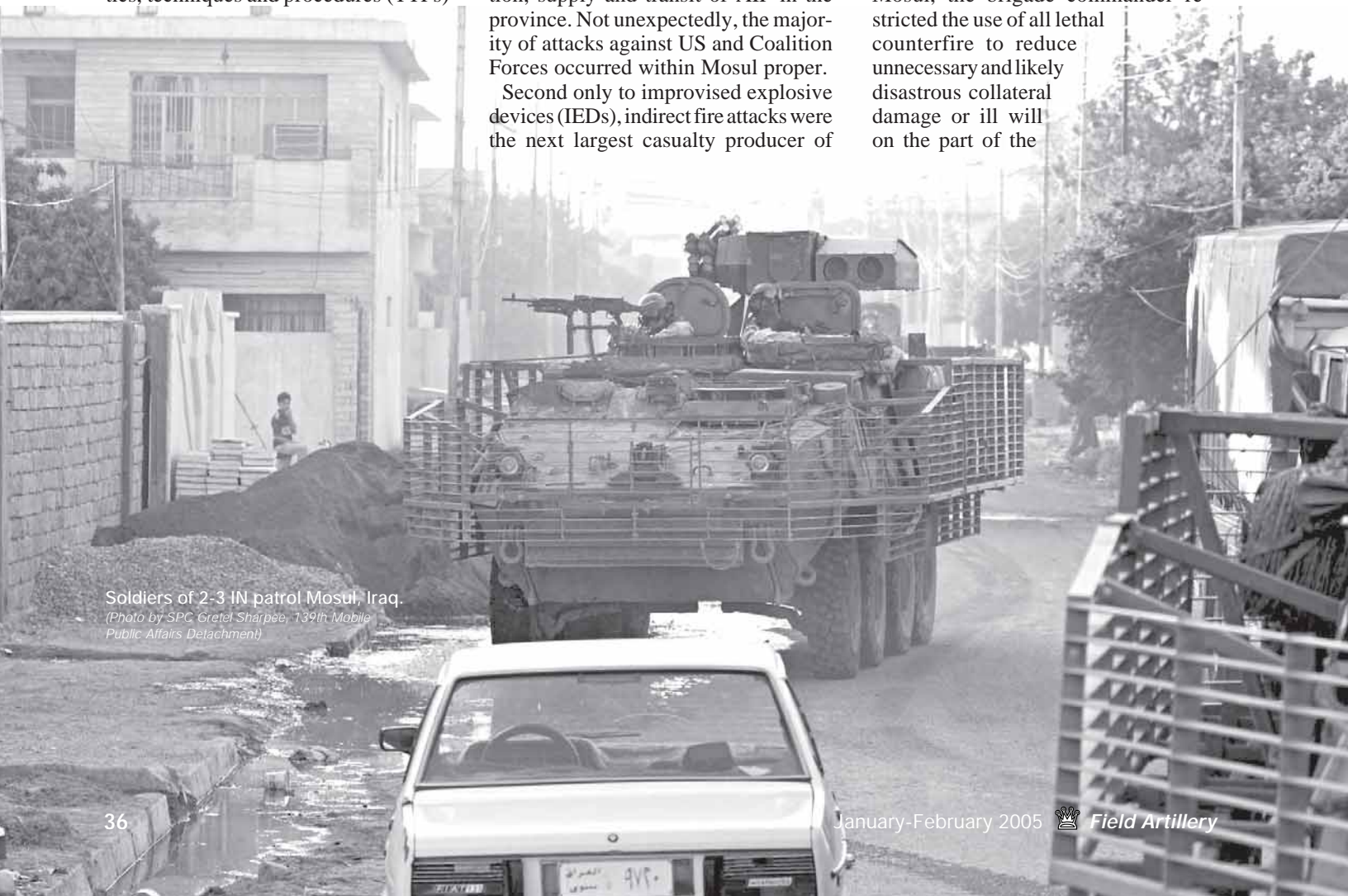
Soldiers of 2-3 IN patrol Mosul, Iraq.
(Photo by SPC Gretel Sharpee, 139th Mobile Public Affairs Detachment)

local populace. By restricting lethal counterfire, any indirect fire attacks on civilian infrastructure could be attributed to AIF indirect fire cells. This was a crucial component to the brigade information operations (IO) campaign against AIF indirect fire activity and gave the commander legitimacy when refuting negative reports of coalition-inflicted casualties and infrastructure damage. Winning the hearts and minds of the local populace was deemed vital to success in Mosul, and any coalition activity impacting this effort was scrutinized in detail. Despite the absence of a lethal reactive counterfire program, the joint fires and effects cell (JFEC) focused on the countermortar fight and capturing or killing AIF insurgents.

Capabilities of the SBCT. The SBCT is an infantry-centric unit with 3,600 Soldiers combining the best characteristics of the current Army force while exploiting technology to fill the gap between the capabilities of the Army's heavy and light forces. The SBCT enjoys increased operational and tactical flexibility and can conduct missions across the full spectrum of military operations.

The SBCT employs an impressive array of organic assets. It has a cavalry squadron for reconnaissance, surveillance and target acquisition (RSTA); a Field Artillery battalion; a brigade support battalion; a military intelligence company; an engineer company; a signal company; an anti-tank company; and a robust headquarters company and brigade staff, in addition to three infantry battalions.

The SBCT leverages advanced command, control, communications, computer, intelligence, surveillance and reconnaissance (C⁴ISR) systems that enable the brigade to "see" the entire battlefield and posture effectively before closing with the enemy. This is commonly referred to as "See first, understand first, act first and finish decisively at a time and place of our choosing." The SBCT's all-weather intelligence and surveillance capabilities and its digitized systems enable it to maintain 24-hour distributed operations on a non-contiguous battlefield against asymmetric or traditional adversaries.

The SBCT also fielded a number of force modernization projects. Specifically, the Raven small unmanned aerial vehicle (SUAV) and lightweight countermortar radar (LCMR) augmented the brigade's capabilities by

1. Apply constant pressure on the enemy.

2. Synchronize combined arms assets (countermortar set).

3. Use nonlethal information operations (IO) assets, such as psychological operations (PSYOP), as a force multiplier.

4. Conduct detailed analyses to provide the information necessary to disrupt the enemy's decision-action cycle.

Keys to Countermortar Success

improving acquisition and reconnaissance capabilities.

To achieve decisive action in various types of terrain, including urban settings, the SBCT incorporates impressive combined arms capabilities at the company level. Doctrinally, Stryker Brigade infantry companies consist of the following assets: three Infantry platoons, a mobile gun system (MGS) platoon, a mortar section (consisting of two 120-mm and two 60-mm mortars), a fire support team (FIST) and a sniper team. Designed to achieve decisive action through dismounted assault, these infantry companies support themselves with enhanced organic direct fires from their vehicle-mounted primary weapons systems as well as via indirect fire support from mortars and artillery.

SBCT Fire Support Assets. The strength of the SBCT's fire support acquisition capabilities is anchored in the two organic Firefinder radars. A Q-36 (Version 8) and Q-37 (Version 6, Package 11) provide immediate and accurate artillery, mortar and rocket POOs and probable points of impact (POIs).

During deployment, the SBCT was augmented with A Battery, 2d Battalion, and 131st Target Acquisition Battery (TAB) from the Texas Army National Guard. The battery supplemented coverage with a battery headquarters, the target processing section (TPS) and

three Q-36 radars (Version 5). As part of the Army Force Modernization Program, the addition of two LCMRs proved a valuable complement to the indirect fire effort.

Because of the threat within Mosul, all radars were positioned on US FOBs for security reasons. The collective effort provided redundant coverage over the entire city.

One shortfall to the radars' positions was the dominant terrain. The elevated altitude created many dead space areas, allowing the enemy to fire 60-mm mortars and the rockets in direct fire mode. We were unable to acquire most of these direct fire attacks as their trajectories either did not have enough time for the radar to track them or fell under the radars' beams. To counter this developing threat and overcome the terrain constraint, the JFEC revised the brigade's counterfire battle drill and developed a comprehensive maneuver-centric countermortar program. (The keys to the countermortar program's success are listed in the figure.)

Countermortar Set. Following a significant increase in 60-mm mortar attacks against US FOBs in June 2004, the JFEC, S2, and S3 collectively developed a countermortar "set" to address the threat. This is a set of assets synchronized to track down and destroy AIF mortar teams based on intelligence.

The brigade staff determined that the strength of the enemy mortar crew was his ability to retain the initiative (choosing when, where, who and how to attack). To address this ability, the countermortar set was specifically designed to deny the enemy the use of terrain, disrupt his decision cycle and force him to act under pressure. The desired endstate was the reduction of casualties and damage to infrastructure.

Infantry patrols, traffic control points (TCPs) and the integration of scout weapons teams (SWTs) served as the primary assets to find, fix and destroy

"Constant pressure must be maintained against insurgents by continuous and vigorous combat patrolling. This keeps the insurgency on the move, disrupts their security and organization, separates them from their bases of supply, weakens them physically and destroys their morale."

FM 31-2 Operations Against Guerilla Forces, 1951

the enemy. Additional SBCT assets, such as Shadow UAVs and Air Force fighter aircraft, provided sensors that allowed increased observation of potential enemy firing points.

Psychological operations (PSYOP) teams also were integrated into the countermortar sets. PSYOP patrols were sent to areas of concentrated enemy indirect fire activity to collect intelligence and inform local residents of reward programs for reports that led to the killing or capture of indirect fire cells. Intelligence gained by PSYOP through face-to-face interaction included types of vehicles used in attacks and TTPs used by the enemy while employing indirect fire assets. The integration of nonlethal effects and the information provided by these patrols were extremely beneficial and excellent combat multipliers.

The enemy proved a capable foe, adjusting quickly to the brigade's actions and establishing or coercing support from Mosul neighborhoods. The enemy's ability to adjust his TTPs proved the need to continuously analyze and adjust friendly courses of action. However, we firmly believed that the considerable risk to the enemy posed by our adaptive countermortar set would force him to make more and more exploitable mistakes.

Importance of Analysis. Analysis of

AIF mortar and rocket activity was crucial to the conduct of the SBCT's successful countermortar operations in Mosul. The brigade counterfire officer developed a comprehensive assessment of enemy activity through Firefinder acquisitions, strike reports, human intelligence (HUMINT), computer analysis tools, terrain analysis from the brigade terrain team, and analysis from the brigade S2 and battalion fire support elements (FSEs). The JFEC facilitated cross-staff analyses by posting all products on the 3/2 SBCT secure internet protocol router network (SIPRNET) web page, allowing the brigade staff and subordinate units the opportunity to down load current analyses and historical records.

Strike reports were an important tool for enhancing our analyses of enemy indirect fire attacks, providing information to compare the actual POI to the radar generated POI. In addition, the report facilitated a comparison of the back azimuth from crater analyses to the radar POO.

The Iraqi Ordnance Identification Guide and National Ground Intelligence Center databases provided both the brigade and subordinate units with pertinent information which, when coupled with accurate POO reporting, allowed the expansion of the historical record and facilitated enemy TTP analyses and

subsequent countermortar set planning. If a counterfire radar did not detect an indirect fire round, this data provided information to conduct a Firefinder position analysis system (FFPAS) analysis and predict the likely cause of the non-detection.

The JFEC maintained historical records of all confirmed indirect fire acquisitions in Mosul using a Microsoft Excel impact tracker spreadsheet. The spreadsheet permitted easy manipulation of data and produced graphs, pivot tables and statistics with little additional effort.

Falcon View provided the means to conduct detailed analyses of these historical records. Using both plotted radar acquisitions and crater analysis reports, a visual representation of firing trends emerged. The pictorial generated detailed POO analysis and permitted proactive POO prediction.

Detailed analyses provided the SBCT with the means to note changes to enemy TTPs and recommend adjustments to the countermortar set, allowing the SBCT to apply constant pressure on the enemy. The deputy effects coordinator (DECOORD) presented recommended countermortar set changes to the task force S3s, brigade IO coordinator (IOCOORD), brigade S2, brigade S3 and brigade deputy commander (DCO) at the weekly SBCT targeting meeting. Changes were discussed and applied for the next week. Emergency changes during the week were developed and applied as soon as possible after discussion by the S2, S3, DECOORD and DCO. These aggressive measures were instrumental in allowing the SBCT to adjust to the enemy and continue to disrupt his decision-action cycle.

Applying Pressure with Constant Change. Over time, the JFEC discovered that maneuver patrols were the countermortar system of choice, effectively denying the enemy terrain and forcing him to use longer range weapon systems, such as rockets (107-mm, 122-mm) and larger caliber mortars (82-mm and 120-mm). To avoid confronting US patrols, the enemy began emplacing rockets on improvised launchers under timer control. This allowed the AIF to continue indirect fire attacks against FOBs and minimized the risk posed by the countermortar set within the city. AIF also used long-range mortar systems, minimizing their own risk with stand off-capability.

The brigade determined that the opti-

Soldiers of 2-3 IN patrol Mosul, Iraq. The 3/2 SBCT, the Arrowhead SBCT, deployed to northern Iraq in January 2004 for Operation Iraqi Freedom (OIF).

mal way to neutralize the rocket and long-range mortar cells was by employing aggressive presence patrols and sniper teams and adjusted accordingly.

Faced with an equally adaptive US combined arms threat, the enemy reverted to short-range mortar attacks, becoming more vulnerable to coalition identification and interdiction. However, the AIF began to change its method of attack. Attacks with 60-mm mortars increased in frequency yet decreased in volume of fire. When a radar acquired a POO, the brigade was able to vector US combat power to it within three to five minutes. However, due to the complex urban environment and the abundance of high-speed avenues of approach, AIF mortar teams were able to displace before a response force arrived.

To address this rapid exfiltration capability, the JFEC, using its historical database, conducted predictive analyses of favored firing points and recommended the establishment of TCPs to control escape routes. The brigade staff assessed that enemy mortar teams were reluctant to attack if denied easily identifiable escape routes.

Thus began a period of wargaming actions and reactions where each adjustment of the countermortar set was countered by a corresponding change in AIF tactics. Steady analyses and changes on the part of the SBCT exponentially increased risk to the enemy each time he adjusted his TTPs. This was fully evident when the enemy was finally forced to resort to 60-mm attacks at precariously close range. As related in the vignette at the beginning of this article, the SBCT anticipated AIF actions, identified a mortar team during occupation and totally destroyed it.

Lessons Learned. Countermortar operations in an urban environment proved to be a uniquely challenging mission. Challenged daily by an enemy who routinely melted into the city and attacked US FOBs with multiple explosive munitions, the SBCT was forced to create a highly detailed solution for an indiscriminate and dangerous enemy.

With lethal counterfire lacking effect and detrimental to the overall effort, a synchronized and combined arms effort was paramount to the denial of enemy indirect fire attacks. Using a multitude of available assets, careful and thorough analyses on the part of the JFEC helped refine countermortar sets and keep pressure on the enemy indirect fire effort.

The countermortar fight in a nonlinear environment is, therefore, little different from the counterinsurgency effort as a whole. Denied traditional means of response, we must, through continuous analyses and TTP refinement, use all assets to apply constant pressure on the enemy. This forces the enemy to assume an unsustainable amount of risk and, ultimately, to ensure his own destruction.
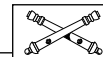
Captain Roger M. Stevens is a Brigade Joint Fires and Effects Cell (JFEC) Battle Captain for the 3d Brigade, 2d Infantry Division Stryker Brigade Combat Team (3/2 SBCT), Fort Lewis, Washington, returning from a 12-month tour in Iraq in October. His other assignments at Fort Lewis included serving as Fire Support Officer (FSO) for C Company, 1st Battalion, 23d Infantry (C/1-23 IN) and Executive Officer for B/1-37 FA.

Major Kyle J. Marsh is the Deputy Effects Coordinator (DECOORD) for 3/2 SBCT at Fort Lewis, returning from a 12-month tour in Iraq in October. His previous assignment was as an Army Exchange Fire Support Observer/Controller at the Command and Staff Trainer (North), Catterick Garrison, United Kingdom. While in Great Britain, Major Marsh deployed in support of Operation Telic, the British operation supporting Operation Iraqi Freedom. He commanded B/3-6 FA, 10th Mountain Division (Light) Infantry), Fort Drum, New York.

A Soldier's Story

SPC Joshua Watson, Gunner,
A/4-27 FA (Paladin), 1st AD, in Iraq

Specialist Joshua R. Watson from Franklin, Ohio, is a Military Occupational Specialist 13B Gunner assigned to A Battery, 4th Battalion, 27th Field Artillery (A/4-27 FA), 155-mm self-propelled Paladin howitzers, 1st Armored Division in Germany. He deployed initially to Baghdad in support of Operation Iraqi Freedom (OIF) on 29 April 2003. While there, he was awarded a Purple Heart and an Army Commendation Medal (ARCOM) with "V" for valor for actions performed on the night of 17 December 2003. This is his story.

Photo by CW3 Manuel Vasquez

This was my first deployment; I was in Iraq for 15 long months. We worked long hours—12 to 20 hours per day—with lots of 12-hour shifts pulling guard on our base, at checkpoints and on guard towers, power stations, the Iraqi Ministry of Education and hospitals.

We did other missions, too: controlled riots, rebuilt Iraqi buildings, served as a quick reaction force [QRF], were sweepers for IEDs [improvised explosive devices] and went on patrols looking for enemy mortar positions.

Then we moved from Baghdad into southern Iraq. On the evening of December 17, we went out to check on our Iraqi FPS [force protection service] guards. They were security guards who helped guard facilities. There were three places to check: the hospital, power station and Ministry of Education. It was supposed to be a quick check.

We went out at about 2100. When we got to the hospital, it was quiet. At nine o'clock at night, it's never quiet because people come out at night when it's cooler. The streets were empty. It was kind of weird, but we thought, "Okay, we have to check the other two and get back inside the compound." So, we headed toward the power station. There were about 10 of us in two HMMWVs [high-mobility multipurpose wheeled vehicles].

The power station is surrounded by a concrete wall that has a gate. Outside the wall, we staggered our vehicles on different sides of the street. As our lieutenant, medic and interpreter got out of one HMMWV and started toward the gate, the insurgents opened fire on us, throwing grenades and shooting at us from all different points. We had no clue the attack was coming.

All three were hit—our medic in the jugular, the lieutenant in the chest (stopped by his flak vest) and in the leg, and the interpreter got hit twice in each leg.

Sergeant Ross Ella and I in the back of the HMMWV jumped out, grabbed the medic and lieutenant and drug them to the gate. At first the FPS guards wouldn't open the gate, but we persuaded them to and pulled the medic and lieutenant back behind the wall. Then we went back out and got the interpreter.

Behind the wall, we set up security and waited for reinforcements. That took about half an hour because our radios were down. I got hit by a piece of shrapnel that cut me under the eye and burned my lip.

While we were pulling in the wounded, Sergeant Foday Turay opened fire with the .50-cal machine gun on the turret of the lead HMMWV to suppress the enemy's fire. The others opened fired with their M16s. We were taking fire from *everywhere*.

I didn't have time to think. I just took a post at the gate, watched for fire and laid down fire when others came inside to help us. I felt sort of helpless. When I looked back, I saw my lieutenant and one of my buddies bleeding to death. It was pretty rough.
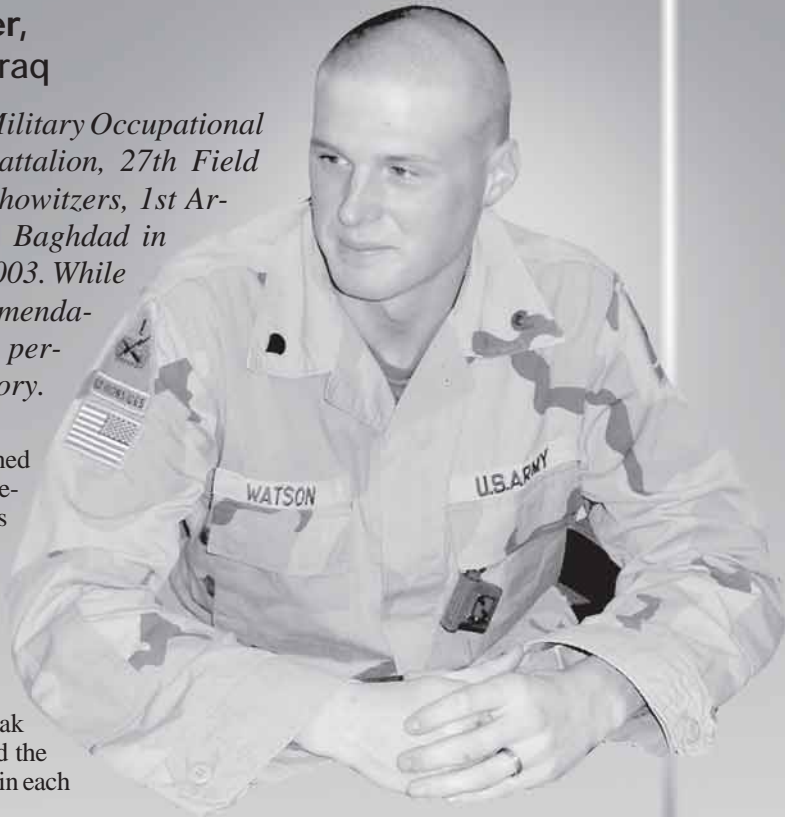
The medic, Specialist Christopher J. Holland, died. We called him "Doc." He was our "home boy." We were really good friends. He was "laid back" and the coolest person you'd ever meet.

First Lieutenant Brent Odom made it and is back with us as our platoon leader again. The interpreter, Savck, also lived.

When I got back to the compound that night, I felt safer—but I knew I wasn't really safe.

Iraq was a big challenge. It was a challenge to be separated from everything I consider normal: air conditioning, cold water, hot showers, real food, being around my family. It also was a personal challenge to go out everyday knowing I might not come back.

My advice to Soldiers deploying to Iraq is to always pay attention to what's going on around you. You never know when something's going to happen. Half the time fire fights come out of nowhere—*Bam!* Even when you're back in your compound and relaxed, stay alert.

B/3-6 FA:
120-mm Mortar Battery in Afghanistan

By Captain James W. Huffman III
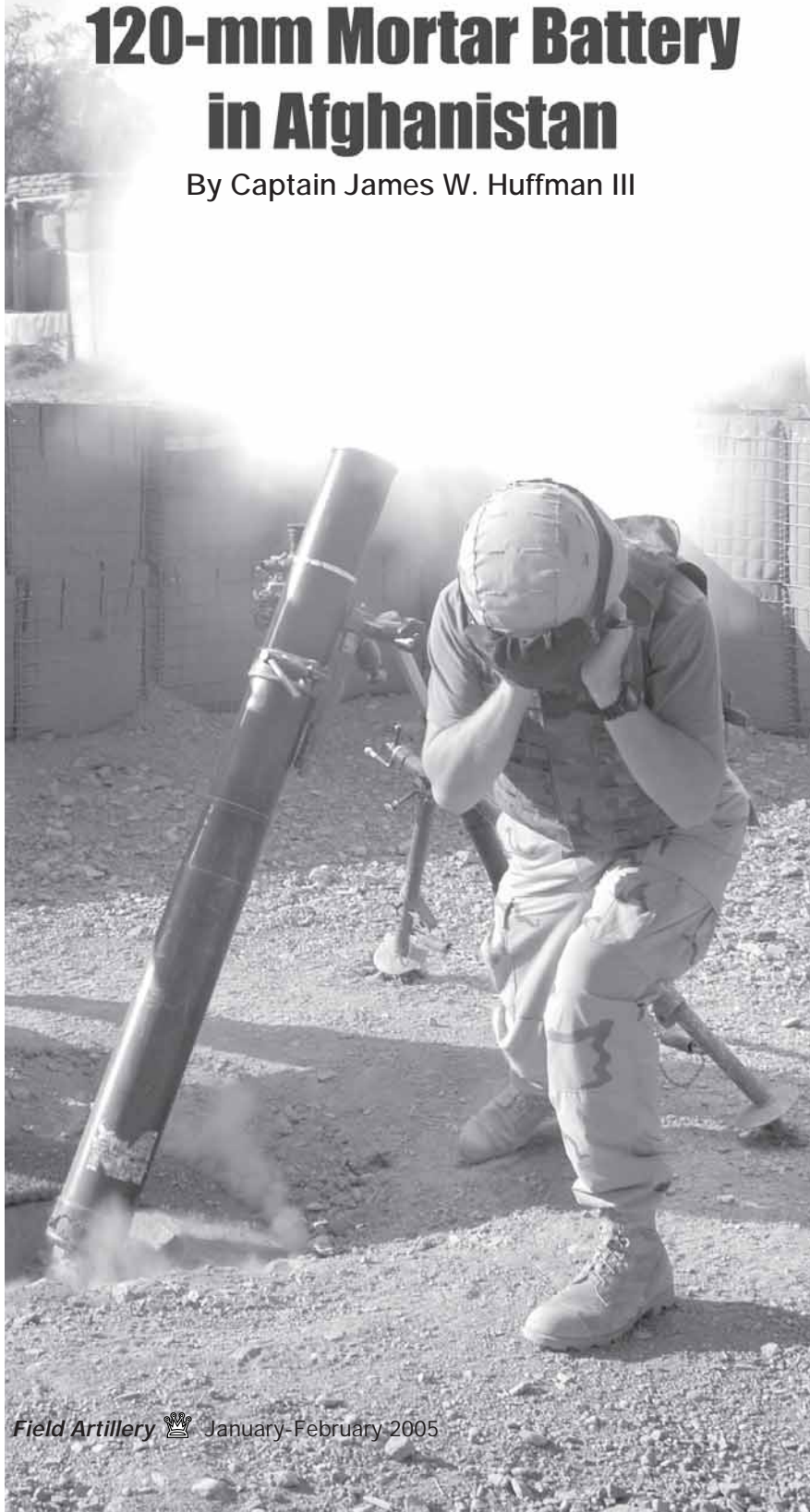
A new day dawns in Afghanistan, and the Bravo Battery Bulls are up and running to contribute to America's Global War on Terrorism (GWOT) in nontraditional ways. Although the battery was deployed to Afghanistan for nine months, its adventure began one year earlier. Bravo Battery, 3d Battalion, 6th Field Artillery's (B/3-6 FA's) M119 105-mm howitzers were replaced with 120-mm mortars. B Battery Soldiers would man these for the duration of the 10th Mountain Division's deployment in Operation Enduring Freedom (OEF) IV.

The battery's conversion to the mortar system was the first adaptation required of its artillerymen. In an effort to increase responsiveness and become lighter and more air-assault capable, the men enthusiastically converted to their new weapon system. Once deployed, the Soldiers quickly overcame the challenges of decentralized operations. They provided mortar fires in four locations simultaneously, spanning a distance of more than 1,200 square miles, and influenced coalition operations across eastern Afghanistan.

The first step in the battery's conversion at Fort Drum, New York, before deploying was two weeks of training by a mobile training team (MTT) from the Infantry School at Fort Benning, Georgia. This consisted of classroom and field training that culminated in written and live-fire certifications.

The battery then reorganized from its traditional 105-mm howitzer battery into an eight-gun 120-mm mortar battery. It consisted of two platoons of four mortar crews, each crew with a fire direction center (FDC). Before deploying, the battery trained in platoon-sized elements, focusing on ground-assault convoy movement techniques, emplacements and the delivery and massing of fires.

In OEF, the battery expected to be massing fires as it had been trained to do. However, to adapt and contribute effectively to GWOT, the battery quickly had to overcome several challenges. OEF lessons learned will be incorporated into home-station training for future deployments—lessons on conducting decentralized firebase operations, patrolling and pulling security. Also while deployed, the battery identified several areas in which newly fielded equipment could help defeat a determined insurgency.

Decentralized Ops. We conducted

Soldiers of Bravo Battery, 3d Battalion, 6th Field Artillery (B/3-6 FA) in their high-mobility multipurpose wheeled vehicle (HMMWV) ready for patrol.

decentralized operations throughout the deployment. Three of the battery's sections were projected to forward operating bases (FOBs) along the Afghani-Pakistani border where they provided mortar fires for firebase defense and local patrols and executed ground-assault convoys in support of major coalition operations.

The battery's other two-tube sections remained at Kandahar Army Airfield (KAF) in southwestern Afghanistan where they conducted air- and ground-assault convoys in direct support of infantry battalion task force missions. When not engaged in fire support operations at KAF, the platoon executed daily and nightly presence patrols, counterrocket patrols, vehicle checkpoints and village cordons and searches. The KAF platoon more closely resembled a motorized rifle platoon than an artillery platoon.

During these patrols, the battery identified and monitored the status and progress of many commanders' emergency reconstruction projects for local villages. The battery also provided airfield security in support of the Hajj pilgrimage, enabling more than 4,000 Afghanis to travel safely to religious sites in Saudi Arabia. These maneuver-centric effects-based operations (EBOs) enhanced security and stability within the Kandahar Province.

The battery conducted split operations throughout the deployment and was never required "to mass" more than two tubes during any firebase or maneuver operation. Each two-tube section consisted of 14 Soldiers, with four men on

each of the two tubes and four men in the FDC. Each section also had a medic and was led either by the platoon leader, a fire direction officer (FDO), the executive officer (XO), a platoon sergeant, the chief of firing battery or a gunnery sergeant. These leaders executed decentralized operations autonomously with limited communications with the battery headquarters.

It was imperative they understood the commander's intent because it enabled them to accomplish their missions with little additional guidance. This latitude enabled the leaders at the lowest levels to make timely and critical decisions that usually resulted in success.

While conducting firebase operations, the battery fired almost nightly to support the FOBs, observation posts (OPs) and patrols. Fire missions consisted mostly of one or two rounds of illumination on mountainsides overlooking the firebases. On occasion, coordinated illumination was fired as a show-of-force. Seldom did a fire order exceed two rounds for a two-gun section because the OPs and forward observers (FOs) rarely identified any targets larger than team-sized elements.

Throughout the deployment, only one section conducted an immediate suppression, danger-close mission when one of the FOB's OPs was under direct fire attack. On several occasions, observers located enemy elements operating in populated areas but were unable to fire the mortars because of the probability of collateral damage.

Counterstrike Missions. The battery's mortar sections conducted many

counterstrike missions on rocket launch points of origin (POOs). The effectiveness of these counterstrike missions depended on the timeliness of clearing the targets and the efficiency of the FOs in calculating the locations of the launch sites with the grid or polar techniques. First round fires-for-effect (FFEs) were limited because it was difficult to achieve the five requirements for accurate predicted fires.

Precise target location was always a challenge because the FO had to be fortunate enough to be looking directly at the ignition flash and able to calculate the data immediately using the grid or polar technique.

Another limiting factor to achieving FFEs was the difficulty of obtaining accurate metrological (Met) data because forward firing elements usually were hundreds of miles from the nearest Army Met station. The Air Force's interactive grid analysis display system (IGRADS) predictive Met could be applied where secure internet protocol router network (SIPRNET) access was available, but its predictive accuracy was often distorted due to the large elevation changes in Afghanistan's mountainous terrain.

Responsiveness was critical if counterstrike missions were to be effective as attackers would retreat immediately on foot after a launch using preplanned exfiltration routes. The enemy often ignited rockets with timers, allowing them to depart the area hours before launching the rockets.

Mobility and Positioning. The battery's two-tube mortar packages also conducted mobile missions. These missions supported every major operation the Combined Joint Task Force-180 (CJTF-180) conducted and required both air- and ground-assault convoys as a means to project the section forward to support maneuver forces with indirect fires. During air assaults, the mortar section loaded two M-Gator utility vehicles onto the CH-47 Chinook, each carrying a mortar tube, baseplate, bipod legs and several 120-mm rounds. On the landing zone, the M-Gators drove off the aircraft and immediately occupied firing positions.

Ground-assault convoys proved to be the movement method of choice as air assets were limited throughout the deployment. While executing ground-assault convoys, the sections never used the mortar trailer due to the extremely rough terrain and unimproved road net-

works in Afghanistan. Each section bolted a plywood floor to the bed of a high-mobility multipurpose wheeled vehicle (HMMWV) so a mortar could be secured to the floor, protecting the system by eliminating any metal-on-metal contact in the event that an air-assault mission materialized. Each vehicle carried a 25,000-pound sling set for air extractions, as needed. When occupying a position, the mortar system was removed and the baseplate, tube and bipod were emplaced.

Convoys conducted several nighttime maneuvers using either service drive lights or blackout drive lights, depending on the threat. Convoys usually operated with service drive lights on, turning them off and using blackout drive lights for the last kilometers of movement to prevent the enemy from pinpointing the convoy's precise location when it stopped.

Once in position, the section provided its own perimeter security. Missions usually lasted several weeks, making it imperative to qualify the Soldiers on all crew-served weapons to facilitate rest rotation cycles.

Throughout all operations, the battery's sections used PVS-7As, which provided early 1990's night-vision technology. These devices helped execute ground-assault convoys in blackout conditions; however, their grainy images made it difficult to identify a threat before the enemy was well within effective small arms range of the firing position.

This inability to identify a perceived threat highlighted the battery's need for handheld and howitzer-mounted thermal imaging devices and optical scopes for the M16A2 that are not currently authorized on the battery's modified table of organization and equipment (MTOE). Because of the mountainous terrain throughout Afghanistan, firebases usually occupied river valleys, and thermal-imaging devices enabled our Soldiers to scan the high ground above their positions for enemy attack attempts. Optical scopes and laser targeting devices mounted on the battery's M16A2 rifles enabled Soldiers to easily detect, illuminate and engage targets accurately in the dark.

TA Capabilities. Based on the lessons in decentralized firebase operations, patrolling and security operations, the brigade combat teams' (BCTs') new Fires Battalions need updated target acquisition (TA) platforms. It is also important to continue to develop and refine fire direction equipment, delivery platforms and munitions to maximize the responsiveness and precision needed on a nonlinear battlefield. We must have digital integration and connectivity of our systems from the instant a target is acquired to the moment of munitions impact and target destruction.

The Fires Battalions will have access to unmanned aerial vehicles (UAVs) and lightweight countermortar radars (LCMRs). Both will be more effective if these assets can digitally interface directly with the fire direction computers in the FDC.

The omni-directional LCMR, originally built to Special Operations Forces (SOF) specifications, is designed to detect and calculate the POO of mortar rounds. As well, the LCMR must become reliable at detecting and calculating the POO of incoming rockets and artillery rounds.

Artillery launch detection technology currently exists and is reasonably reliable with the Q-36 Firefinder radar. However, the Army has a limited number of Q-36s and cannot possibly support section-based operations with the battalion's firing assets in eight different locations simultaneously while in Afghanistan or similar guerrilla-based counterinsurgency operations.

The Q-36 only has a 1600-mil (90-degree) search capability as it was designed for countering a predictable, easily templated enemy. Despite the best predictive analysis in radar deployment orders (RDOs), the system does not account for insurgents attacking with a few rockets from one direction one evening then from the completely opposite direction the next night.

The speed with which the launch location is determined will be vastly enhanced with streamlined digital interface between the radar and the firing asset. The Q-36 does not interface with the mortar fire direction systems; it interfaces digitally with howitzers through the advanced FA tactical data system (AFATDS).

Fire direction technology must continue to evolve remaining ever focused on its ability to digitally interface between the newly fielded acquisition and firing assets. The Centaur, a palm-sized fire direction computer, hopefully, will be an easily transportable and simple means of computing firing data. The new fire direction system should embody the simplicity of the mortar ballistic computer (MBC), which proved more reliable than AFATDS. The MBC was more durable, portable, user friendly and efficient in calculating technical firing data.

The battery's Military Occupational Specialty (MOS) 13D FA Tactical Data Systems Specialists quickly learned how to operate the MBC with minimal training, and more importantly, their supervisors easily could verify that critical initiation data was entered correctly before firing. A small BA5588A/U battery powers the MBC for approximately two days while a generator or vehicle is required to power AFATDS, severely limiting its transportability and stealth required for combating guerillas.

A Soldier from 2d Platoon, B/3-6 FA, mans a vehicle control point near Kandahar Army Airfield, Afghanistan.

During one major air-assault operation consisting of a battery team of two 120-mm mortars and two 105-mm howitzers, the FDC truck with the AFATDS mounted inside was air emplaced at an inconvenient distance from the two howitzers it supported. The surface was a quagmire, making ground movement impossible to reunite the FDC and howitzers. The FDC was forced to rely on the backup computer system (BUCS) until aviation assets could reposition the FDC more conveniently to the howitzers.

An easily transportable, battery-powered fire direction computer could have eliminated this additional air movement and risk to the aircraft, not to mention the attention the movement attracted for the local population and enemies.

To achieve the speed, agility and dexterity needed to fight a new enemy whose guerilla tactics are constantly evolving, the fire support community must pursue a simple, lightweight fire direction computer as a component of our mortar and howitzer systems. It must interface digitally with our direct fire and indirect fire acquisition assets and delivery assets and be able to calculate technical firing data, allowing the mortar and howitzer crews to immediately self lay on acquired targets.

The fire support community desperately needs precision-guided munitions (PGMs) to employ in urban and complex terrain and minimize collateral damage. The 120-mm precision-guided mortar munition (PGMM) that is laser guided and the 155-mm Excalibur and 155-mm/105-mm projectile guidance kits, plus the guided multiple-launch rocket system (G-MLRS) unitary rocket are all PGMs that will make significant contributions on the GWOT battlefields. The PGMs being developed that can update their targets' coordinates while in flight, ideally receiving the data directly from an LCMR, UAV or other sensor, will also improve our responsiveness and accuracy in FFEs for counterinsurgency operations. Indirect fire PGMs would be all-weather capable, more responsive and achieve the same level of precision at only a fraction of the cost of our current aviation platforms.

Soldiers in GWOT need the best technology available. After nine months of conducting combat operations in Afghanistan, the battery has implemented many changes in the tactical delivery of fires and conduct of combat patrols. Throughout the deployment, B/3-6 FA Soldiers have proven to be extremely adaptable, overcoming all challenges and executing all missions.
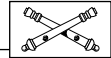
Captain James W. Huffman III was Commander of B Battery, 3d Battalion, 6th Field Artillery (B/3-6 FA), 10th Mountain Division (Light Infantry), and deployed to Afghanistan during Operation Enduring Freedom IV with his 120-mm mortar battery. Currently, he is a Battalion Fire Support Observer/Controller at the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana. Also in 3-6 FA, he was the Battalion S4 and Rear Detachment Commander during the Kosovo Forces (KFOR) IIIB deployment and a Battalion Fire Support Officer. He served as a Multiple-Launch Rocket System (MLRS) Platoon Leader and Battery Operations Officer for A/3-27 FA in the XVIII Airborne Corps Artillery at Fort Bragg, North Carolina. During that period, his battery deployed in support of Operation Southern Watch and provided an Army Tactical Missile System (ATACMS) capability during Operation Desert Fox in Kuwait.

CounterStrike Task Force:
How to Protect Troops from GWOT Insurgents

Enemy indirect fires, primarily rockets and mortars, are the number one cause of injuries to Soldiers and Marines in the Global War on Terrorism (GWOT) in Iraq and Afghanistan. The Army created the CounterStrike Task Force (CSTF) to find ho-listic solutions to defeat this insurgent threat.

The Training and Doctrine Command (TRADOC) Futures has focused the efforts of the TRADOC school houses—particularly the FA School at Fort Sill, Oklahoma, and the Air Defense Artillery School at Fort Bliss, Texas—to work on the CSTF with theater leaders and the Army staff. The strategy is to define layered and redundant tactics, techniques and procedures (TTP) and employ developmental capabilities to protect our troops.

The CSTF is looking for innovative ideas from Soldiers and other service members to defeat the GWOT insurgents.

The CSTF also has a secure website with operational security (OPSEC) and classified information on it to provide the field force protection information: https://counterstrike.army.smil.mil. Comments and ideas should be submitted via the link on the secure site or by calling DSN 639-5826/5828/5829 or at the same last four numbers with commercial (580) 442.

The following information was provided by *Field Artillery* to the CSTF secure website, but the website includes much more:

• "4-27 FA in Iraq—Applying D³A to Counterinsurgency Operations." This article is on Page 10 of this edition. The version on the secure website includes OPSEC TTPs for engaging locals to secure maximum intelligence information, protecting sources, and establishing and employing a time-sensitive target force to engage an insurgent threat rapidly.

• "3/2 SBCT and the Countermortar Fight in Mosul." The article is on Page 36 of this edition. The secure website has a more detailed after-action review (AAR) of operations in Mosul and classified tools and products to counter enemy mortars.

• "True Counterfire Takes Combined Arms." This is a brief piece by the 1/11 Marines Artillery Liaison Officer in support of 2/2 Marines in the defense of Mahmudiyah, Iraq, including the employment of the new lightweight countermortar radar (LCMR). A "sidebar" piece, "New LCMR Proves Useful to the Marines of TF 2/2 in Mahmudiyah," includes specific details of LCMR operations.

• "1-12 FA (MLRS), 17th FA Brigade, Force Protection Initiatives." This 17-page white paper tells how to up-armor high-mobility multipurpose wheeled vehicles (HMMWVs) and heavy expanded-mobility tactical trucks (HEMTTs) after arriving in theater, using local materials. It includes pictures.

My Soldier

By Kathy McCauley

He's the father of my children
My lover and my friend.
He has the strength and courage
With which to lead his men.
He comforts me in sadness
And wipes away my tears.
He holds me in his loving arms
And listens to my fears.
He consoles me as he says goodbye
For yet another time,
He tells me to stand strong
He'll come home and he'll be fine.
He has to do his duty
For his country-for our sons.
He knows I'll be here waiting
When his work has all been done.
He'll pledge allegiance to our flag
While in a foreign land,
As he carries forth his mission
There in the desert sand.

His job; it isn't easy,
But he'll serve with faith and pride.
His love, his wife, as always,
Will be there by his side.
There is emptiness and sadness
When we have to be apart,
If he's not in bed beside me
Be assured, he's in my heart.
He's the center of my universe,
He gives meaning to my world.
He can make my heart aflutter
And set my head awhirl.
He's a man his men can count on,
A Soldier tried and true.
He is proud to serve our country
For our red, white and blue.

I pray that God will keep him safe
And shelter him from harm,
That he may return home soon
Into my waiting arms.
And in my prayers I say each night
I ask on bended knee
That God smile upon my Soldier
And send him home to me.