FIRES

Developing Core Competencies:
Closing the Training Gaps

FIRES

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On the cover: Artillerymen with 2nd Platoon, B Battery, 2nd Battalion, 17th Field Artillery Regiment, 2nd Stryker Brigade Combat Team, 2nd Infantry Division, fire a howitzer in support of an Afghan led operation in Shah Wali Kot district, Afghanistan. (Photo by SFC Bryan Dominique, U.S. Army)

Developing Core Competencies:
Closing the Training Gaps

By MG Mark McDonald

Commanding General of the Fires Center of Excellence
and Fort Sill, Okla.

With the publication of ADP 3.09, *Fires*, we have codified the Field Artillery and Air Defense Artillery into one, viable, lethal and efficient Fires force. Each branch retains its own identity and mission as we are nested into one warfighting function. This formal establishment provides a doctrinal framework that will enable us to improve the way we do business. This has been a long, hard process, consuming many man-hours of the talented leaders who are fundamentally and professionally grounded in assuring the success of the Fires force. The end product is a testament to the dedication of these leaders across both branches to get it right the first time.

This publication is rooted in the time-tested principles and fundamentals of both Army and joint doctrine, and include the collective knowledge and experiences gained through many recent operations and exercises. The writers and developers have done an outstanding job of incorporating tradition and technology, while ensuring the Fires force remains grounded in core competencies, such as land operations and the employment of Fires.

One of the more significant changes from FM 3-01 and 3-09 is that air and missile defense (AMD) is moved from the protection warfighting function into the Fires warfighting function, a necessary move to unify the Fires force. AMD contributes to the area air defense plan (AADP) by assisting the protection cell with the planning and development of the defended assets list (DAL). Execution of tasks related to Fires, which are part of the DAL, will now be performed by the Fires warfighting function.

To be fully effective, Fires must be integrated with the capabilities of all the other Army warfighting functions including movement and maneuver along with integrating the joint force and multinational forces. Incorporating of Fires creates an optimal environment which mitigates risks, resource shortfalls and covers gaps within the area of operations. Closing these gaps in the Fires warfighting function is a critical component of ADP 3.9. While we cannot predict what or where future battlefields might be, history has taught us that no war is won without artillery.

Time is the enemy of preparation for the Army of 2020. What may seem like decades from now are only a few short years away. The groundwork for change is laid and approved, and it is our challenge to build upon this foundation a Fires force that can defeat virtually any enemy. Our future resources (personnel, funding and equipment) are limited, and it is imperative that we invest our assets wisely. By investing both time and money in our Soldiers and leaders, we will provide a distinct advantage for both the Fires force and the Army. It is critical that we have a solid foundation of strong leadership and professionalism, along with the fortitude to perceiver through the dynamics of future change.

We have learned and grown from our victories and the vast challenges of the past 11 years of war. We cannot afford stagnation, and we must continually re-evaluate our doctrine and strategies to keep us the strongest fighting force on the planet. ADRP and ADP 3.9 must become your Bible…your journal…your Battle Buddy. Learn it and live it. The mission statement for both Field Artillery and Air Defense Artillery is direct and precise. "The mission of the Air Defense Artillery is to provide Fires to protect the force and selected critical assets from aerial attack, missile attack, and surveillance. The mission of the Field Artillery is to destroy, defeat, or disrupt the enemy with integrated Fires to enable maneuver commanders to dominate in unified land operations." Fires officers and Soldiers who ever questioned their 'mission' as a Fires leader now have a valid compass to put them on the right azimuth in virtually any battlefield situation. Adding a description for each position within the Fires elements clarifies any ambigu-

SGT Darius Krzywonos, a Field Artillery surveyor assigned to 2nd Battalion, 12th Field Artillery Regiment, 4th Brigade Combat Team, 2nd Infantry Division, and the Forces Command Noncommissioned Officer of the Year, navigates a stress shoot course during the U.S. Army Best Warrior Competition Oct. 17, 2012. (Photo by SGT Joseph Guenther, U.S. Army)

ity of individual responsibility within the force.

We must ensure that maneuver commanders understand the importance of Fires and describe to them the requirements that our Army doctrine guides. This is key to ensuring that they know how to integrate Fires to achieve operational success. Our doctrinal publications spell out the importance of Fires as an integral part of the maneuver commander's operations process: planning, preparing, executing, and continuously assessing the operation. In order to bet-

ter assist the maneuver commander, it becomes the challenge of the Fires officer to ensure all Fires assets are interjected into the initial phase of mission planning. It is imperative that we champion the value of what we, as the Fires force, bring to the fight to protect and defend our national interests.

Although we have crossed a formidable bridge with the publication of ADP 3.9, we still have challenges ahead, and we understand the complexity of the tasks at hand; however, we are the best educated, most well-rounded, and still

the best resourced Army in the world. We must continue to grow our Fires capability in a way that will make us the most modernized and lethal Fires force in the world. It is the responsibility of leaders today to ensure our Fires Soldiers of the future have what they need to fight and win against any enemy. As the Chief of Fires, I will be in the forefront of this battle to provide the assets our future demands.

Fires Strong! ★ ★

Greetings from the New Commandant of the U.S. Army Air Defense Artillery School

By COL Don Fryc

Commandant, U.S. Army Air Defense Artillery School, Fort Sill, Okla.

First to Fire! Greetings from Fort Sill, Okla., and the desk of the commandant. I am COL Don Fryc, and it is my honor to now serve the branch and our Army as your 21st commandant, and chief of the Air Defense Artillery Branch. Given this is not my first assignment at Fort Sill, it is my pleasure to say, "it is good to be back." Since I have been away, it is patently clear that many have worked diligently to turn our ADA schoolhouse into a 'home.' The strides our team has made in solidifying our position within the Fires and Team Sill have been both noteworthy and extremely beneficial to our branch. Yes, it is certainly a great day to be an *Air Defender* here at Fort Sill; likewise, I would posit that it is a great day to be an *Air Defender* anywhere in our Army.

To be certain, the branch is in high demand right now with 46 percent of the force either forward deployed or forward stationed on any given day. From Patriot and Sentinel formations and air defense airspace management cells forward deployed in the Central Command (CENTCOM) area of responsibility, to forward stationed forces across the European and Pacific Commands (EUCOM and PACOM), and Air Defense Artillery National Guard Soldiers deployed in support of homeland defense, leaders and Soldiers are rising to the challenge each and every day. Not just surviving, but thriving in a high-operations tempo environment under arduous conditions; for this reason, let me get this out to you right up front: thanks for all you and your Families continue to do for our Army and nation.

With this introduction into what will be a series of articles on where the branch is headed, I want to share with you some

PFC Sean Litchford, with C Battery, 3rd Battalion, 4th Air Defense Artillery Regiment, directs the movements of the Patriot launching station to ensure it is clear and ready to engage targets during a mobility exercise at the Patriot site. (Photo by Tech. Sgt. Arian Nead, U.S. Air Force)

recent events, which have occurred and should encourage all regarding the way ahead. Firstly, it was only about a month ago when the Secretary of the Army signed our Army Air and Missile Defense Strategy. Thanks to the dedicated efforts of many, too many to mention without invariably slighting someone, suffice it to say our strategy is now officially approved. We have gained a long-sought after common understanding of the branch's relevance in regards to strategic guidance, importance to both the joint fight and unified land operations, and our enduring commitment to helping win our nation's wars. Followed by a recent and comprehensive Capabilities Portfolio Review by the Vice Chief of Staff of the Army, it is evident that we are not only on track with the aforementioned, but setting the pace in shaping our capabilities, not just for continued success in current operations, but for the next fight as well.

Unquestionably, the next few years will see more of the same for our branch; change will be happening across just about every formation and touch just about every weapon system. For example, right now, we are currently standing up the third Terminal High Altitude Air Defense (THAAD) battery at Fort Bliss, Texas; in FY14 we will transform 5th Battalion, 5th ADA at Fort Lewis, Wash., into the first indirect-fire protect capability (IFPC) battalion; in FY15, United States Army Air Defense School will begin training for THAAD Soldiers here at Fort Sill, and in FY16, we will begin fielding the Integrated Battle Command System (IBCS). Obviously, these are just a few of the big-ticket changes that will transform our force over the next decade. The key takeaway is we are not standing still, nor are we taking a knee. The time is now to improve who we are, the best *Air Defender*s on the planet; what we do, defend the homeland, protect the force and critical assets, and assure access; and how we do it, with disciplined leaders, Soldiers, and units that compete and win in caring for Soldiers and Families, on the sports field, in the motor pool, in the barracks, in the field, and most importantly, while deployed.

Again, it is my high honor to serve as your commandant and chief of the ADA Branch. And, along with CSM Jerome Wiggins, our newly emplaced regimental CSM, we look forward to serving the entire team and setting the conditions for success for our branch in the coming years.

First to Fire! Fires Strong! Army Strong!★★

SPC William Weise of B Battery, 5-52 Air Missile Defense, 11th Air Defense Artillery Brigade conducts an Antenna Mast Group crew drill during Table VII training on Sept. 9, 2012. (Photo by CPT Jason Koontz, U.S. Army)

Fires Change of Command Ceremonies

Nov. 3, 2012
1st BN, 147th FA, S.D. ARNG, Watertown, S.D.
Outgoing: LTC: Bruce Carter
Incoming: LTC Doug Bogenhagen

Nov. 16, 2012
2nd BN, 321st FA, Fort Bragg, N.C.
Outgoing: LTC Philip Raymond
Incoming: LTC Jason Jones

Nov. 29, 2012
2nd BN, 377th FA, Fort Richardson, Alaska
Outgoing: LTC Frank Stanco
Incoming: LTC Christopher Ward

Dec. 5, 2012
3rd BN, 319th FA, Fort Bragg, N. C.
Outgoing: LTC David Pierce
Incoming: LTC Phillip Jenison

Cultural Lessons Learned:

How Learning from the Past Illuminates the Way Ahead for Culture in the Army

By MG Gregg Potter

For at least half a century, the phrase "winning the hearts and minds" has been an essential canon of the U.S. Army's unwritten counterinsurgency doctrine. Increasingly, the Army stresses the importance of building cross-cultural competence (3C) among all its personnel — Soldiers, civilians and contractors alike. Field Manual 6-22, *Army Leadership*, uses variations of the word 'culture' 132 times. The Army has even institutionalized culture into the professional military education (PME) system, as well as making it a required part of pre-deployment training, formalized in the U.S. Army Culture and Foreign Language Strategy (ACFLCS). There are many indicators that make cultural training key to the continued success of the Army.

Since 2004, the Training and Doctrine Command (TRADOC) Culture Center (TCC) has served at the forefront of the effort to build 3C among Army personnel. The importance of cultural considerations has been proven during our recent high-profile engagements in Afghanistan and Iraq, as well as in the numerous other countries we operate. The TCC has trained nearly 200,000 Soldiers in culture through train-the-trainer (TTT) events, mobile training teams (MTT) for pre-deployment units and institutional training at Fort Huachuca, Ariz.

At this juncture, we need to evaluate the state of culture in the Army today. One way to plan for optimal implementation of culture in the future Army is by examining the three culture lessons learned.

Smarter does not mean softer. Being culturally smarter does not mean we sacrifice our warrior ethos. Despite recent advances, misperceptions exist promoting programs such as 3C creates a softer approach, resulting in a perceived weakness and 'softer' Soldiers. Cross-cultural competence is actually about increasing combat effectiveness and working smarter instead of harder. If the past 10 years have taught us nothing else, we have learned (sometimes painfully) that as an organization we must balance both kinetic and non-kinetic approaches. The mission of the Army is to fight and win our nation's wars. There is nothing in this mission statement suggesting that force is the only means at our disposal. In many asymmetric situations, cultural awareness can further mission accomplishment more than kinetics can. 3C education ties directly to the tasks carried out by Army personnel on a daily basis. Promoting 3C within the total force takes time and money, but is undoubtedly an investment in the future tactical and strategic success of the Army.

Culture is about people skills. By emphasizing and training 3C concepts, we are fostering a greater awareness of interpersonal skills within our personnel. This strengthens the ability of Soldiers, civilians, and contractors to conduct war and peacetime missions, while making us a more effective organization. It also enables us to become more skilled communicators and better rapport-builders. Using 3C, we learn how to engage in such skills as active listening, which helps us leverage information to accomplish our mission. The development, enhancement and sustainment of culturally aware interpersonal skills produce more effective human interaction. This is in every way a force multiplier for our Army.

Building 3C requires practice. It is difficult to measure the level of 3C the Army has absorbed. The most effective means of making sure that 3C concepts are integrated into the Army is by encouraging constant practice and reinforcement. Cultural knowledge is not limited to knowing the 'facts' about a region or people. Army personnel need a fundamental understanding of interpersonal communication, rapport-building techniques, negotiation and conflict resolution. After the initial acquisition of baseline knowledge, we practice these skills in a variety of situations to improve ourselves as warfighters. Practicing these skills might involve role plays, virtual interaction, and other activities. Key leader engagements (KLE) are one of the most crucial leader tasks; being proficient in all

3C skill sets enhance successful KLEs. One of the primary goals of the TCC is to create materials and instruction to teach and enhance this process.

Moving forward. The TCC recognizes that technology provides the opportunity for Soldiers to build and practice their culture skills in a controlled environment with many preprogrammed variables. With this method, Soldiers will have some common experiences to share when they arrive in the classroom, which will make face-to-face training more streamlined and effective. With this in mind, the TCC has developed a host of interactive materials based on electronic delivery, such as the Army 360 interactive software and a new Basic Officer Leadership Course (BOLC) video, designed to deliver a consistent and thought-provoking cultural learning experience.

The way ahead for the TCC is clear; it must continue to instruct and improve the 3C skills of Army personnel via a variety of training delivery methods. But 3C competency is not just a TCC mission; it is an Army mission. Promoting cultural understanding will enrich our Army and improve its operational effectiveness. ★ ★

Major General Gregg C. Potter assumed command of the United States Army Intelligence Center of Excellence and Fort Huachuca, Ariz., on 8 December 2010. Potter is a career Army military intelligence officer, with assignments in Korea, Germany, New York, Arizona, Texas, North Carolina, Virginia, and Washington, D.C., and deployments to Southwest Asia (Operations Desert Shield/Desert Storm and Operation Iraqi Freedom), Bosnia/Kosovo (Operation Joint Forge) and most recently in support of SOUTHCOM's earthquake relief operations in Haiti. He has served at the company, battalion, brigade, and division levels and commanded the 110th Military Intelligence Battalion, 10th Mountain Division, Fort Drum, N.Y. and the 902nd Military Intelligence Group, Fort Meade, Md. Potter served as the deputy commander, U.S. Army Intelligence and Security Command, director of Intelligence at the Joint Special Operations Command, director of Intelligence at the United States European Command, and most recently as the vice director of Intelligence (J2), Joint Staff, and the Director of the Defense Intelligence Agency's Afghanistan-Pakistan Task Force (APTF). Potter earned a Bachelor of Science from the University of Vermont and a Master's in Strategic Studies from the U.S. Army War College. His awards include the Defense Superior Service Medal with two Oak Leaf Clusters and the Legion of Merit with one Oak Leaf Cluster.

At the TRADOC Cultural Center, the TRADOC Culture Summit attracted Department of the Army civilians, contractors and Soldiers to listen to the keynote speakers. (Photo courtesy of the TRADOC Cultural Center)

Averting a Disaster

By COL Michael Forsyth

In the July 2010 issue of Army magazine, Richard Hart Sinnreich noted several issues in the Field Artillery (FA) community that threaten to cripple the effectiveness of the branch. These issues include the need to advance a new vision for the Field Artillery, equipment modernization, organizational shortcomings, and professional military education (PME). He is correct. As a former battalion commander and Field Artilleryman for almost 23 years, I am genuinely concerned the FA is rapidly falling behind potential future adversaries.

Further, we are reaching a point where we are unable to provide minimum, adequate Fires for our maneuver forces – something they unquestionably need based on my experience in Afghanistan or in a conventional conflict. After 10 years of counterinsurgency operations (COIN) and transformation, we have placed the branch in a near impossible position.

However, I believe we can overcome this situation if we act decisively to correct the deficiencies. This article will offer suggestions on how we might overcome our challenges to maintain our position as the most potent FA in the world.

The concept. The key to solving the issues starts with the adoption of a unifying concept for the branch, or in other words, a new vision. Much work has been done over the past couple of years by working groups at the FA school to develop one. Of the ideas offered, I support the concept of the FA becoming a branch of precision indirect-fires. This concept is a derivation of airpower theory, articulated decades ago and only recently achieved and validated in the 90s to present. See the figure below. Here is what the prominent airpower theorists at the Air Corps Tactical School (ACTS) offered in the 1930s. Airmen, such as Hap Arnold, Ira Eaker and Haywood Hansell, suggested the concept that became known as high altitude precision daylight bombing (HAPDB). The idea was that through precision bombing the air corps could effectively attack targets enabling the supported ground commander's forces to better achieve their mission as a result of the disruptive effect of the attacks from the air.

Further, precision would reduce the logistic tail, signature, and mobility of the air corps. Lt. Gen. David Deptula, U.S. Air Force (Ret.), elucidated this concept in what he called "effects based operations," using the analogy of one B-1 bombers, which can now accomplish the mission of 1,000 B-17s in World War II. Therefore, a concept developed in the 1930s

Model of concept development over time. (Illustration by Rick Paape, Jr. Information provided by COL Michael Forsyth)

Vision Realized
- Strategic Paralysis
- B1s
- Laser Guided Bomb & Percision Guided Munitions
- Basic Air Force Doctrine, 1997
- Persian Gulf War, Kosovo, and Afghanistan

Theory & Concepts
Provides the Vision
- Air Power Theory
- Command of the Air (Douhet)
- Winged Defense (Mitchell)
- Air Corps Tactical School Airmen (Hansell, Eaker, Arnold)

Actualizes the Vision
- High-Altitude Precision Daylight Bombing
- Squadron Organizations

Maturity

Modification Based on Practice
- Air Corps
- Training & Battle

Doctrine & Organizations

Training & Experience
Tempers Vision
- World War II, Korea, and Vietnam
- Command of the Air (Douhet)
- Winged Defense (Mitchell)
- ACTS Airmen (Hansell, Eaker Arnold)

Technology
Enables Vision
- B17s

reached fruition in the 90s with laser guided bombs (LGBs); joint designated attack munitions (JDAMs), and guided bomb units (GBUs). Theory spawned a concept that in turn developed doctrine, equipment, and organizations to enable it to come to fruition. This has redefined the concept of mass as well.

Traditionally, mass was defined by the weight of metal on the target to produce the effects. However, with precision the definition is changed to mean "the ability to attack multiple targets from many distributed points across the battlefield, with precision accuracy to produce the desired effect on the enemy in accordance with the commander's intent."

In other words, with precision we can produce the same effect formerly with many artillery systems, but with far less from munitions placed precisely on the target. Thus, we reduce the weight of metal, logistic requirements, and transportation required to service targets from Field Artillery systems. This concept developed by airpower theorists is fully transferrable to ground indirect-fire support.

There is nothing impossible for ground indirect-fires if we as the FA community – and the Army at large – embrace a similar concept. The concept can drive the articulation of doctrine for employment, organizational development, and equipping solutions. One of the most disturbing aspects of the current status of the FA is our long outdated equipment. As noted by Sinnreich in Army, the workhorse of the artillery, the M109A6 howitzer system, is a 50-year-old platform. While still a capable system it is aging far beyond its service life, and our potential adversaries have modernized their systems, making ours obsolete.

Further, the light force – with the exception of some units equipped with the M777 howitzer – is in worse shape, dependent upon the M119A2 105 mm howitzer. This system is short range and is a modified version of the old British 25-pounder of World War II vintage. Something must be done quickly to rectify this situation. The now canceled NetFires program could have done the trick by producing a long range, precision system that can provide close and deep Fires for heavy and light forces. This promising system would support

the concept of precision indirect-fires very nicely, as employing it in a distributed fashion can support forces across the full spectrum of conflict.

Organizations of employment are the next fundamental piece to solving the issue. Fires battalions are not currently organized to support their respective brigades in a conventional war or in counterinsurgency. Upon arrival in Afghanistan for Operation Enduring Freedom (OEF) X, the battalion I commanded, 2nd Battalion, 77th Field Artillery Regiment, 4th Brigade, 4th Infantry Division, had the responsibility for providing direct support Fires across the brigade area of operations, which consisted of a 10,000 square mile area of varying terrain. With only two firing batteries – with four platoons and fire direction centers – my unit was not capable of providing adequate support to the brigade.

Therefore, the combined joint task force (CJTF) attached a third firing battery to the battalion to enable us to accomplish the mission. A two firing battery battalion would also have difficulty supporting the brigade in a conventional war. To support the doctrinal frontage would require the battalion to spread its four M119A2 platoons thinly to provide Fires.

However, this would preclude massing and risk the brigade becoming overwhelmed by opposing force Fires. Thus, a new concept could also drive the reorganization of Fires battalions to enhance capability and optimize employment of new systems that come on line. Precision reduces the need for large numbers of systems.

Further, it facilitates wide distribution of those systems to support either conventional operations or wide area security in counterinsurgency operations. Since the systems are precise they can fire from widely separated locations – i.e., distributed – to achieve the effect of massed batteries in the traditional sense.

As troubling as the current equipping and organizational issues seem, of even greater importance is the issue of training and education of our young leaders – specifically, sergeants, staff sergeants, junior sergeants first class, lieutenants, captains, and junior field grades. This statement is not to denigrate our system, as it has worked hard

to remain relevant to the current operating environment. Rather, the environment these young leaders have grown up in is very one-dimensional. This has led to an attitude among these leaders, based on their combat experience, that there is little need to attend PME. This combined with COIN-exclusive experience is producing an entire generation of company grade officers who have no experience with conventional warfighting, similar to the Vietnam generation.

Our current doctrine is known as 'full-spectrum,' meaning our military forces, the Army and FA community, must be prepared to fight in any type of war across the spectrum of conflict. To meet the challenges put forth in the doctrine will require a highly educated and well-trained corps of leaders, indoctrinated in a clear concept of FA employment across the spectrum. Since the spectrum ranges from stability operations to offensive or defensive operations in a high intensity conventional war, our leaders must have the tools and flexibility of the mind to operate effectively whatever the challenge encountered. Further, they must have the equipment and organizations supporting the concept to realize success in any conflict.

Using the model introduced at the beginning of this article we can make the following assertions. (Refer to the figure on the opposite page) First, a derivative of airpower theory for ground indirect-fires – the concept of precision redefining mass – can drive the change needed to maintain our dominance as an artillery community among possible adversaries. Second, uniting around the precision concept will drive doctrinal development for employment of artillery. In turn, we have to build capable organizations that provide adequate fire support for our maneuver forces enabling them to win every engagement. These organizations will require equipment that supports the precision concept, such as the promising, but recently cancelled NetFires 'rockets-in-a-box' system. As previously noted, our Fires battalions are currently not organized to provide support to our BCTs, and further they are equipped with outdated delivery systems. A priority for the FA community is remedying this situation and convincing decision-makers of the urgency of doing this at the soonest pos-

Soldiers from B Battery, 3rd Battalion, 27th Field Artillery, conduct a live-fire exercise as part of their fire direction center certification at Fort Bragg, N.C.   (Photo by SGT James Bunn, U.S. Army)

sible moment through the vehicle of a sound concept of employment. PME and training will internalize the concept, plus it will provide a way to assess, refine, and improve upon it for optimization before a war of any type breaks out.

It is obvious to many within the FA community and Army at large—the branch is at a crossroad. The FA is in need of modernization in concept, equipping, organizing and education. The current conflict has in some ways contributed to the atrophy as the force has become preoccupied with COIN. In addition, the very flexibility of our personnel and organizations, which makes the FA community invaluable in the current conflict, has contributed to the belief that the FA is not in need of radical change, nor is it a priority as the Army moves forward with modernization efforts.

In my opinion, however, this view will guarantee the FA will fall far behind potential future adversaries unless modernization planning includes upgrading our branch. Uniting around a concept of precision Fires as the 'new mass' can provide the impetus for the effort. This can drive the doctrinal, organizational, and technological development needed to enable the FA to fast forward in capability past potential future enemies including asymmetric adversaries. We have a problem, but our community also has the know-how and will to press for needed change that will avert falling behind in a dangerous world that ranges from low-level insurgency to high-intensity conventional war.★★

Colonel Michael J. Forsyth is the commander of the 196th Infantry Brigade (Training Support Brigade) at Fort Shafter, Hawaii. He has served in various positions of leadership in the Field Artillery from battalion and brigade fire support officer to platoon leader, battery and battalion commander. He has four combat tours, including service during Operation Desert Storm in 1991 and three tours in Afghanistan, most recently serving as commander of the 2nd Battalion, 77th Field Artillery in 4th Brigade, 4th Infantry Division, in the volatile eastern region of Afghanistan during Operation Enduring Freedom X in 2009-10. Forsyth is the author of two books about Civil War campaigns, titled The Red River Campaign of 1864 and The Camden Expedition. He holds three Masters' degrees, from Louisiana State University, in Military History, the U.S. Army School of Advanced Military Studies at Fort Leavenworth, Kan., in Military Art and Science, and most recently receiving a Master of Science in Strategic Studies from the U.S. Army War College.

Missile Defense:
Sorting Out Collateral Damage
By Jay Willis

The successful intercept of a threat ballistic missile or cruise missile does not completely negate all hazards to friendly personnel or assets. Prediction of the effects resulting from the various debris of the intercept is a science that is still growing more than 37 years after the first anti-ballistic missile system was deployed, with many remaining knowledge gaps and many people unaware of the issue of post-intercept collateral effects. The hazards can be particularly significant if the threat missile contains a weapon of mass destruction payload. A very brief overview history of the issue is presented.

Early strategic missile defense. The first deployment of a ballistic missile defense capability for the United States was the Safeguard Program. It protected only some of our offensive ballistic missile fields, and the emphasis was on engaging Soviet strategic intercontinental ballistic missiles (ICBM) carrying large-yield nuclear warheads. The interceptor missiles (Sprint and Spartan) themselves carried nuclear warheads to inflict catastrophic damage on the threat nuclear payloads. The nuclear warheads on the interceptors were necessary because the technology of the era prevented reliably getting the interceptor close enough to the threat to insure destruction by means of a conventional explosive (blast/fragmentation) warhead.

Even with a nuclear warhead detonation, or possibly two (both the interceptor and the threat), there would have remained debris from both the threat and the interceptor (including booster components) that ultimately would have come to earth. That debris could have ranged from a severely damaged and inoperable but largely intact threat warhead landing near the intended ground target to very small particles of radioactive fission products and nuclear material (including uranium and plutonium) spread around the globe. There also could have been significant collateral effects

A ground-based interceptor lifts off from Vandenberg Air Force Base, Calif. The launch, designated FTG-05, was a test of the ground-based midcourse defense element of the Ballistic Missile Defense System. The missile successfully intercepted a long-range target launched from Kodiak, Alaska. (Photo by Jose Davila, U.S. Navy)

from the electromagnetic pulse caused by the nuclear detonations.

But concerns about collateral effects of the engagements were generally judged far less important than preventing the horrendous consequences of a nuclear strike conducted as intended by our enemy. Such a strike against our missile fields might have crippled our nuclear retaliatory capability, killed large numbers of civilians and military personnel in the target area, and caused millions of deaths among the general population due to nuclear fallout hundreds of miles downwind.

The advent of the Strategic Defense Initiative Organization (SDIO) in 1983, again stimulated serious interest in ballistic missile defense. The objective became a defense of the entire United States and our allies against a massive nuclear strike by the Soviet Union. The means of engaging these thousands of threat missiles also changed from nuclear-tipped interceptors launched near the ground target to a wide variety of interceptors relying on conventional warheads or simple direct impact kinetic energy (hit-to-kill) or on more than a half

A ground-based interceptor missile about to be emplaced in a silo located near Fort Greely, Alaska. (Photo courtesy of USASMDC)

dozen directed energy weapon concepts from lasers to particle beams.

Under SDIO, the paradigm regarding concern over collateral effects changed very little. The non-nuclear interceptors or directed energy weapons still resulted in debris from the threat nuclear weapons, interceptors, and possibly detonation of the threat nuclear warhead. There would have been no electromagnetic pulse (EMP) from the interceptor, since none were nuclear-tipped, but there may have been EMP from a threat warhead detonation, and it may have occurred anywhere between the Soviet Union and the United States, depending on the missile defense weapon used. There also would have been the inevitable release of nuclear materials from the threat warhead. But any of this would have been far preferable to a successful massive nuclear strike on our homeland or allies.

Investigation of the various collateral effects was largely limited to consideration of whether the effects would ham-per the operation of the missile defense system, itself. The various debris and their effects could interfere with radar, optical seekers, electronics, or structures of satellites or interceptor missiles. These concerns were rarely in the public eye, and they usually took a back seat to the fundamental problems of developing an interceptor or directed energy weapon that could reliably 'destroy' a threat nuclear warhead.

Theater ballistic missile defense (TBMD). The 1990-1991 Gulf War, followed closely by the demise of the Soviet Union and the reduced perceived risk of a massive nuclear strike against the United States, changed the ballistic missile defense business. The Strategic Defense Initiative Organization became the Ballistic Missile Defense Organization (BMDO).

Beyond the name change, the new organization concerned itself far more with theater ballistic missile defense than with strategic ICBM defense, and with engaging a few missiles rather than a massive strike with thousands of inbound warheads. Rather than protecting a significant fraction of the surface of the globe, relatively small geographic areas were to be defended. Directed energy weapons were largely abandoned, with emphasis ultimately shifted to ground-based kinetic interceptors such as what we now know as Patriot, Theater High Altitude Air Defense (THAAD) and Aegis. Improved interceptor performance permitted reliance on hit-to-kill kinetic energy impact, which also tended to yield greater damage to the threat warhead than blast/fragmentation warheads. The threat missiles of most interest were slower, shorter-range, and less sophisticated than emphasized under SDIO (e.g., the SCUD rather than the SS-18). The altitudes of intercept generally became lower.

While threat nuclear warheads remained of great concern, attention was suddenly turned to conventional explosive threat warheads and to payloads of other weapons of mass destruction

(WMD), such as chemical and biological warfare agents. The latter trend was particularly significant because so much expertise in chemical and biological warfare had been lost from our defense community over the preceding decades as the United States dismantled its offensive chemical and biological warfare capabilities.

An intercept of a chemical or a biological agent payload does not 'destroy' the entire agent outright. The WMD material, like all other missile defense intercept debris, generally comes down somewhere. With theater ballistic missiles that somewhere is usually in the theater of interest, and it may be inside the defended ground area. Furthermore, it became possible that under unusual circumstances an intercept-induced release of chemical or biological agent or warhead components might create a potential for ground personnel casualty collateral effects that rival or exceed that from the non-intercepted warhead.

Thus, under BMDO, greater attention was paid to the personnel casualty-producing collateral effects that might arise from a TBMD engagement, comparing those to the casualty effects that might occur from a non-intercepted ballistic missile.

A 'hit' is not necessarily a 'kill.' Lethality of the interceptor (whether kinetic energy or directed energy) against the threat warhead naturally had always been an active program component in SDIO, and it remained an even more important program in BMDO. The ability to negate or 'kill' the threat missile is, naturally, a key measure of the missile defense system effectiveness. The things that changed were a clearer recognition that greater interceptor lethality usually did result in lower ground effects consequences, but even very heavy mechanical destruction of the threat warhead might not completely negate the ground effects.

There are six different basic threat warhead designs of primary interest
- Nuclear (including multiple warheads on a bus)
- Unitary conventional high explosive
- High explosive submunitions
- Unitary chemical
- Chemical submunitions
- Biological submunitions

The damage inflicted on any of these by an interceptor missile can vary widely, depending on the characteristics of the threat warhead, the characteristics of the interceptor and the intercept geometry (including angles, speeds, and precise hit point).

A nuclear warhead contains high explosive to initiate the nuclear detonation. If that explosive is initiated by the intercept event without a full nuclear detonation resulting, then the nuclear material fragments and rains to the ground. The fragments can vary greatly in size, including extremely small particles that may be distributed on a global scale. The nuclear material is usually considered to represent a long-term but relatively minor radiation hazard. The results of a nuclear detonation are explained above, and unless the intercept is at an extremely low altitude, the only prompt effects on the ground will be EMP. If the warhead is not intercepted, or if the intercept fails to inflict sufficient damage, the full nuclear yield at the threat's design burst altitude can result in huge damage to ground structures and many thousands of personnel casualties.

The fragments of non-nuclear warhead component materials that fall to ground after a non-nuclear detonation may represent a personnel hazard just due to the kinetic energy of impact, but the chance of someone being hit is quite small. This low hazard of personnel casualties resulting from the various fragments of warhead structure that impact the ground is a common feature of all the threat warhead types, and this hazard likely is less than if the threat warhead itself simply hit the ground intact but without detonation.

A unitary high explosive warhead contains a single, relatively massive high explosive charge. If it is detonated by the intercept event (usually considered a very likely result), then only fragments of warhead component materials will remain to fall to earth. If the unitary high explosive warhead is not engaged, or the damage inflicted at intercept is insignificant, then damage on the ground can affect a good portion of a city block and the dozens of people on it.

High explosive submunition warheads contain multiple weapons that separate from the reentry vehicle at some distance above the ground, depending on the submunition and warhead design. There may be as few as two submunitions or as many as hundreds. An intercept may destroy all of them, some of them, or none, depending on the details of the engagement. The surviving submunitions may or may not be capable of detonating when they reach the ground. Any detonating high explosive submunition will affect only the area immediately around it, depending on the size of the submunition. But the surviving submunitions may be scattered over a relatively large ground area, depending on the details of the engagement. A non-intercepted warhead will usually scatter the submunitions over a relatively small ground area by design so that the effects from adjacent impacting submunitions approximately overlap. The potential for personnel casualties can be greater or less than for a unitary high explosive warhead, depending on a variety of factors, but is still small compared to WMD warheads.

A unitary chemical warhead contains a single, relatively large, tank of chemical warfare agent. If the damage inflicted at intercept is sufficiently great, the tank will rupture, dispersing the chemical agent near the altitude of intercept. Whether the dispersed chemical agent represents a ground hazard depends critically on properties of the fluid and other circumstances, as discussed below. If the tank is not ruptured, then there will be some sort of ground hazard as the warhead impacts the ground or releases its agent at very low altitude. A non-engaged unitary chemical warhead can spread lethal contamination over several square kilometers under certain conditions, potentially creating thousands of casualties, though the number of casualties would depend greatly on the type of agent and whether ground personnel have taken cover.

A chemical submunition warhead presents generally the same situation as a high explosive submunition warhead insofar as submunition destruction and dispersal is concerned. The chemical agent contained in submunitions destroyed at intercept will be dispersed there and may or may not represent a ground hazard. Surviving submunitions will generally disperse their agent on or near ground impact. Less chemical agent is usually carried in submunition warheads as opposed to unitary chemical warheads, simply because of the added weight and complexity of

the submunition warhead design, so the total casualty-producing potential is typically correspondingly less. But the potential number of casualties can still be several hundred, and the effects can be widely scattered with the intercept-dispersed surviving submunitions.

There are several critical differences between the ground effects resulting from warheads containing biological agent and chemical agent. A biological agent (e.g., anthrax) can be a thousand times more lethal to ground personnel than a similar weight or volume of chemical agent. (Some biological agents are not intended to be lethal, but rather to inflict some debilitating effect other than death.) This very high lethality makes a unitary biological warhead less likely to encounter simply because it would be a very inefficient use of the agent. A submunition warhead, on the other hand, can be designed to spread the agent effectively over a very wide ground area. The high lethality of the biological agent means many more people

can be affected, very far downwind. The casualty-creating potential might equal that of a nuclear weapon.

Another critical difference is that the biological agent is typically dispersed in very small particle size, on the order of a few micrometers in diameter, so that the particles may be inhaled by the ground population. (Chemical agent typically achieves its effect by drops contaminating one's skin or by the inhalation of vapors.) The small particle size means, any biological agent released at the point of intercept would not fall to ground for many hours or even days. This is important because a final critical difference is the biological agent is typically sensitive to solar ultraviolet radiation, becoming ineffective after prolonged exposure to direct sunlight. So the biological agent released at intercept altitude is unlikely to be effective when it reaches the ground. The biological agent collateral effects resulting from an intercept thus are determined first by the number of submunitions surviving to ground im-

pact. But due to the high lethality of the agent contained in the individual submunitions, even a small fraction of the original warhead payload can affect thousands of ground personnel.

Collateral affects sensitivities. The severity of the ground personnel casualty collateral effects resulting from a missile defense intercept varies tremendously with the particular circumstances, ranging from negligible (structural fragments falling into the ocean) to very large (many biological submunitions falling into a highly populated area). There are many parameters that contribute in a complex and non-linear fashion. Several computer tools have been developed specifically to address these issues and predict the results of an intercept, so this discussion is only an overview of some of the most important considerations.

The threat properties are critical. Especially, what is the warhead type? Within each warhead type, what are the design characteristics of the pay-

PFC Dean Werner, a Patriot missile operator from C Battery, 1st Battalion, 1st Air Defense Artillery, simulates unlocking the launcher caps during an exercise on Kadena Air Base, Japan. (Photo by Airman 1st Class Maeson Elleman, U.S. Air Force)

load? For instance, is the chemical agent highly volatile, intending to create casualties from vapor inhalation, and therefore likely to evaporate on its way to the ground when released at intercept altitude? Or is the chemical agent thickened and non-volatile, intending to create casualties from liquid deposition, and therefore likely to fall to the ground in a hazardous form even if released from tens of kilometers in altitude?

The interceptor properties are important. Is it a large interceptor or a small one? Does it kill with a hit-to-kill body-to-body strike or with a blast/fragmentation warhead? Coupled with this, especially with a hit-to-kill intercept, the engagement geometry makes a vital difference. What is the overlap of the two bodies? Where is the strike point: a solid hit in the payload bay of the threat warhead, or a glancing blow in a noncritical area such as an attached booster component? What are the angles? What is the closing speed between the threat and interceptor? The higher the closing speed, the higher the kinetic energy available for payload destruction.

The absolute speed of the threat might play an important role, independent of the closing speed between the threat and the interceptor. The threat speed is usually directly related to its ground range. A short-range theater missile (e.g., the original SCUD) travels more slowly than a long-range ICBM. The higher the speed, the more likely that intercept debris, including submunitions or slightly damaged warheads surviving the intercept event, will demise due to atmospheric heating. Higher speed means that dispersed chemical agent is more likely to break into very small drops or evaporate outright, thus less likely to result in casualty-producing hazardous ground contamination.

The altitude of the intercept is important. The ground scatter of all debris, both the width of the pattern and its centroid location, including surviving submunitions, depends on the altitude. The drop size of dispersed liquid chemical agent depends upon the altitude as well as the threat reentry speed, and the drop size is critically important in a determination of the potential collateral effects.

Environmental conditions are vitally important, especially the winds at all altitudes from the intercept point to the

A Standard Missile-3 (SM-3) is launched from Pearl Harbor-based guided-missile cruiser, USS Lake Erie, to intercept a threat representative target as part of a Missile Defense Agency test of the sea-based capability under development. (Photo courtesy of the Navy Media Content Services)

ground surface. The air turbulence and weather conditions such as cloud cover, time of day, temperature, atmospheric pressure, humidity and precipitation can all play a role. The ground surface condition can be important, including whether it is heavy forest or uninterrupted sand, as can terrain features, whether flat prairie, mountains and valleys, or tall city buildings.

Finally, the ground personnel population itself is critical. Is the affected area densely populated, or largely deserted? Are people indoors or outside? Do they have any sort of protection against WMD effects? Is it a general population including the very old, the very young and the sick, or is it solely a healthy male population of young Soldiers?

Today. Intercept-induced collateral effects remain a concern today, though the level of concern varies from year-to-year, program-to-program, and country-to-country. The concern also varies whether the collateral effects are measured in terms of personnel casualties, political impact from effects on a third-party nation, or disruptive effects on the missile defense system. The concern also varies with several closely related concepts: intercept lethality (damage

inflicted on the threat warhead), hit assessment (whether/where the interceptor hit the threat missile), kill assessment, collateral effects consequence manage¬ment, and warhead typing (determination of the warhead type).

The study of collateral effects remains active because there are many unresolved technical issues, and the knowledge impacts plans for missile defense deployment. It is hoped that a good understanding of the expected collateral effects can be used to minimize those effects by an intelligent choice of the intercept conditions: interceptor type, engagement location, angles and altitude. But while being concerned about collateral effects, one must never lose sight of a fundamental tenet of missile defense: it is nearly always best to conduct an intercept rather than let the threat missile do the damage intended by our adversary, placing an extraordinarily destructive warhead in our population centers. ★ ★

Company Grade Officer Management in the Field Artillery

By 1LT Michael S. Schumacher

Perception is reality. Rarely do lieutenants gain exposure to the mind-set behind officer moves internal to a battalion. Most officers spend their pre-career course years wandering blindly from assignment to assignment. I have had the insightful opportunity as the battalion S-1 of the 1st Battalion, 82nd Field Artillery Regiment, to attend meetings where such decisions are discussed and made. The BN S-1 is responsible for tracking these projections and presenting alternate courses of action to the command team. Such an experience allows me to understand the bigger picture and thus contribute multiple options for officer moves; mainly pertaining to lieutenants and junior captains. Command teams are best serving the Army and branch as they create company grade officers with depth. The depth comes when officers avoid stagnation in their respective positions and gain multiple experiences through new challenges. A battalion can create strong competency through proper management of officers' positions and placement within the ranks. A unit that develops a balance of officer experiences assists their respective branch as a whole. The long and short term effects achieved through proper officer management are best accomplished through proper organization, diligent forecasting, and ongoing evaluation.

Excel application. During my time as the BN S-1, I primarily utilized Microsoft Excel in order to record officer movements, positions held, and maintain a projected 'way-ahead' tracker. All trackers were updated as soon as an officer arrived to the unit. The battalion commander and executive officer (XO) provided guidance and decisions for the officer moves, which were recorded and annotated on the tracker. All officers were listed in alphabetical order and placed in their respective unit identification code (UIC) category. Their names are in the first column and subsequent columns include the following decision point indicators: current position, date they started the position, how many months in previous positions (fire direction officer (FDO), fire support officer (FSO), platoon leader (PL) and staff officer), a suggested way-ahead, and an actual way-ahead indicating a career course or 'end of time in service' (ETS) date once known. Utilizing such a tool creates instantaneous continuity for officer management while field grades change their respective positions. The officer tracker paints a picture of the past to help determine moves for the future.

Forecasting movements. A command team can utilize their battalion's long-term training calendar as a reference for the optimum time in which to move officers. Most Field Artillery (FA) battalions follow the same rotational training cycle leading up to a deployment and redeployment. Historically, the opportune periods during the training cycle in which to execute officer movements are: between basic gunnery and advanced artillery tables; after the National Training Center and before the deployment; and finally at a mid-point in the deployment. Using each opportunity to move a portion of the officers around allows a commander to maintain continuity throughout the entire cycle. The desired continuity is best exemplified when a FDO makes the progression to the PL position in the same battery. Keeping at least one officer in the same platoon, but advancing his position, ensures the certified platoon always has at least one continuous certified officer with experience on the gun line. A command team can forecast moves such as in the previous example to identify lieutenants who are equipped to move to positions of greater responsibility, while maintaining mission readiness with internal advancement.

A rolling stone gathers no moss. Officers commit more time to their job while deployed, and consequently, receive a broader experience in their position. The increase in the relative work officers perform while deployed becomes important when considering their movements during that timeframe. Therefore, a few officer moves can take place during a deployment in order to develop lieutenants instead of keeping them stagnant in one position for the entire year. When a battalion keeps an officer in one position for too long, development gets neglected; this creates a one-dimensional artilleryman and weakens the branch as a whole. If a junior lieutenant sits in a maneuver battalion for over a year, he/she may become a superb fire support officer (FSO), but may not be best prepared for future key developmental positions such as battery command. The stagnation of these officers could also prevent exposure to alternate forms of leadership. Continuous movement begins to yield well rounded officers, capable of understanding their roles within the battalion and brigade when the time comes.

Learning to staff and present COAs. By maintaining good running estimates, a BN S-1 can provide the battalion commander with a holistic reference to track an individual officer's potential for a given position. Knowing his strengths, weaknesses, and future aspirations allows a command team to properly place and project each officer according to the needs of the unit and the Army. During my time as a bat-

talion S-1 in 1-82 FA, a senior lieutenant (who is branch detailed to the Signal Corps) was placed as the battalion S-6. The vacancy came when the previous S-6 made a permanent change of station to the Captain's Career Course. If the senior lieutenant had not already filled the artillery positions of FSO and PL, such a move would hinder his development and career progression. However, the commander was able to set the senior lieutenant up for future success due to proper officer management, coupled with knowing his future as a signal officer; all the while filling a vital role in a forward deployed battalion.

Expand left and right limits. A heavy brigade combat team has 16 slots for company level FSOs when counting the battalion targeting officer billets. A FA battalion, however, has eight primary company level positions for lieutenants (four PLs and four FDOs). 1-82 FA has responded to this disparity by assigning each firing battery an extra lieutenant to act as an XO during deployed operations as well as utilizing the combat observation and lasing team (COLT) as a specialty platoon leader position. Battalion command teams have worked this exchange at the field grade level to allow FA lieutenants an opportunity to get more gun line time. Officers are able to receive experience not otherwise available based off of unit task organization. The XO and specialty platoon leader roles give the commander a means to distinguish high performing lieutenants as well as assign them to more challenging position.

Foundation for the future. Officer management is an ongoing challenge which requires deliberate planning and projecting. Lieutenants are able to develop their skill-sets when offered a variety of positions, creating both higher confidence and competence. The result will build depth in the battalion and branch alike. However, ignoring officer movement will create long- and short-term ramifications when the senior company-grade officers move on to other assignments, and leave a vacancy to be filled. A battalion ensures a strong future through maintaining an organizational tracker, pairing officer movement times with the training calendar, and producing simultaneous evaluations based on performance and potential. ★ ★

1st Lieutenant Schumacher graduated from Basic Officer Leadership Course (BOLC) III in March 2010, and was assigned 1st Brigade Combat Team, 1st Cavalry Division. He served in 2nd Battalion 5th Cavalry for a year as a company fire support officer. In April 2011, Schumacher was reassigned to 1st Battalion 82nd Field Artillery where he served as a platoon leader for B Battery through the unit's six months deployment in Iraq. He redeployed with the unit to Camp Buehring, Kuwait, and remained the platoon leader until March 2012, when he became the battalion S-1 to later take over as the battalion S-4.

2LT Mark Wolf, a forward observer officer with 1st Cavalry, 4th Stryker Brigade, 2nd Infantry Division, at Joint Base Lewis-McChord, Wash., calls in a fire-for-effect and polar-mission to the fire direction center at the best fire support team (FIST) competition during Fires Week. (Photo by SGT Jacqueline Fennell, U.S. Army)

Soldiers of 3rd Platoon, C Battery, 3rd Battalion, 321st Field Artillery conduct direct fire calibrations while deployed to Afghanistan. (Photo by 1LT Tommy Horne, U.S. Army)

A View of the Current Artillery Fight in Afghanistan:
Battery Level Leadership in the Near Future

By 1LT Tommy S. Horne

The Field Artillery grows in relevance as the Afghan National Army (ANA) takes the reins of the fight in Afghanistan from coalition forces. Battery level leaders (BLL) will be the driving force ensuring this transition, if the batteries receive continued freedom of maneuver in their operations.

BLL includes the platoon leaders, smokes, and gunnery sergeants, as much as the battery commander and the first sergeant. It is at this level where the transference of responsibility to ANA will be spearheaded. The U.S. Army Training and Doctrine Command (TRADOC) has done very well at producing and fielding qualified and capable leaders at this level. However, these leaders are forged and their skills crystallized as they practice their craft in the fields and forward operating bases (FOB) of Afghanistan.

This essay will address key issues for BLL to consider while planning for deployment to Afghanistan. Also, it will offer a battery level view of the current artillery fight for higher-level commands. First, the article will focus on combat outpost (COP) defense and its implications for the battery commander and platoon leader. There will be a focus on more remote COPs rather than larger forward operating bases (FOB); however, the usefulness of the information provided here will not be lost on those deploying to the larger FOBs. Under this heading, we will also explore useful training variables that mirror combat for the platoons and sections waiting to deploy.

Second, this essay will instruct on the realities of the cur-

rent fight in theater that are seldom understood until the rest in place/transfer of authority (RIP/TOA) process is conducted. There is currently a gap in the transference of information-sharing between units in the field and reinforcing units. We will address key pieces of information the incoming battery should obtain from the outgoing battery.

Finally, this essay will address the potential for friction between the BLL and higher commands. We will explore the current 'hot/cold gun' arrangement as an example. This essay will offer a solution to this and subsequently offer a view of the near future of battery level artillery operations in Afghanistan.

The newly arrived BLL needs to consider the resources that may be already available for COP defense. Cannon fire will be an integral and effective mode of COP defense. A platoon leader may be called on by the maneuver commander to provide Fires on a moment's notice.

These Fires will usually be direct. They may also be low-charge, high-angle Fires toward known enemy fighting positions. BLL should be prepared to engage with howitzers often in the face of enemy Fires. These enemy Fires will span from small arms to recoilless rifle rounds, to rockets. BLL should teach Soldiers to understand and have faith in their cannons. The reality is that the U.S. Army howitzer is a cut above the enemy's entire arsenal. The howitzer used in COP defense is a game changer when employed by confident leadership and capable sections.

BLL waiting to deploy should integrate these variables in field training exercises before deployment. Some useful training variables would be the use of blank Fires from automatic weapons and artillery simulations while the gun line and FDC are certifying. This will add stress and prepare the sections for the current artillery fight.

Another training variable should be the incorporation of aid and litter teams. The COP or FOB commander may instruct the artillery battery or platoon to provide aid and litter teams. The BLL should be able to manage Fires while providing this assistance to the maneuver commander.

BLL should have aid and litter teams already assigned in each section. Assign a code word for each litter team and announce it during the field training

exercise. This will signal the respective team to begin recovering their litters and assembling at a central location. Meanwhile, the other section can be left to continue with fire missions. Practice this technique during the daylight and at nighttime. In Afghanistan, there may be a MEDEVAC aircraft heading toward the FOB or COP at any time of the day. Sections should be adaptive in their training and vigilant in the execution of this assigned duty.

BLL needs to sharpen crater analysis skills while awaiting deployment. Senior NCOs and officers will likely assist the company or battalion fire support officer (FSO) in crater analysis in the minutes after an enemy attack. This will also be an integral piece of the battery and COP defense puzzle. The BLL will be able to better position modes of cover, such as T barriers, in the fire base if they can recognize and record accurate trends in the direction of enemy Fires impacting within the firebase and on the COP at large.

All of the previous suggestions for training will be a good start for BLL preparing for deployment. BLL should develop training variables based on the stated mission and always allow room for new and creative ideas. This is where officers of the BLL will draw on the NCOs and Soldiers who have deployed to develop training scenarios. Combined with this shared experience, the BLL's creativity will greatly enhance the effectiveness of the battery during operations in Afghanistan.

BLL should understand and consider all of the resources that will more than likely be available upon entrance to the firing point in theater. Some of these include raid cameras, current unit's experience of the area, and intelligence networks. Additionally, there may be resources in the form of building materials available to better fortify the fire base on the COP.

Raid cameras and towers will be very important to the platoon leader, battery commander, or platoon sergeant on location for COP defense. These devices vary in power and capability from each location in Afghanistan. However, they all prove invaluable in targeting and observation while defending the COP. The FSO or other agent will be able to scan the ridgelines and nearby villages to identify threats.

These devices will also be useful during the direct firing of the howitzers during an enemy attack. The cameras will be able to identify friendlies and civilians in the target area. The devices will also allow the FSO to observe the fires on camera screen as the platoon leader and platoon sergeant observes from the firebase. This will provide a much needed redundancy as direct Fires should be executed with extreme care.

The redundancy will also be useful as the FSO may spot enemy movement and flashes from enemy weapons. He will be able to provide a new target and direct fire mission for the gunline to fire. Communications between the platoon leader and the FSO by way of secured communications will be critical in ensuring this streamlined process.

Another valuable resource made available to the incoming BLL will be the current unit's intimate knowledge of enemy modes and methods of attack for that particular location. The Soldiers, NCOs, and officers already in place will be very familiar with enemy fighting positions and trends of attack. The new and departing BLL should discuss, at length, these parameters. There will be key areas and planned targets available.

The new BLL should ensure the FDC already has these planned indirect-fire targets within targets in the Advanced Field Artillery Tactical Data System (AFATDs). The new BLL should walk the gunline and perimeter with the departing BLL to ensure visual understanding of these points during the RIP/TOA process.

The departing BLL should also provide information on the trends of attack. The new BLL should begin to record and analyze trends on their own, even if such information is already inherited from the departing unit. Trends recorded should, at minimum, include, time of attacks, munitions used in attacks, and duration of attacks. This information should always be shared with the local company intelligence support teams (COIST) cell or S2 in order to assist greater coalition intelligence efforts.

The intimate knowledge the previous unit has gathered from a year spent in that location or area will be invaluable to the new leadership. New BLL should talk often and at length with the outgoing leadership during the RIP/TOA process. The knowledge of enemy

method, modes, and locations of attack will prove to be critical.

Widely developed intelligence resources will also more than likely be made available to the incoming BLL. These will be formal venues as opposed to the informal information you have received from the outgoing unit. These official venues will include COIST cells on COPs or battalion S2 shops for larger locations.

Another venue will be postings on secure networks such as MIRC and TRANSVERSE. These are instant messaging platforms that resemble chat rooms with posted text. The new BLL should be familiar with and read daily these MIRC and TRANSVERSE postings. They provide intelligence for the entire area of operations and can often tip the fire direction center (FDC) onto an upcoming prospective fire mission. Additionally, the BLL will receive story boards that are significant to their location over secure electronic mail accounts. The new BLL should take full advantage of the vast and varied formal intelligence systems available upon arrival.

Another consideration the new BLL should consider for COP defense is the ongoing improvement of the current firing point. The ability of BLL to provide resources and direct fortifications will have a direct impact on the Soldiers in his gun sections. If the gun section Soldiers are relatively well protected, then the artillery battery will be much more capable of providing Fires in defense of the COP.

Battery commanders should assign a lieutenant from each firing point to handle contracts. He will undergo certification and training for this at Bagram Airfield. These contracts are awarded to local national (LN) businessmen and contractors for the delivering of prefabricated concrete barriers (T-Barriers, C-Wall Barriers), gravel, dirt, and other building materials. Each platoon leader at each location should begin planning for the position improvement immediately. He should be prepared to work hand-in-hand with the LN's and negotiate materials to fortify his firing point.

Key points of improvement should be the perimeter, troop bunkers, and ammunition supply points (ASPs). The perimeter could be secured by installing wood, prefabricated concrete barriers or concertina wire around it. Wooden or metal gates can be secured and locked to prevent unauthorized personnel from entry. Unauthorized entry should be prevented at all costs pursuant to operational security and the gainful protection of U.S. property.

Troop bunkers should be installed or improved upon. These need to provide cover from small arms and indirect-fires and positioned in a way dictated by current modes of enemy attacks. These should be covered with camouflage netting where possible to disrupt enemy observations.

Incoming BLL should understand that the ASPs will likely be contained in connexes they will inherit from the previous unit. There are two primary considerations for these. First, the structure should be checked for signs of corrosion or breaking on the roof portion. Often, the roofs of these containers are covered with sandbags and wooden planks. Over time, these will give way from pressure. It is beneficial to design a wooden frame for the connex roofs so the weight of the sandbags is distributed equally on the frame, rather than the flat surface of the connex roof. The BLL will sometimes need the skills of a carpenter and builder as much as those of a Soldier. It would benefit any small unit to schedule classes on the basic skills of carpentry and building before the unit deploys.

Second, the ASPs need to be continually fortified at all costs. The implications for the COP from an explosion emanating from an ASP would be catastrophic. Although obvious, this is a serious consideration for BLL. The steel of these containers will not stop shrapnel from enemy indirect-fires. BLL arriving to theater should take a great account of the position improvement of the fire base perimeter, troop bunkers, and ASPs.

A final consideration for incoming BLL is that they may be charged with the creation of a totally new fire base on the COP. The fire base observed during the pre-deployment site surveys (PDSS) may be used temporarily. Never expect a firing position to remain permanent. The maneuver commander may decide to move the fire base for any number of reasons. Some of these may include new Soldiers arriving to the location, the need for more transient barracks, readjusting of the ANA unit, or even the construction of a new dining facility. Nonetheless, the BLL should be prepared to adapt to these changes.

This change will come much easier if the pertinent lieutenants among the BLL are contract certified. Lieutenants should identify members of the platoon who are trained on heavy equipment. BLL should never wait for a higher echelon, such as the battalion, to provide resources. It is the responsibility of the platoon leader on ground to 'make it happen.'

The first consideration during this move will be the firing capabilities. Leveling ground and clearing lines of sight from howitzer to aiming instruments is of the highest importance. Leveling ground will be cumbersome and time consuming. Seek resources such as front end loaders, bulldozers, and cranes where available.

Clear lines of sight are needed to lay the howitzers. Consider the nearer and farther aiming pole positions as well when clearing lines of sight. These may not be able to be left up permanently. This could be for a number of limitations in places to put the poles or limitations coming from boundaries between ANA and U.S. Army grounds. Soldiers can climb rooftops or barriers and temporarily place the aiming poles if there are no permanent places for them. The importance here is creativity. There will more than likely be limitations imposed on the battery that are not there in garrison operations.

There are several major considerations for the BLL during the construction of the new firing point. These include the threats of the enemy and of heat casualties. It is important that BLL does not conduct construction on a normal schedule. This would allow the enemy to coordinate an attack on the battery. Deny this opportunity from the enemy by breaking up the routine. As Soldiers, we are conditioned to rise early, begin work promptly, and break for lunch all at the same times of the day. New BLL should not schedule or enforce normal work hours when Soldiers are exposed in the naturally open expanse of the fire base. The work must be done; however, it is the duty of the arriving BLL to enforce this work intelligently and creatively.

Heat casualties are a major and obvi-

ous concern when constructing a new fire base. It may be a reality that Soldiers must wear full protection (kevlar, body armor) on more remote areas while constructing a base. The prospect for attack will be great in these areas.

The wearing of body of protective equipment should be balanced with the prospect of heat casualties developing in your formations. The tried and true forced hydration methods will be the best defense against heat casualties. In a combat zone, the mission is too critical to cease work because it is 'heat cat5.' The BLL should understand that higher commands have given them the freedom to make these kinds of decisions. Continue construction of the base, as maneuver Soldiers will depend on those rounds, but mitigate the risk of heat casualties through hydration. BLL should ensure gun chiefs are monitoring and enforcing fluid intake among the ranks each day, and throughout the day.

BLL arriving to Afghanistan will have to be creative in the maintenance of the battery and of the firing capabilities. They should use the raid cameras, current unit's experience in the area, intelligence networks, and all other readily available resources vigilantly and immediately. These leaders should also be highly adaptive and flexible when improving upon the current fire base or creating a new one altogether. Tactical considerations should be balanced with heat index concerns. Above all, the arriving BLL should be creative and flexible.

The incoming BLL should understand that training events at the home station are only for establishing basic and fundamental principles of artillery operations. There will be nuances present in theater that are not usually problematic for a unit in garrison. Some of these realities are ammunition resupply and transport, Fires approvals, direct and high angle firing, maintenance tracking, and imminence of an air assault march-order from higher echelons.

Ammunition resupply will be a cumbersome process if the new BLL is not proactive. The battery commander will be the critical piece in this puzzle. All of the artillery ammunition is received and shipped from a central ASP in Afghanistan. We will not discuss this location further here for operational security concerns.

SFC Omar Soto, from 3rd Platoon, C Battery, 3rd Battalion, 321st Field Artillery, instructs an Afghan National Army cannon section on cannon operations using the D30 howitzer. (Photo by 1LT Tommy Horne, U.S. Army)

It will be the sole responsibility of the batteries to ensure the ammunition they request gets to their locations. The commander should begin immediately establishing relationships with the civilian contractors and units in charge of receiving and handling the ammunition. A phone call or email from a commander may accelerate the often slow process of shipping ammunition more than the same efforts by a lieutenant. For this reason, the commander should be prepared to aggressively seek and work to distribute ammunition to the locations of his firing platoons. The lieutenants should inherit the remainder of the ammunition tracking and reception mission once the commander makes the phone call or sends the email.

New BLL should understand, especially at more remote locations, the

ammunition will be caravanned by LN trucks, military convoys, or loaded on rotary wing craft throughout the trek from the central ASP to the individual location. Sometimes the ammunition will stay overnight at various FOBs along the way to your location. This is the time for the individual platoon leader to be calling these locations, tracking the current status, and back briefing the commander.

Ammunition tracking and resupply will be problematic for a unit if the battery commander and platoon leaders are not working cohesively and creatively. Receiving ammunition at the home station is a simple process relative to the many hurdles and bumps in the road (literally and figuratively) in ammunition resupply in theater. A platoon will not be able to provide Fires if they

are not properly resupplied. This is in spite of the best efforts at ammunition management by fire direction officers. The battery commanders' and platoon leaders' eagerness will be the driving factor in the proper and prompt ammunition resupply of the battery.

Furthermore, the relevance of the Field Artillery will be at stake. The entire field's reputation is negatively affected when the maneuver commanders in the field discover the artillery units cannot fire. These commanders are not interested in the difficulties of ammunition resupply in theater. They only understand that the artillery howitzers are silent and a critical fire support is marked off of his list of fire support assets.

Ammunition resupply for batteries is the responsibility of the battery commander and his platoon leaders. They should understand the difficulties that lay ahead can be mitigated if these two leaders are working cohesively and fluidly together. Once in theater, estab-

An M777A2 howitzer positioned on a temporary fire base near the flightline on COP Honaker Miracle, Kunar province, Afghanistan. (Photo by 1LT Tommy Horne, U.S. Army)

lish relationships and create a standard operating procedures (SOP) for the individual battery. The platoon leaders should also create one for their individual locations.

BLL should understand the Fires approval process before arriving to theater. The replacement battery leaders should seek the current Fires approval memorandums, guidance, and storyboards from the battery already in place. Receive these reports on secret or secure means only. This should be gathered long before the PDSS process and while training for deployment.

Once received, battery commanders should incorporate this into field exercises while training for the deployment. Immediate clearance of Fires seldom happens in Afghanistan. There are many reasons for this, including those well above the pay-grade of this author. For this reason, we will only address what I consider important for the batteries to understand.

Essentially, the rate of Fires approval for fire missions brings sometimes drastic changes to the mission. While awaiting approval, the observer team in the field is often likely to change transmit 'end of mission' (EOM) and request to fire another target altogether. Incorporate this variable into the platoon formations and training.

Direct the FDCs to transmit requests to a simulated Fires desk. Vary the time it takes to clear the fire mission from mission to mission. Also, have the observers transmit 'EOM' to the FDC while the FDC is standing by for clearance on a current fire mission. This could be along the same gun target line or even a target along an entirely different azimuth. The possibilities here are only limited by the creativity of the platoon leader and battery commander when planning a field exercise.

Conclusively, these types of variables focusing on the Fires approval process will have two results. First, it will allow the unit to become familiar with the way Fires clearance is conducted in Afghanistan. The battery will be prepared for this as opposed to the certainty streamlined, oftentimes perfunctory clearance process for Fires at the home station. Second, it will allow the leaders and Soldiers alike to be more flexible and more adaptive. These are the particular qualities that must be present in the Soldiers

and leaders in order for the battery to be a successful firing unit in support of Operation Enduring Freedom.

BLL should understand the prominence of direct Fires in theater. Therefore, they should train on direct fire ranges as much as possible at the home station. Many locations dictate, especially more remote COPs, that calibrations be conducted in direct fire mode. One reason for this is the absence of observers for regular indirect calibrations. There are places around target areas where observers do not patrol. Not all targets are located near, within observing range, of the FOBs and COPs. If possible, the platoon leader should calibrate through indirect-fires as these Fires are much less toilsome on the howitzer mechanics and frame than direct Fires. However, new BLL should understand that many calibrations will have to be done in direct fire mode. These leaders should be open to this and adaptive.

Calibrating in direct fire mode has an added benefit to COP defense as well. Firing at targets along ridgelines of the COP will deter the enemy. It will be a show of force as much as forcibly alters his daily plans of attack and information gathering.

Calibrating in direct fire can be much more conducive to the mission than indirect-fires. The platoon leader must send a request to the battalion (storyboard) in order to calibrate with indirect targets. This process takes no less than two weeks and can be up to two months from beginning to end. The reality is that the batteries will not often receive the specific lots of propellants they have requested. It would defeat common sense and hinder the mission if the platoon leader waits passively for higher to approve an indirect target when he could calibrate directly.

Direct Fires are solely approved by the maneuver COP commander. This means that the platoon leader can usually calibrate as soon as a new shipment of propellants are received. Direct fire calibrations make good sense. This is especially true if we consider the uncertainties and obstacles surrounding ammunition resupply as discussed previously.

Incoming BLL should understand that high angle Fires will be the primary means of firing for indirect-fire missions. Virtually all Fires will be in

high angle. As with most rules, there are a few exceptions. COP defense Fires will be firing in low angle. These will be manifest when firing directly into the ridgeline at an enemy fighting position or firing a low bag charge mission to a ridgeline just out of direct fire range.

Many commanders and leaders argue for low angle Fires because it is inherently more accurate than high angle Fires. This argument seems especially enticing in light of the professed goal of the Field Artillery. However, this doctrinaire argument does not hold up in light of the current artillery fight in Afghanistan.

There are two primary reasons why high angle Fires rule the day in Afghanistan. First, the enemy has developed an excellent use of the traditional reverse military slope during attacks. Low angle Fires will be rendered useless as a response to this.

Second, the terrain in Afghanistan is exceedingly mountainous. The probability of a round impacting on an intervening crest is high if using low angle Fires. A round that does not impact on target defeats the goal of the Field Artillery as much as creates a potentially devastating effect on the counter-insurgency strategic plan. Subsequently, such a round would endanger all current efforts of coalition forces and destroy previous accomplishments. Incoming BLL should be well equipped and capable of firing the cannons in high angle. This will be the primary means of putting steel on target. Commanders and platoon leaders who do not realize the necessity of high angle Fires are in peril.

Tracking parts for maintenance of the howitzers will be as complicated and cumbersome as the ammunition resupply in theater if the commander and his platoon leaders are not all working in unison. To be certain, proper, regular maintenance will prevent many issues with the firing capabilities of the howitzers. However, the reality is that the new BLL will receive old, worn howitzers. These cannons have endured the shock of thousands of rounds fired and the sometimes grueling elements present in Afghanistan. The cannons will have more than likely been in continuous operation for up to four years before going through the reset process.

This presents a traditional and unique problem for the platoon leader. Tradi-

tionally, maintenance of equipment is a normal function for the platoon leader. It is one of his chief duties. However, like ammunition resupply, Afghanistan presents its own unique variable to this puzzle.

In Afghanistan, the howitzers will require almost every kind of repair part imaginable. The BLL should preempt and anticipate the unique problems of each howitzer. Prepare for the worst possible malfunctions of the most critical components. Pursuant to operational security, we will not discuss these components further. The BLL should react calmly when a component breaks or malfunctions. The commander should contact the appropriate maintenance section charged with the reception of parts to theater and indicate its dire importance. His call will be more effective than a similar call from a lieutenant. The platoon leader should then be vigilant in tracking the piece from origin to destination.

The howitzer part is of greatest concern for the artilleryman. However, it is just another piece of equipment to an infantryman, armor scout, or intelligence Soldier. The howitzer part will be handled and shipped by a myriad of different units and Soldiers along its route to your location. For this reason, the platoon leader must be vigilant as much as tactful in explaining its importance to the various units along the part's path to the COP.

Ultimately, howitzer maintenance and the supervision of parts movement will present a unique difficulty if the BLL is not on the same plane. Filling out a DA Form 5988 with the parts and NSNs is not good enough for theater. The battery must fire, and this capability is directly linked to the capability of the battery commander and his lieutenants to locate, track, and receive howitzer parts.

A final reality of Afghanistan all arriving BLL should consider is the very real prospect of an air assault march-order. Sun Tzu wrote much about the ever changing conditions of the battlefield. The current fight in Afghanistan is no different. Fires will be economized in one area in order to mass on another. The new BLL should never assume that their firing point is permanent. The unit is highly likely to receive a march-order directing one or more of its sections to conduct sling load operations to another location.

The incoming BLL team should have personnel designated and an air assault SOP before deploying to Afghanistan. First, the battery commander should make every effort to send NCOs and officers to the Air Assault School. If this is not an option, the commander should certify key individuals with sling load certifications that are obtained at the home station from the installation. One of the senior NCOs or officers with the greatest sling load operational experience should be designated, as a formal additional duty in each platoon, as the supervisor of all air assault operations for that formation.

The prospect of the air assault march-order is a very real one. Incoming BLL should have key personnel designated and a written plan in place before deploying. All firing units at all locations may be called to conduct sling load operations and send one or more of its sections to another location.

The BLL should be well versed in the installation air assault standard operating procedure (SOP) and create one for the individual battery. This planning will assuage the often confusing and troubling nature of sling load operations in combat.

Aside from the standards for hook up and weight perimeters, the battery SOP should include a minimum packing list for each platoon. This packing list includes a container with the proper amount of meals ready to eat (MRE), water, fuel, toiletries, and other life-support items needed for at least two weeks. Additionally, the SOP should describe the number of rounds, propellants, and fuses that make up a raid package. This will be based on the current on-hand battery ammunition supply. A written SOP will be a giant leap in the right direction and add ever-increasing viability to the battery as a flexible fighting force.

Having already discussed the implications of COP defense and the current realities facing firing batteries in the field, we will now discuss a friction point between Fires battalions and the battery. Our example will be the current preference for 'hot-gun/cold-gun (HGCG)' as it marks an important obstacle to BLL in the accomplishment of the battery's mission. As our thesis indicates, this is not a critique on higher echelons' handling of its own affairs. This is an observation that needs to be considered as it, and similar points of friction, will affect the transition of responsibilities between coalition forces and the ANA in the near future.

HGCG is an arrangement where one section is 'hot' and ready to fire at all times. Meanwhile, the section designated 'cold' refits, trains, and rests. This is a popular and preferred method of manning in firing battalions. It is often dictated by the battalions to the batteries.

The arrangement sounds simple and seems to make sense when viewed at face value. However, it presents at least three major problems for BLL. The first problem is the strain on manning. Soldiers are directed to assist ANA in the COP or FOB guard towers. This already strains the manning of sections but is necessary. The direction of the HGCG system may be an undue and additional stress on manning of the sections and in anticipation of fire missions.

Second, the HGCG system directly hinders the capability of the platoons to conduct simultaneous missions. Under the current HGCG system, the 'cold' section is always prepared to rush to the pit to conduct a fire mission. However, this lends itself to complacency. Each section may be tempted to view the 'cold' day as an 'easy day.' Complacency is always the leaders' responsibility to fight. However, if the platoon leader or battery commander is directed to engage in the HGCG system, it is an additional and unnecessary leadership obstacle and one more thing on the losing list that lends itself to complacency.

Another drawback emanating from the HGCG system is its effect on simultaneous fire missions. Most fire missions are simultaneous missions at more remote locations. This is for two reasons. First, the platoon leader should anticipate firing direct fire in defense of the COP while firing an indirect mission in support of troops in contact with the other cannon. Second, the rapidly changing and inherently dire nature of calls for fire cannot be predicted. It is very common for two fire missions on opposite azimuths to come down at any point.

Finally, the direction of the HGCG system may be dissuading creativity among the BLL. Such a manning system

SFC Omar Soto, from 3rd Platoon, C Battery, 3rd Battalion, 321st Field Artillery, instructs an Afghan National Army cannon section on cannon operations using the D30 howitzer. (Photo by 1LT Tommy Horne, U.S. Army)

may lull or tempt junior leaders into relying too heavily on decisions from higher. Soldiers know the right thing to do. TRADOC fields Soldiers, officers, and NCOs who are capable and ready to be adaptive and accomplish the mission with or without details. Creativity will win the day. Creativity should never be confused with disobedience nor ever be used as an excuse for insolence. BLLs need as much room for creativity as practically possible to meet the current challenges facing artillery units at large in the current conflict.

HGCG is not a major problem itself. It is important as an example here because of what it may indicate for the near fu-

ture of artillery operations. Throughout the course of the conflict in Afghanistan, battery commanders and subordinate leaders have been given vast amounts of discretion in the maintenance and conduct of their batteries. Naturally, and as the draw-down approaches, the reins of this independence will be tightened.

However, a free flow of information between the battalions and batteries needs to be in place. A 'university of thought' is an appropriate term. Battery and battalion commanders should be constantly sharing information and always considering lessons learned in the field over the past 11 years. If this is done properly, then friction points such as

the HGCG system will be avoided. The continued university of shared thought, ideas, and experiences between the batteries and battalions will be even more critical as the drawdown approaches.

To be certain, some form of this sharing of ideas is going on in each unit. However, this approach should be revamped, formalized, and tailored specifically for the current artillery fight in Afghanistan. A good start will be for the leaders of the battalions and batteries to have a weekly meeting dedicated to this end. This should be outside the scope of the normal training meeting. Its only subject should be the current fight in Afghanistan. Leaders from both echelons could conduct research on assigned and relevant topics of the day and discuss the research.

A portal could be created where battalions post blogs and summaries from their weekly meetings. This would allow for Fires battalions to stay abreast of what other Fires battalions are doing and thinking. This ongoing conversation between all BLL and battalion leadership would be posted and continuous.

No one is encouraged with the prospect of yet another meeting in the busy weeks we keep as Soldiers. Some of us may even cringe or instinctively call for the S6 when we hear the word "internet portal." However, it is a step in the right direction. This 'university' approach will undoubtedly improve the Army organization and help to ensure the relevancy of the Field Artillery to the current fight.

In conclusion, battery level leaders will continue to accomplish the mission if given the continued freedom to conduct its operations effectively. The success of the transition between coalition and ANA forces will undoubtedly rest on the creativity and flexibility of leaders at all echelons. Battery level leaders will be using this creativity as they directly supervise the transfer of responsibilities to the ANA in the near future. This transition will bring with it many new challenges and puzzles. These unforeseen obstacles will affect coalition efforts directly proportional to the capability of BLL to be creative problem solvers.

We have viewed some of the current realities facing BLL in Afghanistan. We not only discussed lessons learned from COP defense but also the current unique

1LT Robbie Laufer and SFC Omar Soto work with local nationals in the construction of a new fire base on COP Honaker Miracle, Kunar province, Afghanistan. (Photo by 1LT Tommy Horne, U.S. Army)

parameters and aspects of platoon and battery level Fires facing leaders.

From discussing these we moved to our thesis. We pointed to the friction point of the HGCG system as an example of possible hindrances in the accomplishment of the mission emanating from a lack of communication between the battalion and battery echelons As the combat operations draw down and the transition takes place, these and similar friction points need to be faced and resolved.

This is where we find the solution. A university of lessons learned needs to be instilled. Internally, it should include earnest thought and sharing of ideas between battalions and their batteries. Externally, and Army wide, all Fires battalions should share, view, and discuss the lessons learned and new ideas coming from the internal conversations between the batteries and battalions.

This solution is no panacea. It is a proposal for all artillerymen to improve upon the character and conduct of our artillery and great Army organization. It is also a clarion call for increased creativity among the ranks in anticipation of the unique and unforeseen challenges looming as we transition to the next phase of the current conflict. The leaders in the battery will need to exercise ever increasingly with creativity for their individual locations, missions, and areas of responsibility and share these experiences with the battalions. The battalions will share these lessons and experiences through venues, such as a portal, with all of the other Fires battalions. With this concerted effort, the Army organization will improve and the artillery community will remain relevant to the transition efforts. This will begin with, and the greatest responsibility will rest upon the firing battery and its leaders.★ ★

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Soldiers with the 515th Transportation Company Forward Logistics Element convoy with members of 3rd Royal Australian Regiment to Patrol Base Mirwais during a resupply mission Aug. 17, 2012. (Photo by SPC Nevada Jack Smith, U.S. Army)

Shaping the Sustainment for Tomorrow

By LTG Mitchell H. Stevenson

This year, we will finish withdrawing our forces and equipment from Iraq, the culmination of the largest logistics effort since the end of the Vietnam War. We continue to substantially improve deployment to, redeployment from and sustainment operations in Afghanistan, and resetting the force seems as if it's second nature. The challenges facing sustainers are far from over, however. We remain in an era of persistent conflict, and our nation struggles to make ends meet in a time when demands on our budget have never been higher. In the new fiscal reality, sustainers will need to move supplies, feed the force, fix equipment, and conduct all other manner of sustainment operations more efficiently and at lower costs, while continuing to apply lessons learned in the theater to future operations.

At this month's AUSA Sustainment Symposium and Exposition in Richmond, Va., we're bringing together the best of military, academia and industry to ask: How do we shape sustainment for tomorrow? What 'game changing' innovations are on the horizon? What new business practices do we put forward? How do we change the culture so that we preserve our hard-earned progress of delivering outstanding sustainment and not backtrack because of fiscal constraint?

Today numerous capabilities being fielded are making us more efficient. Some are reducing demand for energy, water and force structure. In other cases, we're making things simpler, reducing warfighters' time and effort spent on sustainment. Many promising technologies are in the pipeline, and they are pointing us in the right direction.

Reducing energy consumption. The Department of Defense is the nation's largest consumer of energy. In 2009, $2.7 billion out of a $4.1 billion Army energy budget was consumed in operations. Energy savings aren't just about 'going green'—that much fuel usage equates to a lot of fuel being moved in ground convoys. In fact, after initial combat, fuel and water compose 70 to 80 percent of ground resupply volume. A one percent reduction of fuel consumption in theater could mean roughly 60 fewer long-distance convoys on the roads per year, greatly reducing Soldiers' exposure to the enemy.

Heavy fuel use also can create a greater reliance on contractor support. In Afghanistan, 85 percent of supplies are moved by local trucks; in Pakistan and Central Asia, 100 percent are moved by contractors, with fuel being the biggest commodity shipped into Afghanistan. The fully burdened cost of fuel in Iraq can be as high as $30 per gallon, and in Afghanistan it can be even higher.

According to the 2011 National Military Strategy, "Joint forces must become more expeditionary in nature and will require a smaller logistical footprint in part by reducing large fuel and energy demands." Thus our challenge is to reduce the requirement for fuel in Army operations. The Army has a strategy and specific plans to succeed, from exploring alternatives to petroleum based fuel, to decreasing the size and weight of systems, to making vehicles and buildings more fuel efficient. A number of advanced technologies have already been deployed, including lightweight, high-energy Soldier-power sources and 'offtheshelf' products that improve energy efficiency at forward operating sites.

More progress is under way. We are accelerating replacement of tactical quiet generators with advanced medium mobile power source generators that will reduce fuel consumption by 23 percent when compared with the current fleet of generators, and they will pay for themselves within just two years. For surveillance and reconnaissance missions, units are using the rucksack enhanced portable power system, a lightweight system that employs a 62-watt solar panel to recharge batteries or act as a continuous power source.

Another promising battery charging technology is the thermoelectric generator (TEG) power source. This lightweight, modular system will burn small amounts of JP8 or other fuels to create heat, which is then converted into usable electricity. TEG is being developed to support battery charging operations in the most austere operating environments; the goal is to generate more power than most current man-portable solutions and significantly lighten the Soldier's load.

We also are working hard to improve efficiency of our contingency basing efforts. One initiative, Smart and Green Energy for Base Camps, encompasses the full spectrum of military bases at the tactical, operational and theater levels, and can result in up to 57 percent fuel savings. The focus is on reducing energy consumption in base camps with readily available technology while achieving payback in less than two years. The initiative includes using energy efficient shelters and environmental control units; micro grids and intelligent energy management capabilities; solar dish concentrators; solar thermal water heaters and cryogenic coolers; shower-water reuse systems that can recover 75 percent of waste water; and advanced laundry systems that reduce water use from 24,000 gallons to only 500 gallons a day. In the future, the Army will continue to advance energy related capabilities, technologies and processes that improve operational performance, increase resilience and reduce demand for energy.

Knowing what's happening today. Facing constrained budgets and pursuing a campaign on property accountability, the Army is looking to improve

Linked rounds for an M240B machine gun sit ready in the gunner's nest of a Mine-Resistant Ambush-Protected (MRAP) vehicle belonging to the Louisiana National Guard's 1086th Transportation Company, Task Force Muleskinner. The unit was preparing to embark on a 400-mile round-trip convoy down one of Afghanistan's most dangerous roads, Highway 1. (Photo by SGT Ken Scar, U.S. Army)

Soldiers assigned to the 10th Sustainment Brigade work together to load up a truck with the supplies delivered near the Salang tunnel. The supplies were delivered by a low-cost low-altitude parachute drop, the first ever near the tunnel. (Photo by SFC Luis Saavedra, U.S. Army)

ways to track equipment and mitigate pilferage. The smart container is one of those ways, integrating state-of-the-art communications, tracking and sensing technologies with an innovative 20-foot equivalent unit (TEU) intermodal shipping container made from lightweight polymer material. Advanced sensors integrated with a 'smart' tracking device are discreetly mounted inside the container and are able to broadcast through the polymer skin to a global satellite communications network, enabling immediate reporting of the container's location, condition and security status.

This integration effort alleviates past problems encountered with active radio frequency identification (aRFID) applications by providing near real-time tracking and intrusion detection monitoring of a TEU container being moved through the transportation system. In collaboration with U.S. Central Command, U.S. Joint Forces Command and U.S. Army Forces Command, the Army's Logistics Innovation Agency (LIA) provided 12 of the containers to a unit for use in their deployment to Afghanistan.

Upon the container's arrival in Afghanistan, how can we have more timely and accurate status information until it reaches its final destination? Perhaps through use of next generation wireless communications, an integrated cutting edge technology with sensors that provide a secure, wireless, automatic identification technology networking protocol. It harnesses mesh networking technology to provide near real-time continuous asset visibility across the distribution enterprise (factory to foxhole). The Army is collaborating with U.S. Transportation Command to develop this capability as a potential replacement for the current aRFID infrastructure. Already, Army Materiel Command and LIA have conducted a successful proof-of-principle demonstration in Kuwait, and future plans could include a deployment to Afghanistan.

Fleet management strategy. An enduring effort being pursued to improve readiness is fleet management. This is a paradigm shift in equipment lifecycle management, in which we are adapting and applying the principles developed in the aviation community to our track and wheeled vehicle fleets and command, control, communications, computers, intelligence, surveillance and reconnaissance assets. It is a comprehensive approach to manage sys-

tems based on capabilities, equipment conditions, age and cost—achievable by developing integrated fleet sustainment plans that consist of new production, recapitalization, repair and divestiture efforts.

The challenge is to ensure that we have accurate information on our equipment—specifically, visibility of operational tempo, environmental condition and usage data at the individual end item level. While we are not completely there yet, we are achieving greater data fidelity through key enablers such as Item Unique Identification, Condition Based Maintenance Plus, the successful deployment of the Logistics Modernization Program, and the continuous development of Global Combat Support System Army.

The intent of these collective actions is to provide capable and reliable fleets to meet Army readiness standards and support Army force generation, maintain or reduce operational and support costs, and align weapons systems' technology insertions and upgrades with the reset phase.

Applying lessons learned in the field. As we shape future sustainment, the Army is getting more efficient at taking observations, insights and les-

A DCH-4 Caribou drops six parachute bundles at the drop zone marked with green smoke near the Salang tunnel. The aerial delivery mission was the first one ever conducted at the Salang Pass. The success of the mission proves that the 10th Sustainment Brigade can resupply Soldiers with what they need just about anywhere. (Photo by SFC Luis Saavedra, U.S. Army)

sons from the field and applying them. Amassing the information needed in this 'operational sensing' is more complex than it sounds. At Fort Leavenworth, Kan., data collectors go to units and bring back information as part of a collection and analysis team. The Sustainment Center of Excellence (SCoE) at Fort Lee, Va., has been successfully using the reverse collection and analysis team (RCAAT) program, in which recently deployed sustainment commanders and staff visit Fort Lee and describe their observations and provide insights for capability, training and doctrine developers.

RCAAT is highly efficient—currently, SCoE is working on more than 300 products, taking battletested practices and making sure they are integrated into instruction, training documents and manuals. For example, out of an RCAAT session with sustainment brigade command teams, it became clear we need better tactics, techniques and procedures to set up central receiving/ shipping points, and we are working aggressively to update doctrine to reflect this. As the trainers at Fort Lee like

to say, "Lessons aren't learned until behavior is changed."

Last year, following our operations in Haiti, we employed a similar technique to conduct a comprehensive sustainment review. We helped feed, clothe and house half a million families after the devastating earthquake there, but the operation demonstrated that after all the years of war in Asia, we were rusty in an expeditionary operation in our own backyard. The Army convened a review, and the findings are now being put to good use. U.S. Army South is utilizing them to better prepare for similar future contingencies, and the G4, Federal Emergency Management Agency and Army Logistics University developed the Interagency Logistics Course to provide cross-cultural training to all services and interagency logisticians. In addition, the joint staff and the U.S. Department of State are identifying ways to provide aid more efficiently, and the U.S. Agency for International Development is assessing its disaster relief efforts.

The shape of sustainment tomorrow. All of this is just a part of how we're shaping sustainment for tomor-

row. The rate of change, tempo and unpredictability that will characterize the future environment make it clear we are launching into a new era in sustainment planning, execution and management. We must continue to mature existing sustainment processes and platforms while seeking innovations, some of which will be displayed at our sustainment symposium exhibit this month. The sustainment community has opportunities to apply innovative solutions to complex problems that run the gamut of sustainment processes, not just traditional combat service support functions. To ensure continued success, sustainers must focus their attention on the nexus of technology, organizations and processes that will reduce demands on manpower while improving the reliability, maintainability, sustainability, awareness and operational readiness of the force. ★ ★

Editor's Note: This article is reprinted with the permission of the Army magazine. It was originally published in the May 2011 issue of the Army magazine.

Battlefield Forensics:
Dynamic Adaptation of a Company-Level Task Force

By CPT Victor R. Morris

The contemporary operating environment (COE) offers fans of 'NCIS' and the 'CSI' television series a chance to do some forensics of their own on the battlefield. This is possible through company-level exploitation-task-force operations, which offer a tactical way to target and prosecute 'bad guys' through a company's rapid-response and organic exploitation capabilities.

SGT Kyle Schmidt, a team leader with Company F, 52nd Infantry Regiment, 2nd Battalion, 12th Field Artillery Regiment, 4th SBCT, 2nd Infantry Division, rolls up rounds to turn in. (Photo by SGT Kimberly Johnson, U.S. Army)

A company is able to quickly exploit priority events and offer tactical solutions to enemy-related problems. This mission is vital during the responsible drawdown process in setting conditions for the Iraqi Security Forces (ISF), supporting the rule of law and maintaining situational awareness of the battlefield. Through close working relationships with expeditionary-forensics specialists, a maneuver Soldier becomes a forensic analyst, coupled with his maneuver expertise.

Conditions generating COE. The U.S. Army's authority to unilaterally apprehend and detain insurgents in Iraq expired in January 2009. This mandate occurred almost seven months before the historic June 30, 2009, withdrawal of U.S. forces (USF) from Iraq's cities – changes encompassed in the current United States-Iraq Status of Forces Agreement. The post-June 30 COE rapidly catalyzed the axiom of working by, with and through the ISF.

Implementing this axiom was a significant paradigm shift for USF operations and for situational understanding and awareness of the battlefield. The principle of working by, with and through the Iraqi ISF is executed at all echelons of partnerships and Joint operations, but specifically in expeditionary forensics. In the post-June 30 COE, tactical battlefield-forensics operations are decisive at company level because they facilitate overall execution of the brigade combat team's warrant-based targeting and prosecution task force (TF) model.

***Fierce* Company's experience.** This article outlines the exploitation task force (ETF) mission of *Fierce* Company, 52nd Infantry Regiment, during late Operation Iraqi Freedom in 2009-10.

Fierce Company's mission was to execute full-spectrum ETF operations in western Baghdad, a dense urban area with a population of more than three million. The mission evolved from months of enduring force-protection patrols and joint operations in the battalion's operational environment. When *Fierce* Company was designated as the decisive operation for Task Force Viking's quick-response unit, the company was attached to TF Viking — 2nd Battalion, 12th Field Artillery Regiment, 4th Stryker Brigade Combat Team, 2nd Infantry Division — while conducting operations. Thus the ETF mission truly became a combined-arms mission.

Fierce ETF's overall purpose was to rapidly secure, preserve and exploit enemy attack sites. The ETF's platoon leaders facilitated security at and exploitation of sensitive sites once trained in the mission's intent of taking advantage of a situation for tactical and/or operational gain. The mission included exploiting media, documents, explosives, ballistics, intelligence, biometrics and people of interest.

ETF models. The stated end state for ETF operations clarified a dual purpose: one overarching purpose was to implement an effective site-exploitation model, leading to further intelligence and targeting to assist and protect the ISF and local population; and the ETF's second purpose was to establish an effective partnership with ISF to build their forensic and targeting capacities. We also hoped *Fierce* Company's work would generate a concise model that U.S. advise-and-assist brigades could use during the responsible drawdown of forces.

The standard targeting methodology that *Fierce* Company used was itself modeled after 'find, fix, finish, exploit, analyze,

Soldiers with Company F, *Fierce* Company, 52nd Infantry Regiment, 2nd Battalion, 12th Field Artillery Regiment, 4th Stryker Brigade Combat Team, 2nd Infantry Division, United States Division-Center, cross the border into Kuwait, symbolizing the end of their year-long deployment and the departure of the last of the combat troops in Iraq. (Photo by SGT Kimberly Johnson, U.S. Army)

disseminate, prosecute,' or F3EAD-P. This model marked the first deliberate application of evidentiary-based targeting and detention at company level.

The final step in the F3EAD-P targeting model, as mentioned, is prosecution. The intent of this step, of course, was to convict insurgents through the Central Criminal Court of Iraq. In this environment, forensics became the key component to aid in convictions when presented as evidence to Iraqi judges.

Task-organization changes. *Fierce* Company introduced task-organization changes at platoon level based on the fundamental tenets of ETF operations:
- Analysis of the threat, combining offensive operations with the ISF;
- Maneuver-element responsiveness;
- Sensitive-site exploitation.

The platoons were primarily responsible for Tier I exploitation, analysis and dissemination. In some tactical scenarios, they assisted in finding, fixing and finishing the enemy. As the quick-reaction force, the platoons set the conditions for the combined exploitation cell and joint expeditionary forensic facilities tier II-III analysis and dissemination back to the brigade.

Because of *Fierce* Company's mission change, the unit re-task-organized into three augmented maneuver elements. The company's main efforts were the two 20-man maneuver anti-tank platoons. The headquarters platoon, led primarily by the fire support officer, redirected intelligence analysis, enemy trend identification and combined exploitation cell (CEXC) device profile

tracking. Also, the company first sergeant, senior medic, platoon sergeant and commodities sections ensured the platoons were resourced with mission-essential equipment and had counter-improvised explosive device related training.

Each of the platoon's special teams had specified tasks and purposes related to the overall targeting model and concept of the operation. Each platoon augmented with a team of battlefield forensic specialists: explosive ordnance disposal (EOD) team, weapons-intelligence team (WIT), law enforcement professional (LEP) and human intelligence collection team. These external attachments combined with the platoon's special teams, including a tactical-site-

Soldiers with Company F, *Fierce* Company, 52nd Infantry Regiment, 2nd Battalion, 12th Field Artillery Regiment, 4th Stryker Brigade Combat Team, 2nd Infantry Division, United States Division-Center, listen to a convoy brief, Aug. 16 at Contingency Operating Base Adder, Iraq, during their final convoy out of theater. (Photo by SGT Kimberly Johnson, U.S. Army)

exploitation team and detainee-operations (DETOPs) team.

Next, each team integrated, rehearsed and executed specified tasks to maneuver units. The WIT was task-organized as part of an EOD team and was responsible for collecting evidence from IEDs and other explosives sites. This was done as a subsequent measure of the overall EOD post-blast analysis and assessment of the attack and type of munitions involved. The WIT also conducted technical analysis of recovered materials for biometric collection and analysis.

The LEP was attached to a platoon's special teams. The LEP brought a developed understanding of forensics to the platoon. On the objective, the LEP was integrated into the DETOPs team. His experience allowed him to see a target's house/attack site as a crime scene. Typically, the LEP advised the special teams and platoon leader after the EOD/WIT conducted their analysis. He focused the teams on local national witnesses and

guided the tactical questioning. He was also the subject-matter expert on point-of-capture operations and adherence to the U.S.-Iraq security agreement.

The HCT's mission while conducting ETF operations was to conduct tactical questioning, atmospherics gathering and source operations at the site of recent significant activities. The HCT aimed tactical questioning at providing the unit with a more thorough understanding of the significant activities (SIGACT) and enemy actions related to it.

Source operations, when practical, allowed identification and initial evaluation of potential sources, establishing relationships to build on through future engagements or meetings – the long-term goal was to provide actionable intelligence to USF or ISF.

The DETOPs team was a transformation of an enemy prisoners of war team. This team specialized in security and small-unit tactics as they related to biometric identification. At platoon lev-

el, the DETOPs team secured the HCT and LEP as the mission dictated and deployed biometric identification-related equipment on the objective.

ETF operations. The company ETF was thus reconfigured as an autonomous battlefield multiplier, capable of dynamically reacting to various SIGACTs in the operating environment (OE). After initial company-level mission analysis, we outlined and realized tactical scenarios after 13 weeks of ETF operations. We based *Fierce* Company's ETF model on QRF responses to tactical scenarios involving troops in contact or react-to-contact battle drills (unilateral and bilateral responses).

Following are tactical scenarios the ETF encountered during operations:

• Brigade and/or battalion TF element in contact, requiring ETF support;

- Brigade and/or battalion route clearance patrol identified threat and requested ETF support;
- Non-organic brigade and/or battalion TF element in contact, requiring ETF support;
- ISF/host-nation security force in contact, requiring ETF support;
- ISF/local national agency in contact, requiring ETF support (support to the government of Iraq regarding high-profile attacks in Baghdad during the 2010 election period);
- Special operations element requiring EOD support after joint-raid or close-target reconnaissance;
- Non-military logistical convoy element in contact, requiring ETF support or vehicle recovery;
- ISF battlespace-owner link-up after a successful cache seizure to facilitate higher-echelon exploitation. (This included the link-up, reception and transfer of explosive material from an ISF location to CEXC laboratories for analysis.)

These missions required a variety of coordinating instructions. During execution of the ETF mission, platoons conducted 24-hour QRF rotations staged at an Iraqi army division's joint security station, further enabling partnership, access and an opportunity for joint responses. Staging time was based on threat analysis and enemy IED emplacement windows.

Fierce Company's headquarters remained at the command post (CP) and executed command-and-control operations as required. The CP facilitated higher-echelon reporting, enabler support, intelligence-and surveillance-asset management and logistical synchronization. The CP also enabled more frequent and detailed use of the Tactical Ground Reporting System for post-operation site-exploitation reports, SIGACT mapping, enemy trends and overall CEXC case tracking. Of course, company headquarters and the intelligence-support team remained at an elevated readiness status in the event multiple platoons deployed to multiple SIGACT locations.

Fierce Company ETF operations spanned the limits of the battalion's sector. During multiple operations, *Fierce* Company's platoons crossed adjacent battalion boundaries and coordinated with adjacent units. This freedom of maneuver allowed the company to partner with multiple Iraqi army battalions across two Iraqi army brigade sectors and to foster a positive working relationship. This relationship led to requests for support and information dissemination from Iraqi army battalion commanders. Through this interaction, *Fierce* Company was able to coordinate directly with the battlespace owner while simultaneously relaying information to the joint operations center and battalion's tactical operations center. The vertical and parallel reporting via multiple mediums directly contributed to the mission's effectiveness.

Full-time ETF matters. The ability to execute the ETF mission full time was decisive to the brigade's and battalion's campaign plans for many reasons. One, after *Fierce* Company received the mission, the unit began immediately to exploit IEDs and explosively formed penetrators along one of the main supply routes in the battalion's sector – these devices presented a significant threat to USF traveling the route. This shift in mission was a brigade initiative to target the insurgent network and get 'left of the boom' in the post-June 30 OE.

Two, both the brigade and battalion commanders were adamant about expeditionary forensics and their relationship within the brigade prosecution TF model, which directly corresponded to ISF partnership and capacity-building. The commanders' intent was translated at all levels as platoons responded to SIGACTs in the OE.

Three, full-time ETF enabled the platoons to offer SSE for a dual purpose. The first purpose was to secure the site and support the unit in contact. The second purpose was to deploy the platoon's special teams to exploit the site. The special teams used a variety of sources to concisely assess the attack; the ETF was able to assess the type of device, method of emplacement angle, method of initiation, location of initiation, battle damage associated with the device and biometric evidence.

Four, each element's work was vital. The HCT and LEP exploited local national witnesses and received reports from ISF in the area. Once the site was cleared, the ETF confiscated any forensic material from the attack for analysis. The CEXC received that material for analysis after Tier I analysis was completed. Depending on the incident's priority, a CEXC case could be populated in 24 to 36 hours, with biometric analysis following. If there was a biometric match, the unit began the additional phases of the targeting cycle and preparation for warrant facilitation.

The ETF's role wasn't limited to quick response to SIGACTs; for example, it collaborated with an Iraqi army EOD battalion and executed joint training and responses.

ETF successes. One of the main functions of the ETF's exploitation focus was to liaise with EOD units to coordinate the transfer and follow-on analysis of cache materials seized during offensive operations. One event led to the analysis and exploitation of the largest IED cache found in the battalion's OE.

From April 13 to July 19, 2010, *Fierce* Company's ETF facilitated creation of 29 CEXC cases for follow-on exploitation in conjunction with technical analysis to protect against remote-detonated IEDs.

Also, one of the ETF platoons biometrically confirmed the identity of an al-Qaeda-in-Iraq leader after the Iraqi army detained him and he was transported to a hospital. The ETF's quick-response mission enabled higher-echelon leaders to coordinate joint interrogation and transfer the high-value individual to the proper authorities for prosecution.★★

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Paladins from A Battery, 1st Battalion, 82nd Field Artillery, fire a multiple round fire mission in the Udairi Range Complex, located in Kuwait, during section certification and qualification. (Photo by SPC Christopher Holmes, U.S. Army)

Lessons Learned from Operation Spartan Shield 2012

By CPT Timothy J. Martin

With the termination of Operation New Dawn, the 1st Battalion, 82 Field Artillery (FA) had an infinite world of possibilities. The future was not clear; the initial concern was safely closing Contingency Operating Site Echo in accordance with the USF-I established timeline and moving millions of dollars worth of equipment and thousands of men and women from the base, while trying to maintain critical infrastructure for as long as possible and trying to get the Iraqi government to cooperate with the closure and signatory process. The mission was no small feat. As we entered our Caiman vehicles late in the cold desert night of December 17th, we literally and figuratively drove off into the darkness. When we awoke and gained

our footing, the members of A Battery, 1-82 FA, found themselves at Camp Buehring, Kuwait, with a general look of disbelief. What had happened and what are we doing? Or more poignantly, what is next? What we quickly realized is that this mission, our new mission, which would be acting as a strategic reserve; would provide us a situation in which we will likely never see again, unobstructed training time with a significant resource advantage. The framework for training that we in A Battery followed was deceptively simple; fire control alignment testing, section training, Table V/VI (section dry fire training and live fire exercises), a platoon FTX, and Table XII (platoon certifications by the battalion commander) all within a two and a half month period. What follows is a description of what we did well and why, and what we did poorly in hopes that future units have the opportunity to learn from the mistakes made from those in the first iteration of Operation Spartan Shield (OSS).

Framing the problem. I did not have a background in cannon artillery. I believe an objective assessment of one's strengths and weaknesses is a fundamental part of individual evolution and improvement, and I, as an officer in the Field Artillery, had a void in individual training in the area of cannon artillery. My individual background was from the Fires brigade via MLRS, which I spent six out of the previous seven years of my military career. My lack of cannon experience was not an issue at first, as the battalion was in the final days and hours of Operation New Dawn, focused on the safety and security of the remaining forward operating bases (FOBs) while moving millions of pieces of equipment south to Kuwait to be repositioned. These two missions required a great deal of

organization and planning, but neither taxed my ability to execute an artillery mission at the battery level. Once the battery arrived in Kuwait, however, the battalion commander tasked the battery leadership with planning and executing a comprehensive and an exceptional artillery training program for a Paladin unit. During this phase of the deployment, the battery created and implemented a training program which maximized time and resources available and built depth in the formation. In hindsight, we in A Battery approached the problem with a logical, rather than intuitive approach; with no background in the field to speak of, the command began to look at it strictly from a viewpoint of 'how it should be done' rather than 'how it was done in the past,' and the fact we became part of a ready reserve mission, we were now afforded all possible training opportunities to succeed in the mission at hand. The following is a series of lessons learned by evaluating the totality of the deployment.

Start with a clear vision, clear objectives, and a clear baseline. The months spent in Kuwait provided the unit with a rarity in the modern Army era of endless ARFORGEN cycles and punctuated deployments. The battery was provided the luxury of time; time in which the focus of the brigade, down to the section, meshed and coalesced around one focal point. The focal point was training the force in core competency tasks. COL Scott Efflandt, the brigade commander, stated what would become the mantra of the unit, "Kuwait would provide the small unit leader [platoon leader and platoon sergeant] an opportunity to get back to the basics and to learn to plan and execute and evaluate training of [their] element". But how can the platoon leader execute training if the commander does not provide him with purpose and direction through a clear achievable vision for them to follow? The broader idea was to reconnect the leader with the tribal knowledge that we have lost as an organization throughout the course of 10 years of conflict. Documented and undocumented TTP's passed from generation to generation of leader with a history rooted deeply in the high intensity conflicts of the early/mid 20th century. Regaining what was lost in tribal knowledge would be a notable, albeit daunting; task as well. De-

veloping a vision would become step one of the planning priorities upon the battery's arrival to Kuwait. The battery's vision was a simple mission statement in five areas: core competency development, property accountability, Soldier and leader development, Family readiness, and maintenance. For simplicity sake, the battery used a training plan that arose from planning field exercises during the 'core competency development' portion of the overall vision. To achieve the goals of the vision, we created a logical, achievable framework that met the overall mission of the battery. The vision in turn is nested with the mission of the battalion and brigade based on resources available and time. In the grand scheme, as mentioned in the introduction, our mission essentially transformed overnight from security to becoming a ready reserve. A ready reserve can only exist if the unit is trained to fully execute its wartime mission at any time. So, intrinsically, it would be criminal mismanagement to not train to the fullest. In short, in the words of the brigade commander, we would become the "Best trained brigade in the United States Army" which was no small feat. The framework for training was simple: vehicle draw, fire control alignment tests (FCAT), section training, Table V/VI, platoon FTX, Table XII platoon lanes. The timeline we would accomplish these tasks in was a little over two and a half months. The end state of each operation became critical; what specific missions were we looking to train on during each event, and could we accomplish them with the rounds at hand? If the answer is 'no,' then can the training objective lost be mitigated through other training, or could the training be accomplished dry rather than with live rounds? Finding the heart of the objective was second nature as we began to develop a list of tasks we wanted to train on and methods to train on them when rounds were unavailable. Platoon leaders and platoon sergeants became the crux of the idea generation process as they began to develop the skills to objectively identify the strengths and weaknesses of their platoon and plan training accordingly. Table V/VI is inherently a slow process, and in the 'down time,' platoon sergeants and platoon leaders pushed the unit to establish a baseline for training evaluations. The battery

would run through occupations over and over; hip shoots in and outside of the goose egg became routine. Once we had established the evaluation baseline, we were able to effectively create a battery planned platoon FTX (a precursor to Table XII) with effective training goals in mind. The training baseline was critical and could only be established through an actual evaluation of skills beyond Table VI (think of it like a diagnostic physical fitness test) administered by the platoon sergeant, which gave us the ability to move forward without acting blindly.

Build depth. Ironically, the very first of the 'on orders reports' (reports

dictating the future permanent change of station (PCS) moves of our Soldiers upon redeployment) arrived shortly before our first field exercise, and this simple paper (known colloquially as the 'take out roster') helped to shape one of the primary objectives of the next four months of training. This report, when distilled, told me that I would be losing the vast majority (six of eight) section chiefs within five months of redeployment, and I would be losing both of the FDNCOs in a similar time frame. Depth and redundancy became critical. The Army of eras past would train Soldiers on how to perform the job of their immediate superior seamlessly, so if that leader should fall in combat, the mission would continue. Training to the next level of tactical leadership has been lost in the modern Army. Many NCOs and officers teach their subordinates the garrison tasks of the next position (evaluations, supply actions, etc) as they are required and tested on a promotion board, but leaders often fail to teach Soldiers the tactical skills that distinguish a section chief from a gunner, or a gunner from a number one man, or even a platoon leader from a battery commander. Leaders across the Army have failed in this regard to plan ahead, and instead we default back to the mantra of "he can do on the job training once he gets promoted, just like I did; I'm too busy." What if you are not too busy to train, as was the case in our Kuwait experience; what if training was the focal point of the deployment, rather than an after-

A gunner from A Battery, 1st Battalion, 82nd Field Artillery, sets the collimator during an occupation at sundown during a platoon field training exercise in the Udairi Range Complex, Kuwait. (Photo by SPC Christopher Holmes, U.S. Army)

thought? What would you teach the next generation and how would you teach?

The battery used the training time provided to us during the platoon FTX to certify multiple different Soldiers in multiple different positions, often changing position from training iteration to training iteration. Altering the personnel participating as part of the training method accomplished several objectives. First, the training the battery conducted took Soldiers outside of their comfort zone and caused junior leaders to think about the battle beyond their sphere of influence, looking at how their individual piece fits into the entire operating environment. Secondly, the training built confidence in the future section chiefs of future artillery battalions in a limited stress and low consequence environment. The value of the depth built within the battery formation cannot be understated and may not be seen to its full fruition for years to come. Finally, training to build depth allowed crews to develop and refine TTPs of what works and doesn't with a serious eye toward bottom up refinement, something that is often glossed over in lieu of expeditious and 'smooth' results. To facilitate the 'building of depth,' the battery leadership lifted some of the pressure as leadership accepted the fact that by alternating crew positions we may not see the quickest fire mission or smoothest occupation, but by doing so we acknowledge we may be paid dividends in the long run as the Soldiers who were able to experience this training become leaders of units throughout the Army. In effect, the battery was sacrificing speed for building depth in the formation through cross-training.

Force conditions. The training value of our FTXs during Operation Spartan Shield was heightened by incorporating continuous changing conditions. Looking at a basic event, such as occupation, we would initially practice occupation in a single firing point or PAA (position area for artillery) several times until the senior chief became comfortable giving the commands to the remaining chiefs. The battery used time standards to make initial judgments on the success of the occupation drill, but eventually we moved on to using abbreviated after action reviews (AARs) in order to determine success once the

sections understood the right way to conduct an occupation. We found that a Soldier or NCO who remains engaged in the training event becomes the most brutally honest critic of his performance and the performance of the unit as a whole. Further, a simple way to keep Soldiers engaged in the training process is to make them feel as though they are crucial members of the team; and this can be accomplished by incorporating them in AARs, and following suggestions they may provide. If a Soldier feels as though he is needed and his skill is important to the success of the mission, he will try just a little bit harder, and the platoon and battery will reap the results. Further, AARs and training conducted in this manner help to create and maintain the core of shared interests and common experience at all levels of Soldiering that is crucial in rebuilding the tribal knowledge of the small unit. Units designed to operate in small elements use this technique often, but it is rarely seen at the battery or platoon level in artillery. Field Artillery units tend to force operations with a platoon/battery mindset, one in which the opinion of the Soldier on the battlefield may be lost in the mix. Once we established a consistent level of training proficiency, we could change the training conditions (day to night, section and platoon leadership) to provide a better or more realistic experience. Initially, the conditions change was as simple as moving from daylight to night, but the training event was still an artificial scenario and felt scripted. We then forced occupation by rigidly enforcing survivability criteria during the platoon FTX, which caused the platoon to be constantly occupying and conducting march-order operations. Although the survivability criteria rapidly exhausted the platoon, the overall response was encouraging; feedback from the Soldiers was roundly positive. Most Soldiers stated that through repetition they not only felt like we spent their time well, but they also learned techniques to speed up the process each subsequent time.

Look at the chief as more than just a PDFCS operator. In the attempt to build depth within the formation, we looked to give as many junior leaders the ability to certify as a section chief as possible. The result that came from this action was twofold. The first reac-

tion was a positive groundswell within the formation from the Soldiers as they realized that their leadership was taking a vested interest in their career progression; therefore, they became more professionally engaged and routinely provided positive feedback to the training. The junior Soldiers in A Battery saw a climate change within the formation: upward mobility is not only possible but encouraged, and moreover, we as the battery leadership are providing the opportunity for that advancement. Secondly, the junior chiefs, it is believed, will provide us with the longevity to get the battery beyond the times when the current section chiefs (E6 and senior E5) PCS to other duty stations in accordance with the 'on orders' report. During the certification and qualification process the battery used the Table V process to impart basic knowledge to the new chief, while using the 1SG (who was master gunner trained) to check the crew drills and procedures. The advice was universal. A chief is not just a PDFCS operator; in fact, this is perhaps the most minor of his duties. The chief is responsible for everything occurring within his vehicle, responsible for knowing the safe practices of his subordinates up to and including their very lives. Being a chief is a major change in the world of the non-commissioned officer and must be viewed as such. Mastery of the PDFCS is minor in comparison to mastery of the section. In February 2012, A Battery received the task of training a National Guard unit (1-125 FA BN MN ARNG) on Table V/VI tasks, culminating with Table VI execution in early February 2012. A Battery received notice that they had limited skills in regards to artillery, as most had been tasked to 'in lieu of missions' (convoy and area security) over the past several years, their motivation and dedication as Soldiers, however, was unwavering and unquestionable; they just required some practice. The training NCOs of A Battery had a wakeup call when they discovered that some of the National Guard sergeants and staff sergeants had not fired cannons since AIT. The A Battery leadership provided the same advice as before: section chiefs, gunners, number one men, and drivers are not mutually exclusive positions. The most critical element we drilled into the 1-125 FA section chiefs was that they must

look beyond the PDFCS and understand the duties and responsibilities of everyone in their vehicles, as well as ensuring that they fire every round safely. A commander providing advice to a chief seems simplistic, but to a junior NCO with little experience in supervising a Paladin section, just taking a moment to explain the expectations of the job may make the difference between a successful and unsuccessful crew.

Skills migration. Skills transference and migration from a maneuver mission to an artillery mission proved to be significantly more difficult than anticipated. The battery leadership believed that the skills migration would be a simple matter of moving successful TTP's from one venue to the next, but in reality, the transference of TTPs was very much the opposite. In truth, the battery never fully achieved the incorporation of learned experiences and TTPs gained in Iraq to the artillery core competency training that was conducted in Operation Spartan Shield. Soldiers in A Battery executed a mission consisting of counter indirect-fire (IDF) patrolling in an area west of Contingency Operating Site (COS) Echo, in Diwaniah, Iraq, for six months (JUL-DEC 2011). During this time, the battery would conduct approximately three patrols per day, covering high threat windows in both daylight and night-time hours. As a result, A Battery became very proficient at their skill set of mounted maneuver. Yet the very same Soldiers that were able to plan, organize and execute a security patrol in Iraq, failed on basic tasks during platoon lanes (Table XII) because they did not incorporate lessons learned in a counter insurgency environment to their parallels in a high intensity conflict environment. The situation was a sincere mental disconnect between the leadership in a maneuver environment as opposed to the leadership in a gun section. For example, during the Table XII platoon lanes, the platoon would complete a point-to-point move in preparation of a time on target mission. Part of the task was to find and execute an R3SP, but during this time, they would be aggressed by a small OPFOR element. The purpose of the OPFOR was to test the platoon's ability to defend themselves, as well as demonstrate the vulnerability of the R3SP process. The unit would incur casualties, and the pla-

toon would execute casualty evaluation and care. The situation of both platoons became confused once aggressed, and casualties occurred. This event would have been the first time that the platoon defense plan was tangibly tested by an enemy, albeit a fairly benign enemy. When casualties occurred, the platoon brought the medic on scene and rendered aid accordingly, but the platoon took an inordinate amount of time moving casualties to a MEDEVAC site and sending up the MEDEVAC request. Further, the actual defense of the platoon was hasty despite the fact that they had been briefed on an enemy threat that included small unit attacks very similar to the type that caused the damage during the training event. During the AAR, the battery leadership discovered that the defense plan of the R3SP was not discussed during the movement brief, and we did not dedicate a combat casualty care plan, no LZ marking team, no primary/alternate aid and litter teams. As the commander, I was quite surprised. This same platoon would have never considered going outside the wire during a mission in Iraq without identifying and rehearsing actions on the objective and combat casualty care before the mission. How were such critical lessons overlooked? I believe the failure has to do with an administrative mindset that Soldiers and leaders use when looking at all training events following 10 years of continuous deployment. This again harkens back to the loss of small unit level tribal knowledge, 10 years of deployments have disconnected the artilleryman from the tribal mind and replaced that knowledge with pro-forma training. In criticisms of the No Child Left Behind Act, teachers in the United States were often accused of 'teaching to the test,' yet we are often guilty of the same crime in the Army where we so often 'train to the deployment' (the proforma training mentioned earlier). As a result, Soldiers have created a mental rift between 'deployed tasks' and 'training tasks;' and the sweet spot of training exists when a small unit is able to integrate successful lessons learned into future events, even if the TTP transcends a maneuver mission to an artillery mission. This is the level of tribal knowledge to which all small units can aspire. The disconnect between training and deployment was too great, in this

case, and it took a very difficult casualty evacuation as the wakeup call that some lessons of deployment are better when not forgotten.

Survivability. A Battery grew to observe that Soldiers see the training environment as something that should look a certain way, and that spectrum of comfort was difficult to break. Take for instance the positioning of the platoon FDC within the goose egg. The actual positioning of the FDC would be dependent on mission, enemy, terrain and weather, troops and support available—time available, civilians (METT-TC), and the two main drivers of the specific positioning of the FDC would be a) enemy threat, and b) ability to achieve and maintain voice and digital communications with higher and subordinate elements. During the platoon lanes, it was observed that the platoons often failed to maximize on the land space available and chose instead to position the FDC in the center of the goose egg, regardless of the threat level, which often meant placing the FDC in low ground when it could have easily have been placed on the reverse slope of a nearby hill, from which it would have been easier to defend and communicate. The enemy threat was briefed as minimal during this phase of operations. During the AAR, my fire direction officer (FDO) told me the reason the FDC was positioned center mass of the platoon is because that was how FDC operations were trained during the earlier occupations. Leadership failed to understand the broader spectrum of 'why' and reverted back to the way it had always been done: firebase style with the FDC dead center. Further, direct fire defense plans were often misunderstood, leading to the belief that in order to provide security with a crew served weapon (M2, MK19), the vehicles would need to be within 50-100m of each other. The crews had yet to learn that if they took advantage of the maximum effective range of their crew served weapons, they can cover a much greater area and avoid getting a platoon bunched up in a 600 meter radius operations area.

The battery learned a valuable lesson from one element in particular during the platoon lanes (Table XII). The 2/A platoon was tasked with completing an artillery raid type mission in which they would execute a night-time movement

to a PAA and fire a time on target (TOT) mission at first light. The platoon would execute a re-arm, re-fuel, re-supply, survey point (R3SP) en route and, after firing, initiate a retrograde movement of about 30 kilometers back to the main battalion tactical assembly area (TAA) for an AAR. When the platoon reached the PAA, the battery quickly realized that we could not establish digital communications with the battalion FDC at a location which was around 20 kilometers away. Voice radio communications were extremely weak and broken, creating a situation that is inherently unac-

A Paladin from A Battery, 1st Battalion, 82nd Field Artillery, fires a high angle fire mission in the Udairi Range Complex, Kuwait. (Photo by SSG Joseph Metz, U.S. Army)

ceptable in artillery missions: isolation from the unit higher headquarters. The platoon executing the raid was left with a choice to either fire the TOT, or stand by and miss the artillery raid rounds on target window. In a true combat scenario, the decision would be equally as wrenching; if the unit fails to fire on the target because they cannot achieve communication with the higher headquarters, then (in this case) a suppression of enemy air defense (SEAD) target would not have been neutralized, and an air weapons team would have faced enemy air defense completely unaided, possibly leading to mission failure and unnecessary casualties. In a combat scenario the answer was simple, fire the target, but what if the enemy position has moved, or the airstrike had been called off? Then the platoon would be giving away its position over nothing and possibly put the entire platoon at risk. Decisions such as these are the type of life or death decisions that the leadership of small units must make on a regular basis, and truly there is no right or wrong answer; it is all situational dependant. The battery left one element conspicuously out of the equation. The PACE plan was not followed by either the platoon or the battalion. Secure FM communications were the only ones attempted during the raid mission, despite the fact that there was a BFT not 20 meters away from the FDC on both ends. Tunnel vision had set in, and the units became fixated on troubleshooting the radio, rather than attempting other means. Simple fixes are often overlooked when the intensity of training is slowly ratcheted up. The institutional basics are often overlooked because of an increased dependency on the 'old reliables' like FM communications. Again, it is a 'deployment vs. training' mindset where Soldiers and leaders have come to believe that training must look a certain way; because it is what was done in past training events. On a combat mission in Iraq, the very same platoon would have instantly attempted BFT communications check. However, during this FTX, a communications resource remained untouched, because we have grown to believe that training must look exceptionally different from deployments rather than be an extension of deployments.

Break the firebase mentality. We can say without reservation that the integration of mobile Fires and maneuver in the combined arms fight has been a stagnating skill in the last 10 years of conflict. During the brief interlude between deployments, artillery units would often train to Table VI tasks, certify during a Table VI LFX and then become a static training tool for the overarching maneuver command. Moving as a unit and learning to fight as a battery were considered 'backburner' tasks that were secondary to conducting fire support team (FiST) certifications and maneuver-shooter training. When deployed, even heavy brigade combat team (HBCT) artillery elements who were actually executing their core military occupational specialty (MOS) tasks (providing indirect-fires) were always relegated to the FOB, firing from a static firebase location on a major base. Static positioning put most HBCT artillery organizations at a disadvantage, as they had forgotten how to move as a unit and fight as traditional direct support artillery organizations were designed to fight. As such, effective movement became a major training objective within the battery, to break the firebase mentality and use the mobility of the Paladin to its fullest. In Kuwait, we had a resource more valuable than virtually any other… land space. The vast open deserts of the Udairi Training Area gave platoon leaders an opportunity to move their units constantly, drilling them on tactical movement and formations. Movement was shaky at first, but by mid-February (two short months after our arrival) during training it was not at all uncommon to see a platoon moving across the desert in a tactical wedge. Tactical movement became so routine, in fact, that by March, no one in a leadership position would even need to dictate the method of movement from point to point; chiefs understood their role in the mission and had become experts in mounted land navigation as well as mounted maneuver. The leadership learned the value of communication within the formation, maintaining spacing and sectors of fire by the senior chief taking charge of the group. In order to do new things, all the chiefs needed was the opportunity, a little lesson on the right way to move, and the space in which to do it.

In the end, the Army leadership has not determined the operational and strategic success or failure of our mission in Operation Spartan Shield, and the result may not be determined for years to come. However, I routinely hear from Soldiers that despite the hardships of Kuwait, the heat, the wind and dust, the uncertainty of the future, this time was some of the best training they had ever experienced in the their time in the Army as artillerymen. Operation Spartan Shield rejuvenated the old NCOs and energized the Soldiers. Our time in Kuwait pushed Soldiers and leaders outside of their comfort zone, and, for one battery at least, Operation Spartan Shield began to dismantle years of nonstandard mission sets and deployments. All-in-all, everyone learned something. Perhaps in the end that is the most important lesson of all. ★ ★

Captain Timothy J. Martin is a native of Midland, Mich. He graduated from Michigan State University, in 2005 with a Bachelor of Arts in International Relations and following Officer Candidate School was commissioned as a second lieutenant in the Field Artillery. Following the Field Artillery Basic Officer Leader Course, Martin was assigned to C Battery, 1st Battalion, 38th Field Artillery Regiment (MLRS), 210th Fires Brigade, in Camp Casey, Korea, where he served as a platoon leader. Martin then moved to Fort Hood, Texas, where he was assigned as a platoon leader to B and C Batteries, 1st Battalion, 21st Field Artillery Regiment, 41st Fires Brigade. Martin deployed in support of Operation Iraqi Freedom 08-09. In April of 2009, Martin took command of C Battery, 1-21 FA. He remained as the commander until May of 2010. Following FACCC, Martin returned to Fort Hood and was assigned to 1st Battalion, 82nd Field Artillery Regiment, 1st Brigade Combat Team, 1 Cavalry Division, where he was assigned as an assistant operations officer. Martin then deployed with the Ironhorse Brigade in support of Operation New Dawn 11-12. Martin took command of A Battery, 1st Battalion, 82nd Field Artillery Regiment in November 2011. He is currently deployed in Kuwait in support of Operation Spartan Shield. Martin's military education includes Officer Candidate School, the Basic Officer Leader Course II, the Field Artillery Basic Officer Leader Course, the MLRS Leaders Course and the Field Artillery Captain's Career Course.

2-44 ADA Sling Load Avengers

By 1LT Brian J. Nilles

This spring, 2nd Battalion, 44th Air Defense Artillery Regiment sling loaded an Avenger Air Defense System for the first time in more than 10 years at Fort Campbell, Ky.

The sling load training was part of the 101st Sustainment Brigade's Mungadi event that took place April 30th thru May 4th.

The battalion selected C Battery to train the Mungadi participants, who were company grade officers and noncommissioned officers (NCOs) throughout 101st Sustainment Brigade who conducted the sling load operations using an Avenger.

A large amount of coordination and preparation went into planning and executing the training. Everything, from researching specific Avenger sling load requirements, to coordinating with an Army CH-47 'Chinook' helicopter took place before the training event.

"The Avenger has not been sling loaded in 10 years here at Fort Campbell. On May 3rd, 2012, SGT Jenkins and I felt like we made history," said SGT Blaine Jeffrie, C Battery trainer.

"Prepping for the class was hard; we didn't have a lot of experience in our battalion with rigging or sling loading the Avenger." Soldiers from the entire *Strike Fear* Battalion contributed to making the training a success. 1LT Jonathan Wood, a recent Pathfinder graduate, helped the trainers prepare the class and was also the load inspector, insuring that the rigged Avenger was safe to attach to and be lifted by the Chinook helicopter.

SGT Jaron Jenkins, C Battery trainer, and Jeffrie taught their sling load class more

Two UH-47 Chinooks prepare to land sling-loaded Avenger weapons systems to Landing Zone Summer Eagle at Fort Campbell. The 2nd Battalion, 44th Air Defense Artillery Regiment, 101st Sustainment Brigade, conducted sling load training on the weapons system as part of their re-familiarization of their basic mission. (Photo by SFC Peter Mayes, U.S. Army)

than eight times. After receiving the initial class, participants inspected the load for any deficiencies that would make the Avenger unsafe when lifted into the air.

"Anytime you get to work with helicopters, it's an exciting experience. Learning to sling load various types of Army equipment was something unique because it is not something you work with on a day-to-day basis," said 2LT Leeann Craig, a trainee for the sling load class and C Battery platoon leader.

Students were able to hook up the Avenger to the Chinook helicopter more than seven times during the training. Though there is more than one way to sling load the Avenger, trainees were taught using 25,000 kilograms (25K) sling legs (a set of four sling legs with each leg capable of supporting 6,250 pounds individually), cargo hook reach pendant (CHRP) hooks, and a hook-up connection using the front and rear cargo hooks of the helicopter.

As the home of the Air Assault School, many Soldiers at Fort Campbell are air assault certified, and have gone through sling load training; however, the Avenger is not a piece of equipment that is taught at the school. The class was a great way for air assault graduates to expand and refresh their sling load knowledge, while giving Soldiers who had not previously had sling load training, an opportunity to learn the valuable skill.

2LT Mitchell Reed, a trainee with 2-44 said, "It's one thing to hear about a sling load class, but when you actually get to see an Avenger sling loaded, it really helps put our purpose into perspective. Feeling the wind off the Chinook as it made its descent to the Avenger was exhilarating. It was a good review for those with experience and a great introduction for those of us who are new."

Being able to hook an Avenger to a helicopter allows Avengers to emplace at sites that were impossible to reach before and to do so in a timely manner. Sling loading is a great tool for short range *Air Defenders* and one that will not be going away soon.

"This event was important in rebuilding our capability to support maneuver brigades from the 101st and 82nd. It helps prepare us to assume the Global Response Force mission," said MAJ Benjamin Metzler, 2-44's S3 (training and operations officer), highlighted

Soldiers with the 2nd Battalion, 44th Air Defense Artillery Regiment, 101st Sustainment Brigade, prepare to sling-load an Avenger Weapons System to a UH-47 Chinook. (Photo by SFC Peter Mayes, U.S. Army)

how the ability to sling load Avenger systems increases air defense capabilities worldwide. "Our ability to move weapon systems from one point to another over vast distances and harsh terrain at a moment's notice is an incredible asset. We wanted to maximize the training opportunity."

"The Avenger weapon system was a very unique vehicle to sling load," Jenkins said. "I'm proud that C Battery received the tasking because it was a lot of fun as well as being a great learning experience that (SGT) Jeffrie

and I can spread throughout the whole battalion." ★ ★

1st Lieutenant Brian Nilles is the Executive Officer of Alpha Battery, 2nd Battalion 44th Air Defense Artillery in Sustainment Brigade, 101st Airborne Division at Fort Campbell, Ky. He has additionally served as a platoon leader and assistant S3 in 2-44. He has completed one overseas tour to Afghanistan during Operation Enduring Freedom from 2010-2011, leading a contingent of Soldiers in training Afghanistan's Border Police forces. Nilles is a graduate of the Virginia Military Institute, holding a bachelors degree in Psychology.

Artillerymen of 3rd Battalion, 319th Field Artillery, conduct a fire mission during their deployment in Afghanistan. (Photo courtesy of 3rd BN, 319th FA)

Artillery Intelligence:
A Look at the Counter Indirect-Fire Fight Utilizing the Force Field Artillery Headquarters Concept

By CPT William "Brett" Edwards and 1LT Christopher Mace

Within the realm of military intelligence lays a small niche portion not highly utilized within the brigade combat team (BCT) concept. This niche is 'artillery intelligence,' normally written off to the use of radars and counter fire. However, it is much more. We face a highly versatile and adaptive enemy. This is an enemy that uses multiple indirect-fires (IDF) systems, survey techniques, military deception, and complex small unit tactics to achieve his goals. An enemy such as this deserves a level of intelligence and analysis arrayed against it that is greater than what is commonly used. Recently, 3rd Battalion 319th AFAR, 1BCT, 82nd Airborne revisited the force Field Artillery headquarters concept in its mission to Ghazni, Afghanistan, and had stunning results.

Upon receipt of their mission in Ghazni (an actual Fires mission, rather than a land-owning maneuver mission), 3-319th, the *Gun Devils*, designed a staff that was made to augment the brigade with their Fires expertise. This staff included an S2 (intelligence and security staff) that was focused directly on counter-indirect-fire (CIDF) analysis and prediction. This developed into a robust set of roles and responsibilities for *Gun Devil* 2 that included: Analyzing the enemy IDF threat for the brigade area of operations (AO) based on historical trends; using historical analysis to create and refine a predictive analysis product to enable operations personnel to interdict and suppress the enemy IDF threat; assisting the brigade collection manager in arraying the correct types of intelligence and assets to most effectively confirm or deny the enemy IDF threat system; using historical data to assist the brigade sensor manager in emplacement and cueing schedule for all target acquisition systems; and lastly from the target-

Subtype	Day of Week	Hour Block	DTG Local	Point of Origin	Point of Interest	Munition Type	Target	District	Effective
RKT POO	Wed.	0400-0500	20110328 04:45:00	36Y#### ####	36Y#### ####	107 mm Rocket	FOB Name	District Name	Yes
RKT POO	Thurs.	1200-1300	20120315 12:08:00	36Y#### ####	36Y#### ####	107 mm	FOB Name	District Name	No
MTR POO	Wed.	1000-1100	20120321 10:01:00	36Y#### ####	36Y#### ####	82 mm	COP Name	District Name	Yes
MTR POO	Wed.	2300-0000	20120328 23:45:00	36Y#### ####	36Y#### ####	82 mm Mortar	COP Name	District Name	Yes
MTR POO	Wed.	0900-1000	20120412 09:35:00	36Y#### ####	36Y#### ####	82 mm	Patrol	District Name	No

Figure 1 depicts an example of collected raw data for indirect missions. Grid coordinates have been omitted for operational security.
(Illustration by Rick Paape, Jr. Information provided by CPT William Edwards and 1LT Christopher Mace)

ing perspective, he is responsible for analyzing and assessing the IDF sub-network in the AO with the cooperation of the brigade targeting officer.

The baptism by fire for this concept was undertaken at the Joint Readiness Training Center (JRTC), at Fort Polk, La., where *Gun Devil* S2 developed a method of predictive analysis taking the common elements for an IDF attack and arrayed them both geospatially as well as chronologically. Through trial and error, the process became more refined and by the end of the mission readiness exercise (MRX) the *Gun Devils* had achieved accuracy in prediction rate of 50 percent.

Method for CIDF predictive analysis: The method we devolved for CIDF predictive analysis (PA) combined simple mathematics and intelligence analysis to provide the maneuver task force commanders with a clear picture of when and where they could expect the enemy to attack. The process to get to the end product appeared to be a daunting task; however, after our initial product development, it was neither overly time consuming nor difficult to accomplish. The following is a walkthrough of the steps that were taken as we developed our products.

First, we collected historical data. For the Afghanistan theater of operations, we utilized the Combined Information Data Network Exchange (CIDNE) as it contained the most comprehensive database available. CIDNE is the significant activity report collection point for all of Afghanistan, so it contained any report on indirect-fire that had occurred since the beginning of Operation Enduring Freedom (OEF). We set the parameters of our inquiry to show every enemy IDF event over the past year in Ghazni province and then exported the data to a spread sheet.

Once the raw data was collected, it was then filtered for useful information such as the weapon system used, location of attack, and date time group (DTG) of attack. This is a time consuming process; however, the end result was the foundation used for the rest of the deployment. The finished product was a useful spread sheet that was sorted and filterable by the following key inputs: point of origin (POO), point of impact (POI), event type, event subtype, hour block of occurrence, day of the week, DTG local, munitions type, target, effectiveness and AO/district. See example in Figure 1 above.

Once the data was in the spread sheet, we began to further dissect the data and see when the enemy was attacking with IDF. This was accomplished by creating two simple X/Y axis bar graphs. In one graph X = day of the week and Y = number of attacks, and in the other X = hour of attack and Y = number of attacks. When this was done for a particular target set forward operating base/combat outpost (FOB/COP), a very clear pattern of high threat days and times were defined. This information was given to task force commanders, providing a solid analytical basis of when they could expect to be attacked. (See fig 2. Charts for IDF ATKs by Day/Time)

NOTE: Current threat reporting must enter into your PA. As our situational awareness of the brigade AO increased we were able to pick out a number of indicators for multiple sources that would lead us to include attacks outside of normal threat windows into our PA.

Once it was understood when the enemy would attack, we had to determine from where they would attack. To accomplish this, and to find clusters of activity, we took the point of origin (POO) and point of impact (POI) data, from our base spreadsheet, imported it into the Architectural Graphical Information System ArcGIS/ArcMap (any common graphic mapping software will accomplish the same thing). This provided a historical picture of where the enemy had been shooting, as well as insight on his likely IDF emplacement techniques. Creating density plots of these areas was a great visual tool that helped us communicate to commanders where the threat was located.

At this point we established when, where, and how the enemy was going to employ his IDF assets. The challenge was finding an easy-to-understand graphical depiction to represent the information. Additionally, it had to give commanders enough time to use the information. A seven-day IDF event template was chosen. This format communicated all the pertinent information to commanders in enough time to array intelligence surveillance and reconnaissance (ISR) and patrols against the threat. Figure 4 depicts an example seven-day indirect-fire template report.

With the PA foundation complete and disseminated, we expanded our analysis to include IDF cache locations.
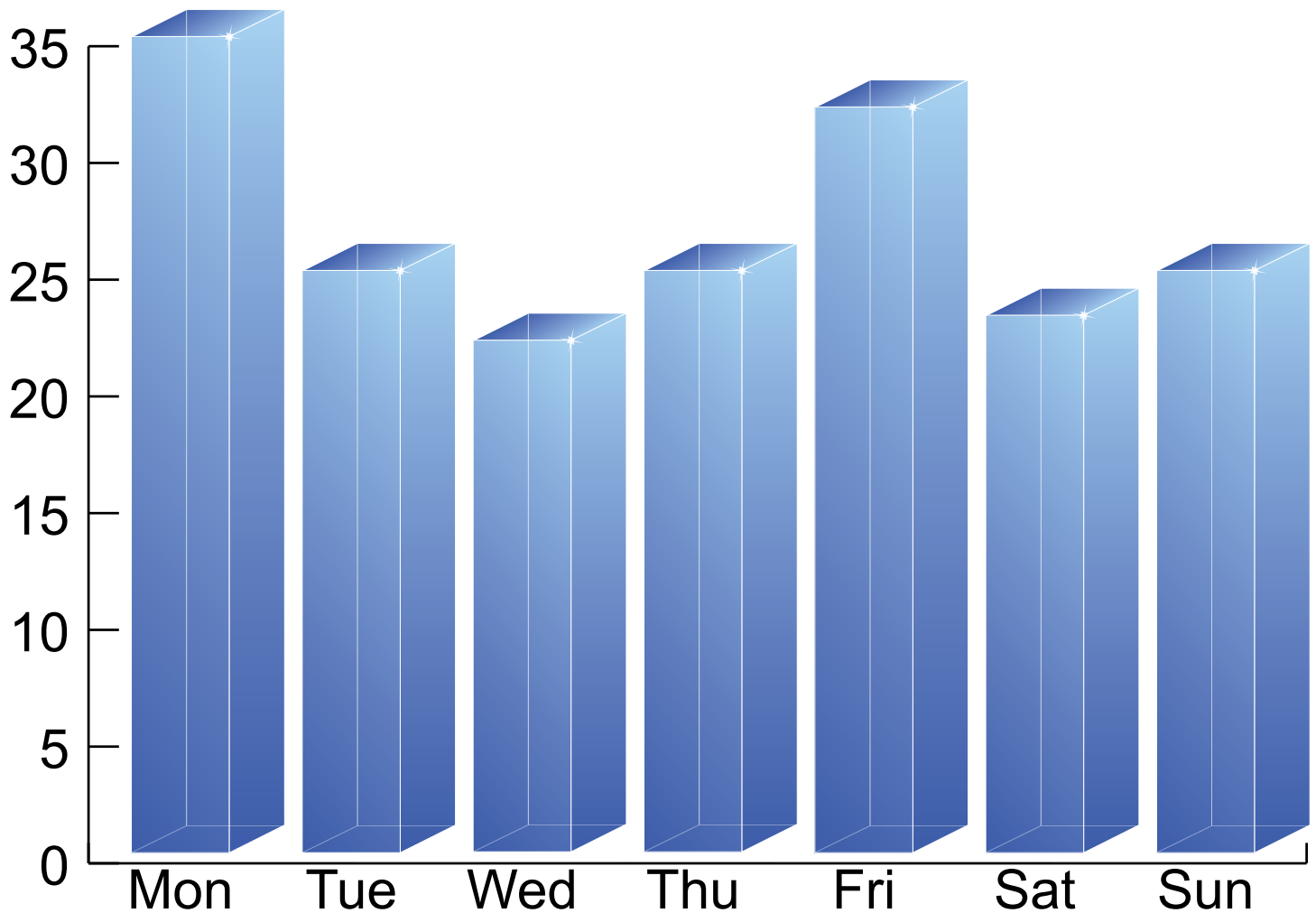
Figure 2 measures the indirect-fire missions categorized by day of the week. (Illustration by Rick Paape, Jr. Information provided by CPT William Edwards and 1LT Christopher Mace)

To accomplish this, we nested ourselves with collectors at all levels from the brigade intelligence support element (BISE) chief to the company intelligence support team (COIST) analyst learning any new tactics, techniques and procedures (TTPs) for IDF activity, with an increased focus on cache site selection. This analysis led to the creation of another useful product, the templated IDF cache site product. The template IDF cache site product graphically displayed the center mass military grid reference system (MGRS) grid of the historic POOs and nearby cache indicators. Cache indicators were those significant features (terrain, infrastructure, marking signals, etc.) that were discovered through research and analysis of historic cache finds. In Southern Ghazni, the indicators for caches included: prominent terrain features near historic POO sites such as hills with favorable line of sight

to the POO and Karez systems in close proximity to historic POO sites, ease of access for insurgents to the template cache site, and nearby mosques in vicinity of historic POO sites. We coupled this information with enemy TTPs gleaned from other intelligence products such as signal intelligence (SIGINT) and human intelligence (HUMINT). These included likely times for the cache to be accessed, techniques for how caches were selected using the previously mentioned indicators, methods for utilizing the cache sites, as well as ingress/egress routes to the cache sites (with follow on to historic POO sites). The sum of this information and its subsequent analysis was then forged into a product for maneuver commanders to utilize in focused planning and execution interdiction patrols. In addition, to confirm or deny our analysis we worked hand-in-hand with the brigade collection manager to

request assets specifically against the counter IDF fight.

Note: Due to security concerns the IDF likely cache site product is not included.

Now a prediction of when, where, and how the enemy would attack was complete; determining who was doing the attacking was next. This was done by creating a link analysis and network diagram specifically looking through the CIDF lens. It was quickly determined that many insurgents fill multiple rolls (logistics and IDF, IED and IDF), and in order to effectively target these individuals, they must be looked at as more than insurgents specializing in indirect-fire. These targets were associated with multiple entities within the threat system and thereby affected more than just the firing of rockets, mortars, and recoilless rifles. This quickly became the crux of a holistic view on the

IDF threat system. Each piece of individual analysis up to this point added a layer to a much larger and more impactful picture. From historic POO sites, we could interdict those individuals emplacing IDF, but also we could use them through ISR to lead us back to caches and cell leaders. This first increased the scope of our analysis to more than just counter-fire operations. The cache sites had the ability to lead us yet further into the enemy system by giving us insight into the logistics cells within the enemy system. Furthermore, the IDF team and cell leaders discovered by this analysis were normally tied to multiple threat systems and cells, yet again expanding the purview of the analysis. At most, any given IDF emplacer was only four linkages away from provincial level Taliban leadership. So by taking simple historic analysis deeper and continually broadening the scope of the information analyzed, we saw that by countering the IDF threat, one had the ability to influence the entire threat system. With that knowledge, as individual members of IDF cells were identified, the importance of that personality was increased in the brigade targeting cycle. With these individuals being so closely linked with upper level leadership, as well as logistics and other threat systems (IED Emplacement, Direct Action, etc.), each target had cascading effects upon the entire enemy threat. A critical linkage found within the CIDF target list could easily disrupt logistics and leadership simply by the target's proximity to those other cells/high value individuals (HVI's).

This process created at Fort Bragg, N.C., and refined through the MRX at JRTC was implemented as the *Gun Devils* deployed to OEF XII in Southern Ghazni province. This method was again an overwhelming success in the *Devil* Brigade's fight against insurgent indirect-fire attacks. The method was 35 percent effective in predicting attacks, which is an incredible amount of accuracy considering the enemy we face. At JRTC the figures may have been higher, but the enemy is less adaptive. Using the old adage "the enemy always gets a vote" definitely comes into play here. The enemy in Southern Ghazni had the ability to change weapons systems, firing points, and methods of IDF engagement as quickly as he desired, giving a slight flux in the statistics. The best way to assess the efficacy of the method would be thus, "What if one out of every three rounds of IDF never left the tube to hit U.S. Soldiers because we could proactively engage the enemy beforehand?" The method was effective at prediction, but moreover it allowed *Gun Devil* S2 personnel to more effectively analyze enemy trends and TTPs and share them across the brigade battle space. Operations personnel could then take this information and correctly lay assets against probable threats days in advance. Overall, this analytical process, coupled with utilizing the FA S2 as the CIDF analysis cell for the entire brigade, alleviated some pressure from the battalions, allowing them to focus on current operations targeting more effectively and also gave a clearer picture of the enemy indirect threat and the personalities associated with it.

Though the concept of a force Field Artillery headquarters is not new, re-

Figure 3 measures the indirect-fire missions categorized by time of day; times with no missions have been omitted. (Illustration by Rick Paape, Jr. Information provided by CPT William Edwards and 1LT Christopher Mace)

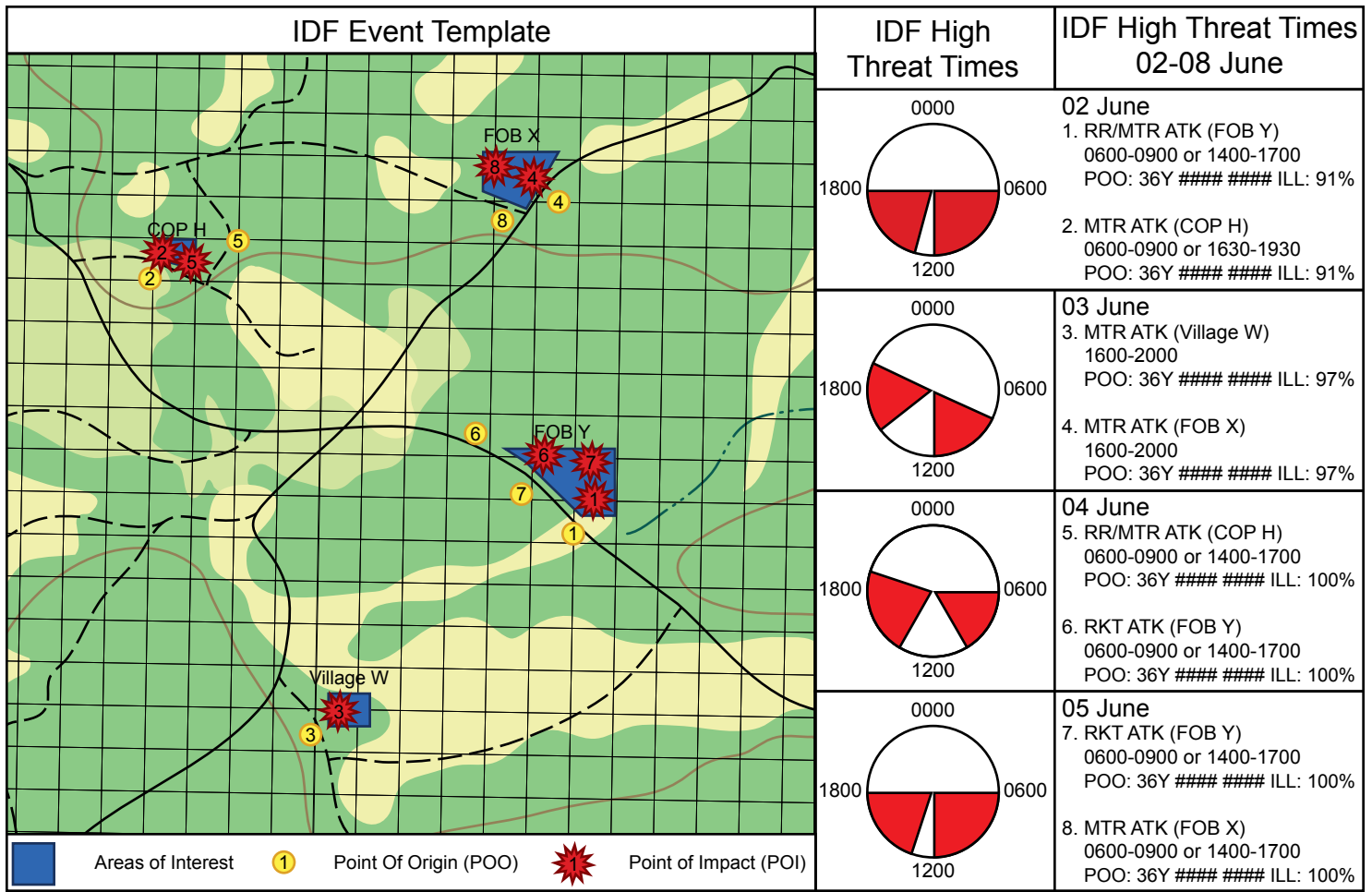| IDF Event Template	IDF High Threat Times	IDF High Threat Times 02-08 June
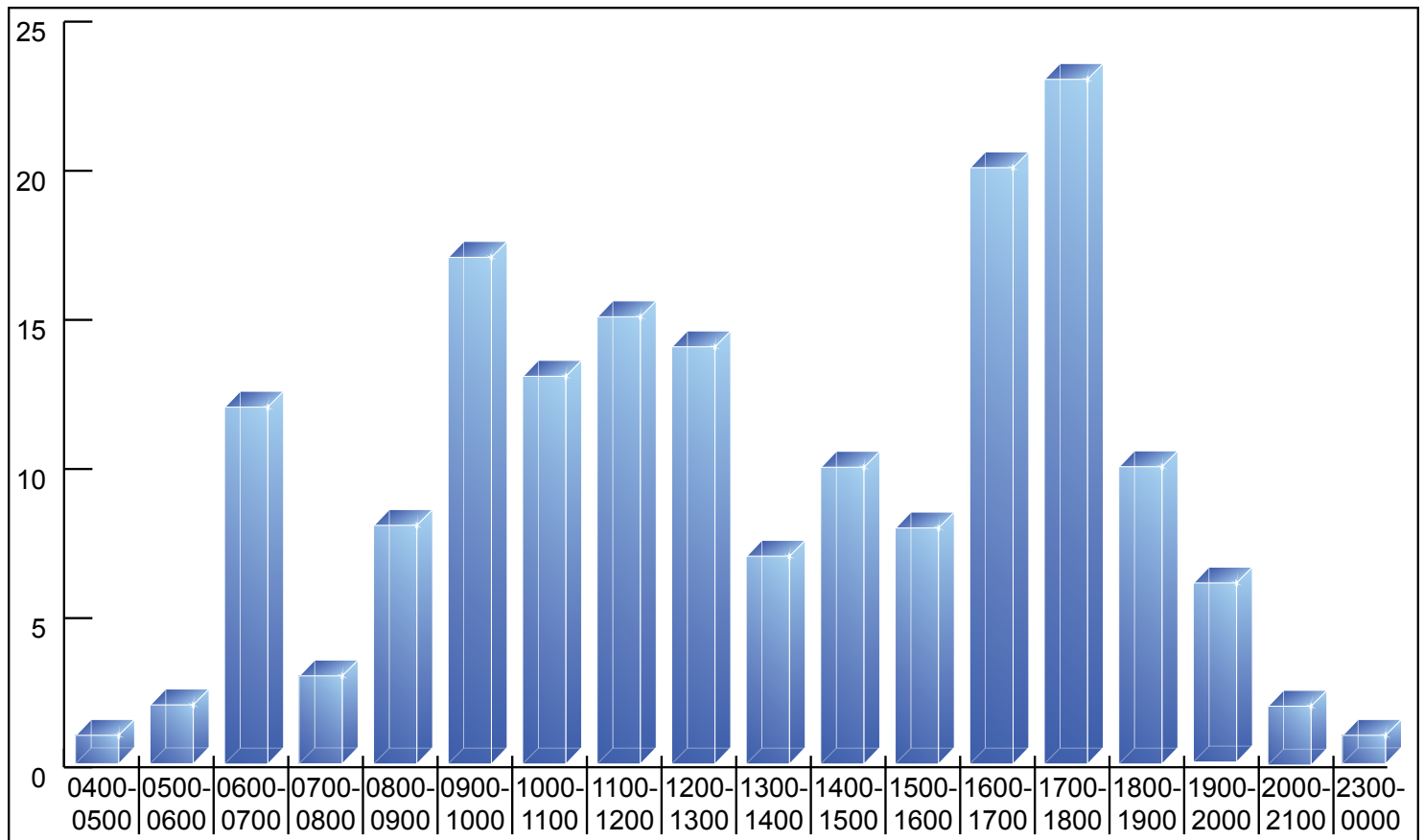
Figure 4 depicts a seven-day indirect-fire template report. Map data and additional information is simulated for operation security purposes. (Illustration by Rick Paape, Jr. Information provided by CPT William Edwards and 1LT Christopher Mace)

visiting it and using the FA S2 in an innovative fashion has yielded impressive results. By not being tied to any particular piece of ground, *Gun Devils* S2 elements were allowed to see a holistic view of the enemy IDF threat and how it fit within the overall enemy threat system. The method created during this entire process was found to be most effective using static targets (such as FOBs and population centers) as the basis for data, while IDF attacks against patrols/ operations/ etc., were shown to be much more sporadic and opportunistic in nature making them much harder to predict.

From the military intelligence side, Distributed Common Ground System-Army (DCGS-A), has created a new program in its repertoire called Stripe, which has a predictive analysis function along with collecting the data from multiple sources, saving the analyst valuable time. It is still being further developed, but should soon be able to

produce similar predictive analysis products as to the ones discussed in this article. That will never replace the analyst doing the hard work of creating the analysis and products himself, but it is a great tool to add in the toolkit and to check the work done by the predictive analysis products created by hand.★★

Captain William "Brett" Edwards is currently serving as the plans officer for the 3rd Battalion, 319th Airborne Field Artillery Regiment, Fort Bragg, N.C.

1st Lieutenant Christopher Mace was commissioned as a second lieutenant in the Military Intelligence Branch upon his graduation from Officer Candidate School. Previously, Mace was an infantryman, assigned to Fort Benning, Ga. After graduation, he attended the Military Intelligence Basic Officer Leadership Course, at Fort Huachuca, Arizona. After completing training there, Mace was assigned to the 1st Brigade Combat Team (1BCT), 82nd Airborne Division

at Fort Bragg, N.C. He deployed to Iraq in support of Operation Iraqi Freedom from June 2010 until August 2010. While in Iraq, Mace served as the brigade S2 current operations officer in charge (OIC), where he ran the tactical intelligence operations of 1BCT. Upon returning from Iraq, Mace was assigned as the intelligence officer for 3-319th Airborne Field Artillery Regiment (AFAR), the Field Artillery battalion tasked with providing direct support Fires to 1BCT. While training for the Global Response Force Mission that 1BCT was slotted for, he attended multiple intelligence and targeting courses to include: Counter Intelligence/Human Intelligence Manager's Course (G2X) at Fort Huachuca, Ariz., Personality and Network Analysis Course at MacDill AFB, Fla., and Joint Targeting School at Dam Neck Naval Annex, VA. Once 1BCT was reassigned to a mission in Ghazni, Afghanistan, Mace became the counter-indirect-fire lead, responsible for providing indirect-fire intelligence analysis for the entire brigade combat team.

SGT Michael Norton and CPL Eric Cook, with the 41st Fires Brigade, setup communication equipment connected to the joint network node during the unit's communication exercise at Fort Hood, Texas. The Soldiers provided support for the 41st Fires Brigade and the 17th Fires Brigade based out of Fort Lewis, Wash. (Photo by SGT Kyle J. Richardson, U.S. Army)

Fires Brigades Fight Together in Korea:
From Home Station
By MAJ Gabriel Suarez

In December 2011, 17th Fires Brigade completed a brigade command post exercise (CPX) in conjunction with 41st Fires Brigade (FiB) using our internal mission command equipment on our tactical network. The 17th FiB was set up in the mission command training complex (MCTC) on Joint Base Lewis-McChord (JBLM), Wash., while 41st FiB participated from their headquarters at Fort Hood, Texas. This article discusses the lessons learned by the 17th FiB staff as it planned and executed a brigade CPX with the 41st FiB as a training participant. These lessons learned can be useful to other Fires units planning command post training events.

Units must take advantage of all opportunities available when conducting training events in a fiscally-constrained environment. To help meet some of these challenges, the Army has invested heavily in the use of simulations to create the environments necessary to help meet unit, individual and collective training objectives. Planning for the use of simulations in a training event are similar to planning a live training exercise; the time and preparation put in during the planning phase usually determines the overall success of the event.

When conducting a CPX using computer simulations, the sheer number of planning considerations increases greatly. These complexities are difficult for any one planner to grasp. Not only does the tactical environment have to be developed, but vast technical considerations also need to be identified and tackled. Thus the brigade or battalion staff running the exercise needs to organize a strong planning team effort to ensure the commander's training objectives are realized.

Initial planning and exercise design. The steps in planning for a CPX are the same as any other training event. The lead planner needs to get the initial guidance for the exercise from the commander or S3 then work on turning that information into an exercise concept sketch. The exercise concept should address the basic who, what, where, when, and why's of the CPX but also provide a visual to the commander of the how exercise will be conducted. Identifying the training audiences, technical architecture, and exercise control needs are crucial in identifying problem areas that need to be ad-

dressed in order to meet the commander's intent.

After getting my commander's initial guidance for our BDE CPX…

• Develop the *Thunderbolt* leadership and staff for contingency operations
• Replicate a realistic contemporary operating environment (COE) utilizing the Republic of Korea environment
• Improve the staff's use and integration of Army Battle Command Systems (ABCS) and other digital equipment
• Effectively operate from dispersed locations using actual mission command networks

I worked to develop two courses of actions for the commander. Each one varied showing different complexity and manpower resources needed to make the exercise happen. After completing the concept sketches, I met with the 17th FiB S6 and her warrant officers to refine them. I got their input on what was possible, probable, or not possible when it came to our tactical network, especially in making the long distance connection with 41st FiB at Fort Hood. From the very beginning the S3 planner and S6 have to be partners in every step of the planning process. This joint effort lessens future planning issues and helps ensure all of the exercise capabilities promised to the commander can truly be accomplished.

One concept sketch focused on the 17th FiB staff as the primary training audience with the 41st FiB as the secondary training audience. It had our subordinate battalions playing the role of 'pucksters' in the lower control (LOCON) response cells and a small team working in the higher control (HICON) response cell. The second option had the 17th FiB staff as the primary training audience, with the 41st FiB and subordinate battalions as the secondary training audience. The LOCON would be broken down into company and battery response cells. My commander instruct-

Figure 1 depicts the layout for the higher control (HICON) and exercise control (EXCON) during the command post exercise (CPX). (Illustration courtesy of MAJ Gabriel Suarez)

Legend:
- Blue Force Tracker (BFT)
- Joint Deployment Logistics Model (JDLM)
- Advanced Field Artillery Tactical Data System (AFTADS)
- Joint Conflict and Tactical Simulation (JCATS)
- Voice Over Internet Protocol (VOIP)
- Army Secure Tactical Initiative (ASTI)

Roll Up

AFATADS X 2	VOIP X 4
BFT X 11	ASTI X 4
JCATS X 13	**Personnel**
JDLM X 1	17th FiB X 25

8 X AFATDS/JCATS   9 X BFT
1st BN, 21st FA (MLRS)

10 X JCATS/BFT   11 X AFATDS
2nd BN, 20th FA (MLRS)

JCATS Controller Box

7 X BFT   7 X JCATS
HHB BDE, 256th Signal, F/26th, A/26th

308th Brigade Support Battalion (2 X Commanding Officers)

12 X JCATS/BFT
13 X JCATS/BFT
14 X JDLM

Three batteries from 5th BN, 3rd FA   Three batteries from 1st BN, 377th FA

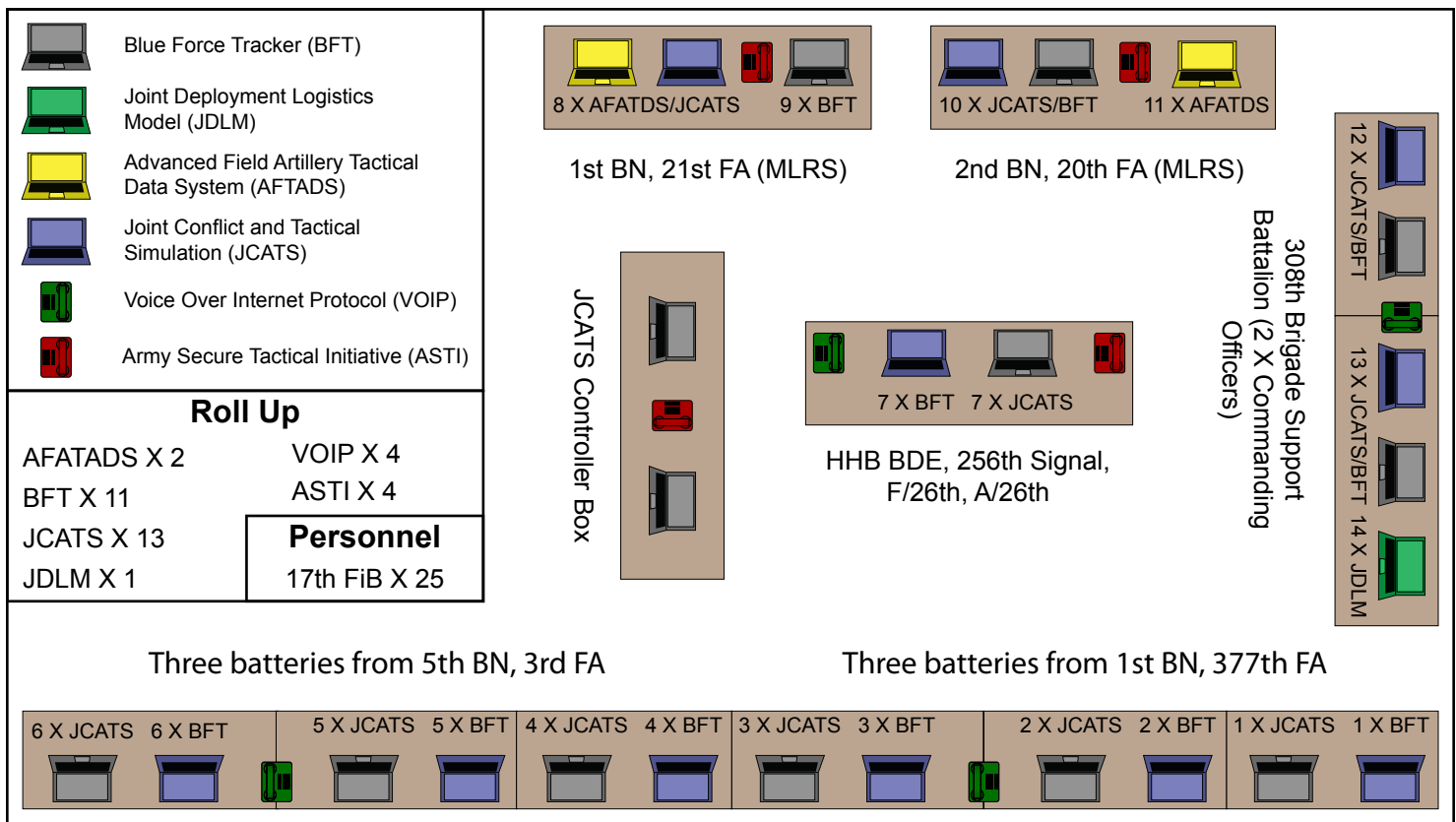| 6 X JCATS	6 X BFT	5 X JCATS	5 X BFT	4 X JCATS	4 X BFT	3 X JCATS	3 X BFT	2 X JCATS	2 X BFT	1 X JCATS	1 X BFT

Figure 2 depicts the layout for the lower control (LOCON) during the command post exercise (CPX). (Illustration courtesy of MAJ Gabriel Suarez)

ed me to move ahead with the second course of action of using company/battery LOCON cells and emphasized the type of scenario he wanted to fight.

The most important administrative task that has to be completed early during this phase is to get the exercise scheduled through the post MCTC. The scheduling process for locking in training time is unique on each installation and must be coordinated soon after identifying the possible dates of the exercise. Generally, CPX's for brigade and battalions are scheduled at least six to nine months ahead of time.

Working with the MCTC. Once you get your commander's guidance and build your planning team, the next step is to head over to the MCTC and meet with your assigned project lead. Each MCTC's processes are different on how they conduct their planning sessions, but generally you should have two distinct types of in process reviews (IPR): administrative and technical. In the administrative IPRs, you work out the details of who, what, where, why, and how your unit's exercise will be carried out. The most important items to come

out of the administrative IPRs are identifying the simulations and processes that will be used in order to meet all of the commander's training objectives.

A properly designed CPX is one where the training audience does not know what portion of the training is real and what's being generated by a computer simulation. In designing the HICON (Figure 1) and LOCON (Figure 2) support cells, I had to gather information from the brigade staff sections and subordinate staff sections on how they communicated both vertically and horizontally on the staff and tactically with their battery and company level Soldiers. Taking this information, I tried my best to ensure that every battle staff member in both 17th FiB and 41st FiB received information into their ABCS and radio systems just like they would if they were in the field or deployed. After determining the machines and processes that you want to stimulate, the MCTC staff can help you in determining the correct types of computer simulations and training aids to use.

During the planning process with the MCTC and your unit planning team,

separate technical IPRs should be conducted. This is the forum where the MCTC staff and S6 reps from the participating units map out how the simulation network and the tactical network will be setup and integrated. Most importantly, any technical problems that can put the exercise at risk should be identified and corrected during these IPRs.

One of the more prominent limitations we had to work through was that the Fires simulation SIMPLE Artillery (SARTY) used by the JBLM MCTC has a glitch when communicating with our maneuver driver joint conflict and tactical simulation (JCATS). The simulations and interfaces work, but the glitch currently only affects rocket platforms (MLRS and HIMARS) in JCATS by allowing only one type of ammunition to be used at a time. Thus we had to choose on a daily basis what ammunition type we wanted loaded for the simulation, M26 rockets or ATACMS missiles. The workaround we created to reduce the training distractions was ensuring that targets selected as injects were all within range of the ammunition selected in the
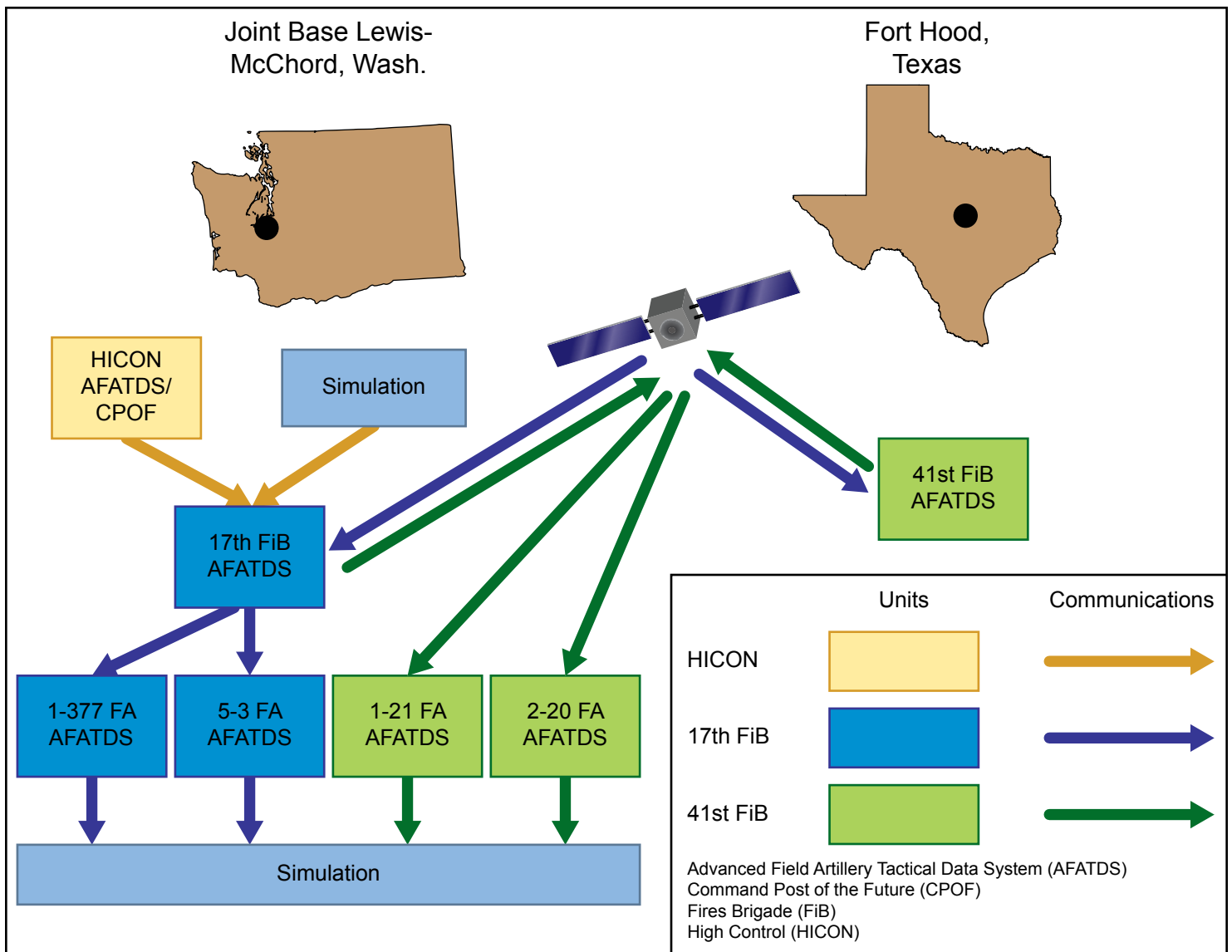
Figure 3 depicts the flow of data during a fire mission initiation during the command post exercise (CPX). (Illustration courtesy of MAJ Gabriel Suarez)

simulation. The two biggest technical challenges we identified for our exercise were designing the fire mission processing network and figuring out how to incorporate Blue Force Tracker (BFT) data into our unit common operating picture (COP).

Sending and receiving fire missions is the bread and butter of the artillery tactical operations center (TOC), and therefore should be the number one priority of your technical IPRs. The first step in building your network design is determining your organization for fighting. Our exercise was to have the 17th FiB as the force field artillery (FFA) HQ with the 41st FiB fighting in a general support reinforcing role. With this diagram (Figure 3), we were able to visually display what we wanted so the technicians

could help our unit set up and integrate our fires network with each other and the simulations.

Successfully integrating BFT data into our exercise wasn't that much of a challenge technically, but represented our greatest worry due to security concerns of sending classified data over an unsecure network. After weeks of collaborating between the 17th FiB S6 shop technicians and the MCTC staff, a solution was developed that allowed for the BFT effect to be seen while securely being passed over a secure network from JBLM to Fort Hood. This was accomplished by the MCTC pushing the BFT feed through the lower tactical internet, like it would come from a FBCB2 Enhanced Position Location and Reporting System (EPLRS) feed. Once the blue

feed made it to the 17th FiB command post of the future (CPOF) repository, the 41st FiB would be able to receive it into their CPOF repository by connecting directly using the Very Small Aperture Terminal (VSAT).

There are also additional administrative considerations that could throw a wrench in the schedule if not addressed during planning. Badge and security procedures will be dictated largely on the classification of the exercise. Bringing an S2 security representative to the IPRs will help ensure that these topics are properly addressed during planning. Any Soldiers that will be touching computer systems in the MCTC (ie. pucksters, HICON) will have to provide verification to the MCTC staff that all information assurance training has been

completed or else they will not be able to work during the exercise. Once your unit starts to set up its TOCs, the unit will have to maintain guard around the clock until the tear down is complete. This is important to note because of the unusually large amount of lead time needed (two weeks minimum) for setup and testing prior to the execution of a CPX.

Scenario development and database build (staff input/building master event list). Another big requirement for exercise planners is the development of the operational environment (OE). JP 3-0 defines OE as "a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander." "This step is critical because it essentially creates the conditions for the selected unit training objectives…when combined with the standards for the METL task, help commanders assess unit readiness for a mission" (TC 7-101, Exercise Design).

For our exercise, the 17th FiB commander specified that he wanted to use the current Korean OE for our exercise. This allowed our planners to identify the types of friendly, enemy, civilian, and environmental conditions that our units would encounter during the exercise. Identifying the OE early is also critical for the MCTC staff so that they can begin building the database for an exercise which is time consuming because every single unit, piece of equipment, and environmental effect (friendly, enemy, and neutral) that needs to be used in the simulation must be created. So if in your exercise you want to use an electronic attack aircraft, shoot a guided multiple launch rocket, or have a civilian riot on the battlefield, each of those individual entities must be created in your exercise database.

At this stage, we pulled in the 17th FiB staff section representatives to gather their input on what unique training tasks they wanted to accomplish. These staff planning huddles let me and my other operations planner build and refine the master event list (MEL) that we would use to control the injects during the CPX. We created separate lists for each staff section's unique tasks and created a key events list that contained injects that would affect multiple staff sections such as friendly casualties, the loss of firing capability, or the destruction of a unit ammunition cache. The MEL would be the master script that the exercise control (EXCON) will use to inject events during specific times in order to achieve specific training objectives. This process can be time consuming so work closely with the MCTC, they can give you examples of injects that other units have developed and used.

A small planning team should review all injects to determine if they are related to exercise training objectives, how they will be fed to the training audience, and if they include all relevant data (who, what, where, when, why, and how). A good inject should force the training audience to do something they need to do to get trained. Injects must be realistic in how they are introduced to the training audience, received and most importantly, believable based on the variables used in the OE. For example, artillery guns shouldn't be magically resupplied during the exercise unless a resupply request has been made by the training audience.

Exercise setup. As the execution date nears, planners will need to develop the details of the setup process. When using computer simulations for a CPX, there is considerable lead time that has to be programmed into the schedule prior to the execution dates or else units will spend most of their training days wasting time trying to get networks up and working. All unit participants must know ahead of time the set up schedule and what is expected of them at each step. I recommend that for any brigade or battalion level event, you need to plan on at least two full weeks of setup and prep time in order to ensure that your exercise can start on time. Due to the complexity of including 41st FiB

Figure 4 shows the timeline during the command post exercise (CPX). (Illustration courtesy of MAJ Gabriel Suarez)

	Mon	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**
Nov.	28	29	30	1	2	3	4
	17th Fires Brigade and Battalion Tactical Operation Center Setup and Simulation Sync Testing					24-Hour Guard	
Dec.	5	6	7	8	9	10	11
	Connect with 41st Fires Brigade, Conduct DC2R, Conduct Rehearsals (Fires, Logistical, and Sustainment)			Rehearsal Exercise and Mini-Exercise		24-Hour Guard	
	12	13	14	15	16	17	18
	17th Fires Brigade Command Post Exercise			TOC Teardown	Brigade Training Holiday		
	19	20	21	22	23	24	25
	Block Leave						

into our exercise, our MCTC staff wanted three weeks of prep time, but due to conflicting training commitments, 17th FiB would only have two weeks, while 41st FiB would not be able to connect with us until a week before execution. An important TTP for this stage is having a huddle with all participating units and MCTC staff to report on the progress being made and identify any issues.

The timeline we used for our exercise (Figure 4) identifies key events that must be accomplished in preparation for any CPX: equipment setup, ABCS testing, simulation testing, participant training, and a mini-exercise (mini-ex) rehearsal. The equipment setup phase is the time allocated for participating units to set up their TOCs, which includes tents, tactical network servers, and individual workstations. The key to a successful setup is ensuring that the actual ABCS operators are present

everyday to get their systems connected to the network and begin testing with other systems in the TOC. Important considerations to plan for prior to the setup phase are verification of security clearances, the manning and duties for a 24-hour guard force, verification participants have rights to access computer networks, and the positioning of any support items such as port-o-johns, dumpsters, and eating area.

ABCS testing, also known as digital command and control rehearsals (DC2R), is the responsibility of the participating units. DC2R consists of every individual TOC system testing its ability to connect to the tactical network and receive and push information to all other systems on the network. This step should be run by an officer or senior NCO from the S3 shop that can keep everyone on task and give proper direction throughout the process. DC2R

must be completed before any simulation testing can take place. Proper command emphasis must be devoted to DC2R since you will most likely fall behind schedule during this step.

While the training audience is setting up and testing their systems, the MCTC staff should be testing out the simulations that will be used for the exercise and working through any issues with the database entities that have been built. As your ABCS systems complete their DC2R tests, the MCTC can begin testing the simulation to ensure that they are stimulating the systems to provide the training effect required to meet the audiences' objectives. Also around this time, Soldiers who are assigned to the LOCON and HICON should be going through puckster training, led by the MCTC staff, to learn how to use the simulations that they are going to be operating as members of a response cell.

Figure 5 shows the after action review (AAR) comments recieved after the completion of the command post exercise (CPX). (Illustration courtesy of MAJ Gabriel Suarez)

Exercise Design and Planning

- Continue the integrated planning efforts at the Brigade staff level; the S-3 and S-6 sections jointly working together from the start laid the foundation for successful CPX; continue to bring in other important organization members as the plan matures, i.e., digital master gunner, intelligence planner, etc.
- The design of having 17th Fires personnel role-playing 41st Fires units on JBLM worked well, but the optimal design for future exercises should be for 41st Fires units to play their own LOCON at the Fort Hood MCTC and the two simulation centers connecting through a digital bridge (JTEN Network) for both sites to play in the same environment. This type of setup takes a lot of lead time in planning and coordination and should be started as early as possible.
- Utilize AFATDS in LOCON firing battery cells to ensure more robust training for Soldiers at all levels.
- The Brigade Support Battalion, Brigade, and Battalion S-4 personnel need to be included early in the exercise design planning efforts to ensure top-down/bottom-up sustainment processes are being accurately replicated.
- Unit simulation databases, BFT roles, AFATDS database, unit role names, etc., must be built and locked in weeks prior to execution to allow for bugs to be worked out during system testing and Mini-Ex.

Coordination with Participating Staff Sections and Units

- Bring in other units and staff sections early to capture their training objectives and allow them to help define their roles in the exercise. Utilize VTC conference with units that are at different locations.
- The unit running the exercise should share operational and mission command tactics, techniques and procedures with participating units prior to the start of the exercise.
- Strongly consider utilizing an LNO team at distributed locations for the next exercise to help with operational efforts and connectivity issues.
- All participating units must be present for setup and operators available early for systems and simulations testing to be complete or the exercise risks falling behind schedule during the execution phase.

CPX - command post exercise

JBLM - Joint Base Louis-McChord, Wash.

LOCON - lower control

MCTC - Mission Command Training Complex

JTEN - joint training and experimentation

AFATDS - Advanced Field Artillery Tactical Data System

BFT - Blue Force Tracker

VTC - video teleconference

LNO - liaison officer

This training must be completed before all participants can begin the mini exercise (Mini-Ex) rehearsal.

The Mini-Ex is the full dress rehearsal prior to exercise execution. All participants of the training audience, response cells, and MCTC staff supporting the exercise will be present. During this time, the EXCON will run the simulations and provide injects to all training units in order to test all systems and processes. The goal during the Mini-Ex is to find any processes or technical issues so they can be fixed prior to the actual exercise in order to reduce the amount of distractions that take away from training time. Issues we were able to identify were improper BFT roles names in the TOCs, commo cards were not distributed to all LOCON participants, time sync issues between participating units, and ammunition supply request procedures between the response cells and participating units.

Exercise execution and AAR. In the design phase, it is important for a unit to choose the right people to work supporting the exercise in both response cells (LOCON/HICON) and in the EXCON. Many times these positions are not given priority by units and are arbitrarily filled without serious thought to putting highly competent personnel in them. Unfortunately, the quality of an entire exercise can be reduced due to the wrong type of people manning the response cells.

During our exercise, our brigade executive officer was in charge of the EXCON, determining the objectives and pace of the exercise each day. The responsibility of running the EXCON was handled by me and our brigade electronic warfare officer. Together we manage the MEL, pass along injects to the training units, and coordinate all activities between the MCTC staff and Soldiers in the response cells. Our HICON was primarily manned by MCTC staff with the exception of a team of our brigade fire support Soldiers who acted in the role of corps fire support element.

Our LOCON response cells were manned by our subordinate battalions and thus we had little control on what type of personnel would be occupying them. The guidance we gave our units was to try to man their cells with NCOs and junior officers or other Soldiers who were competent enough to understand operations, what is being asked of them by their units, and how to operate the ABCS systems that they will be using. Despite conflicting outside requirements during this time, the units were able to meet most of the guidance. An important lesson learned for us was that the EXCON has to take an active role in briefing the LOCON on what is going to be happening in the exercise, what's supposed to happen, and what their role is when injects are being introduced to the training audience.

Depending on the length of your training day (6, 8, 12, 24 hour operations), the EXCON needs to build in time on the exercise schedule to conduct a 'hotwash' with the training audience leadership at least daily. The 'hotwash' should focus on any training improvements as noted by observer controllers and input from the training audience. The training audience leadership will give its input on whether the exercise is meeting their training objectives and what type of areas they wanted to focus on for the next day's training. By incorporating daily 'hotwashes', the EXCON was instantly able to adjust the MEL and coordinate with the MCTC staff about adjustments to the simulations to better meet the training audience's needs during the exercise.

Throughout the exercise, the EXCON needs to be in charge of gathering observations and suggestions for the exercise AAR. The AAR should cover two major areas: training unit improvements and the exercise execution. Training unit comments should cover the major takeaways, sustains and improves, for each participating unit. This should address the trends seen throughout the exercise that weren't already covered in detail during the 'hotwashes' and offer possible solutions to improve training. Exercise execution comments are important to capture from all participants in order to improve the overall quality of all future training events as a unit progresses in their training readiness cycle. Figure 5 includes the exercise execution comments we captured that can be helpful to other units planning a similar CPX training event.

The CPX successfully met our commander's intent for the exercise. The brigade and battalion staffs grew greatly over the three days of the exercise, focusing almost entirely on current operations. 17th FiB's future training events will build on these gains and extend into exercising current and future operations simultaneously. The biggest success was being able to establish and maintain AFATDS connectivity with 41st FiB in Texas throughout the three days. CPOF and VOIP connectivity needed improvement, but those issues were troubleshot throughout the exercise and resolved on the final day.

This event allowed us to identify individual and collective training deficiencies at the brigade and battalion levels which helped us focus our future training events and update our SOPs. Opportunity training, such as what we accomplished with 41st FiB, is worthwhile, cost effective, and should be continued as much as possible in the future by Fires units at all levels. By leveraging your local MCTC to help integrate simulations into training exercises, units can build collaborative environments for training collectively with any unit throughout the Army, tackling tactical problems that are only limited by your imagination. ★ ★

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A RQ-7 Shadow 200 unmanned aerial vehicle takes off for a night mission. The 4th Squadron, 6th Cavalry maintains 24-hour surveillance over the skies of Mosul. (Photo Courtesy of Combat Aviation Brigade, 1st Infantry Division)

Wargaming the Enemy Unmanned Aircraft System Threat

By COL (Ret.) David M. Neuenswander

The downing of two Hezbollah Ababil Unmanned Aircraft Systems (UAS) over Israel, during the 2006 Lebanon War, served as a 'benchmark tactical event' in that war. Although the U.S. military had been looking at ways to defend against enemy UAS prior to 2006, it is safe to say that Hezbollah's use of UAS served as a wakeup call for the entire Department of Defense. This prompted Joint Forces Command's Joint UAS Center of Excellence and Joint Staff J8, Joint Integrated Air and Missile Defense Organization (JIAMDO) to conduct a series of UAS defense events. In addition, since 2008, the U.S. Army has conducted a series of Training and Doctrine Command (TRADOC) funded joint experiments with a significant enemy UAS threat. These experiments included the Fires Battle Lab's Earth Wind and Fire (EWF) 2008 and 2009 experiments and 2010 Army Functional Concepts Integration Experiment (AFCIE) at Fort Sill, Okla., the Mission Command Battle Lab's Omni Fusion 2008 and 2009 experiments at Fort Leavenworth, Kan., and the 2011 Joint Forcible Entry Warfighting Experiment (JFEWE) run by the Maneuver Battle Lab at Fort Benning, Ga. In each of these experiments the U.S. Air Force provided support in the form of personnel, and in several of the larger experiments the Air Force provided modeling and simulation support. This article discusses the major Air Force UAS defense insights gained in the above TRADOC experiments with a focus on the operational level of war, and recommends UAS defense be a topic of discussion at the 2012 Army Air Force Warfighter Talks. To understand the Air Force insights, it is necessary to discuss briefly the UAS categories or groups, the scenarios for the experimentation, and the definition of air superiority with respect to UAS.

UAS categories. Joint Publication (JP) 3-30, Command and Control for Joint Air Operations, categorizes U.S. UAS in five groups described in figure below.

During the Army experiments, the simulations focused

> "Counter UAS is a prevalent problem that we think is only going to get bigger."
>
> — BG Jeff Colt,
> Commander, Joint Unmanned Aircraft System
> Center of Excellence

on Group 3, 4, and 5 UAS and did not include actions against enemy Group 1 and some Group 2 systems. The author acknowledges that the small UAS in Group 1 and 2, often referred to as 'backpack UAS' are a problem; however, unless otherwise noted, the lessons learned and recommendations are for larger Group 2, 3 and 5 UAS. For the purpose of this paper, the author uses the U.S. joint term Unmanned Aircraft System (UAS) for all unmanned systems, including the former unmanned aerial vehicle (UAV) referenced in some of the source documents.

Scenarios. The majority of these experiments were based on variants of the May 2007, TRADOC "Multi-Level Scenario Module 1: 7th Division," produced by the TRADOC Analysis Center (TRAC) at Fort Leavenworth, Kan. The enemy was a 'hybrid threat' as defined in current Army Doctrine, and simultaneously employed both regular and irregular forces. In all of the experiments the Army's 'World Class Red Forces' employed some number of UAS against friendly ground forces in a division operations area. Some experiments had larger numbers of UAS than others; however, regardless of the phase in which the experiment occurred (i.e., JP 5-0 Phase II Seize Initiative, Phase III Dominate, or Phase IV Stabilize) the red forces employed UAS. These experiments focused on conditions at the start of each experiment, rather than the specific 'shaping' prior to entry of the ground forces. How the joint force commander/Joint Force Air Component Commander (JFACC) executed theater wide air interdiction and offensive counter-air campaigns against the enemy UAS threat during the scenario's early Phase II operations remains unknown. Neither the Air Force nor the Army gained a concrete understanding of the numbers, types, and percentages of enemy UAS that could be attrited by air component, special operations forces, and long range Fires prior to introducing ground forces. Electronic warfare and cyber capabilities were not employed against enemy UAS in any of the experiments.

All of the experiments assumed a JFACC who also served as the airspace control authority (ACA) and area air defense commander (AADC). When required, the JFACC was the supported commander for the theater-wide air interdiction campaign and the supported commander for counter-air. Air Force personnel simulated an air operations center (AOC), control reporting center (CRC), air support operations center (ASOC), and tactical air control parties (TACP) at division and below for the experiments. Army personnel simulated Air Defense Artillery fire control officers (ADAFCO) and were co-located with the appropriate Air Force CRC elements to simulate a sector air defense command (SADC). The SADC allowed the experiment JFACC to simulate the AADC 'commit and engagement authorities' within the experiments.

Air superiority as it relates to the enemy. JP 1-02 defines air superiority as, "that degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force." With respect to enemy UAS, each component, land, sea, and air, gets a vote on what constitutes 'prohibitive interference.' During the above listed experiments there were two questions that were difficult to answer. The first being: how many UAS does the enemy have to fly over the land component area of operations before they become a prohibitive interference? Which leads to the second question: if the enemy can fly his UAS in proximity to friendly ground forces, does the U.S. have air superiority?

The answers to both questions often fall into the dreaded 'it depends' category. With respect to the number of enemy systems, much depends on what the ground forces are doing at the time, and what mission the enemy UAS is conducting. A single UAS directing long range precision Fires on a forcible entry can have devastating effects on friendly troops. Whereas multiple short range systems not linked to Fires might have a lesser effect on ground troops conducting stability operations.

It is important to note that the U.S. has been engaged in 10 years of war with air supremacy. JP 1-02 defines air supremacy as, "that degree of air superiority wherein the opposing air force is incapable of effective interference." Whether or not the U.S. can achieve air supremacy in the face of an opponent who has effective UAS systems remains to be seen; air supremacy was not achieved in any experiments listed above.

INSIGHTS. Observations obtained during the experiments led to the for-

Group	Max. Takeoff Weight (lbs.)	Operating Altitude (ft.)	Air Speed (kts.)	Unmanned Aircraft System Models
1	0-20	<1200 AGL	100	Wasp III, TACMAV, RQ-14A/B, Buster, BATCAM, RQ-11B, FPASS, RQ-16A, Pointer, Aqua/Terra,
2	21-55	<3500 AGL	<250	Scan Eagle, Silver Fox, Aerosonde
3	<1320	<18000 MSL	<250	RQ-7B Shadow, RQ-15 Neptune, XPV-1 Tern, XPV-2 Mako
4	>1320	<18000 MSL	Any	MQ-5B Hunter, MQ-8B Fire Scout/Navair, MQ-1C ERMP, MQ-1A/B/C Preditor
5	>1320	<18000 MSL	Any	MQ-9C Reaper, RQ-4 Global Hawk, RQ-4N BAMS

Above Ground Level (AGL), Mean Sea Level (MSL)

mulation of the following seven major Air Force UAS defense insights.

INSIGHT 1: The joint force must counter enemy UAS. Throughout the experimentation when the enemy could consistently fly UAS systems in the vicinity of friendly ground forces, the supported commanders generally felt the enemy UAS were a 'prohibitive interference.' Thus, using the joint definition of air superiority, one would assume that a consistent enemy UAS threat creates a prohibitive influence and logically this means the U.S. did not have air superiority. The only way to prevent consistent enemy UAS activity was to defeat either the enemy aircraft, ground stations (including crews), or communications. Therefore, if the joint force cannot effectively counter the enemy UAS, then air superiority cannot be achieved.

INSIGHT 2: UAS defense is a joint endeavor. Shortly after the 2008 electronic warfare (EWF) experiment at Fort Sill, Okla., both the Air Force and the Army agreed to bring the Joint UAS Center of Excellence (JUAS COE) into the experiments to assist with UAS defense. From the outset, the UAS experts guided the Air Force/Army team towards a joint solution that linked air and ground based radar, optical, and electronic sensors from multiple services (experimentation included Navy Aegis) to create a common operating picture enabling UAS defense. Systems included all current Air Force and Army radars, E-3, counter-rocket and mortar (C-RAM), Army Joint Land-Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), SENTINEL, and various current and future short-range air defense systems. In addition, the EWF experiments had Army high altitude airship (HAA) with a variety of systems. These Army ground and air based systems, coupled with Air Force and Navy airborne and ship based radars, were critical to the UAS defense fight. The JUAS COE participated in multiple experiments prior to the organization disbanding in 2011.

Virtually all of the 20-plus JUAS COE recommendations involved linking sensors of one service or functional component with sensors or systems of another. The JUAS COE also recommended further study of time-sensitive dynamic re-tasking of airborne ISR and electro-opti-

> *"After all, the great defense against aerial menace is to attack the enemy's aircraft as near as possible to their point of departure."*
>
> — Winston Churchill

cal sensors to enable air defense visual identification.

INSIGHT 3: Enemy UAS are part of the counter-air campaign. Because UAS are part of the enemy air threat, the joint force should make every effort to target them on the ground. Quoting from JP 3-01, Countering Air and Missile Threats:

"Offensive counter-air (OCA) operations normally have a high-priority as long as the enemy has the air and missile capability to threaten friendly forces and the JFC does not have the degree of air superiority desired to accomplish the objectives required for the end state. OCA operations reduce the risk of air and missile attacks, allowing friendly forces to focus on their mission objectives. The preferred method of countering air and missile threats is to destroy or disrupt them prior to launch using OCA operations conducted over enemy territory."

Therefore, if the joint force believes enemy UAS will create problems for any component, these systems should be considered in the joint intelligence preparation of the operational environment (JIPOE) and enemy UAS should be added to the joint integrated prioritized targets list (JIPTL) in accordance with JP 3-60, and targeted from the outset of the engagement. There was little doubt enemy UAS were a valid threat in the experiments. Paraphrasing from the Air Force after action report for EWF 2009, "numerous enemy UAS, operating at low altitude over the division's AO, negatively affected both Fires deconfliction and airspace control."

One of the hardest tasks for the air component during these experiments dealt with controlling high-speed fighters operating at low altitude over the ground commander's AO. The fighters were forced to drop down to identify and engage low, slow-moving enemy UAS, often in close proximity to friendly UAS and rotary wing aircraft. More on this issue later; however, the more enemy UAS that can be defeated on the ground prior to entering the ground

commander's area of operations, the better. In future conflicts, enemy UAS must be part of the counter-air campaign with both kinetic and non-kinetic attack options. Finally, to fully understand the threat from enemy UAS, future Air Force/Army experimentation events need to include a realistic UAS defense effort at the beginning of Phase II, whether or not the ground force has entered the theater or not.

INSIGHT 4: Airspace control and Fires deconfliction are tough to do with enemy UAS in your airspace. In accordance with JP 3-01, airspace control is defined as, "a process used to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace." As mentioned earlier, these experiments were conducted with a JFACC acting as the ACA in accordance with joint doctrine. The JFACC/ACA is responsible for producing the airspace control plan ACP (for approval by the JFC) and the airspace control order (ACO) for joint operations. The ACA takes airspace requests from the components and builds airspace control measures and fire support coordination measures into the ACO. If conflicts arise during the ACO planning process, the ACA's staff makes every effort to resolve the conflict to allow the airspace requesters and Fires planners a reasonable expectation that they will have access to the airspace they request. Once the ACO is published, changes must be handled in real-time by the agency that controls the airspace. If two entities, whether aircraft or Fires, attempt to occupy the same airspace at the same time, the controlling agency gives the nod to the entity with the highest priority. The more uncertainty in the joint operations area, the more real-time changes are required to the ACO, which leads to more real-time airspace control by the controlling agencies. The ACA can delegate authority to control airspace to component airspace control elements; however, only the joint force commander (JFC) 'owns' airspace. During all of the experiments defensive counter-air aircraft

were given the highest priority and frequently had to enter airspace reserved for other users to deal with enemy UAS.

In addition to the airspace control responsibilities the JFC levies on the ACA, and in accordance with JP 3-01, the JFC normally will designate the JFACC as the AADC and the supported commander for counter-air. The JFACC/AADC develops, integrates, and distributes a JFC approved joint area air defense plan (AADP). Further, the JFC grants the AADC the necessary command authority to deconflict and control engagements and to exercise real-time battle management.

The JFC delegates the JFACC/AADC the authorities of identification (ID), commitment, and engagement. The JFACC/AADC conducts decentral-ized execution of air defense through regional and sector air defense commands (RADCs and SADCs) and can delegate these commands ID, commit, and engagement authority. RADCs and SADCs control the air defense mission from the surface up to whatever altitude is required, including space. The JFACC/AADC does not delegate air defense authority to the ACA's airspace control agencies; he/she delegates it to air defense commands. This means that ACA delegated airspace does not come with the authority to conduct air defense (other than self defense by aircraft or short range ground systems).

Based on more than 10 years of combat activity in Iraq and Afghanistan, the ACO process works fairly well in an environment where the U.S. has air su-premacy. For the most part, supported commander's airspace requests are approved without fear of the airspace being taken away by another supported commander with a higher priority (this discussion deliberately excludes special operations forces).

Conversely, without air superiority, when the JFACC/AADC responds to a low altitude UAS threat over a ground commander's AO, joint doctrine requires the JFACC to coordinate with the supported ground commander. Because of their time-sensitive nature, DCA operations require streamlined coordination and decision-making processes. To be effective, air defense assets, particularly fighters, must fly their flight tracks and altitudes with respect to the threat, rather than in preplanned airspace or

Soldiers of Detachment 1, Company B, 116th Brigade Special Troops Battalion, 116th Brigade Combat Team train on flying and maintaining RQ-7B Shadow unmanned aircraft systems (UAS) at Camp Shelby, Miss. (Photo by SSG Andrew H. Owen, U.S. Army)

routes built into the ACO. Air defense intercepts over a ground AO require real-time air battle management and real-time deconfliction with ACMs and FSCMs. Observations have shown that even a few enemy UAS over a ground commander's AO can cause airspace control to break down if the JFACC/AADC cannot control engagements and conduct real-time battle management while deconflicting with Fires and other airspace users.

INSIGHT 5: Airspace control without air superiority demands positive ID, and when required, positive control. If enemy UAS are present over an area of operations, then the JFACC must fight for air superiority while simultaneously conducting other operations, including those in support of the ground commander. Until air superiority is achieved, the AADC requires a higher level of control to conduct air defense than the ACA requires for airspace control. The AADCs requirements to provide threat warnings, control engagements, and exercise real-time battle management necessitate the ability to rapidly move from procedural control, to positive control—at least until air superiority is achieved. Forces conducting distributed operations solely with 'procedural control' do so at a much higher risk when enemy aircraft are present. Air defense elements must have real-time visibility of all friendly aircraft and the ability to communicate with them in real-time to conduct effective UAS defense operations. This is in keeping with joint air defense doctrine which states, "unity of effort, centralized planning and direction, and decentralized execution have proven to be vital tenets for countering air and missile threats that may have an engagement window of only a matter of minutes."

INSIGHT 6: Joint air ground integration cell (JAGIC) TTP can assist ground commanders in the UAS defense fight. The Air Force integrated its ASOC and TACP personnel with Army Fires, airspace command and control (AC2), aviation, and Air and Missile Defense (AMD) personnel at the division level in the '08 and '09 EWF experiments, as well as the 2010 AFCIE and the 2011 JFEWE. This placed Air Force and Army command and control (C2) personnel into a single C2 cell with authority delegated by their respective commanders to integrate and control their component assets. According to both joint and Air Force doctrine, an ASOC is the primary control agency component of the Theater Air Control System for the execution of close air support (CAS) and is directly subordinate to the air operations center (AOC) in direct support of its assigned Army echelon. The ASOC is delegated authority from the JFACC over the air component sorties operating in direct support of that Army echelon. The ASOC does not have authority over air defense forces; however, air component systems conducting defensive counter-air operations over a ground commander's area of operations will normally coordinate with the ASOC to deconflict from Fires and organic Army aviation assets.

For the past six years, the Air Force and Army have been developing the JAGIC. During experimentation with JAGIC, the ACA delegated a volume of airspace, either below a coordinating altitude or within a high density airspace control zone (HIDACZ) to the cell to conduct airspace control on behalf of the ACA in support of the supported division. While the JAGIC is not delegated air defense ID, commit, or engagement authority from the JFACC/AADC, it is the organization the RADC or SADC coordinates when air defense assets enter airspace controlled by the Air Force/Army team at division.

In all of these experiments, JAGIC showed significant promise in the fight against enemy UAS by integrating Army tactical ADA into the theater air defense architecture enabling direct coordination with AADC C2 nodes. Air Force air battle managers within the JAGIC rapidly passed threat UAS—first detected operating over the division AO

The 163rd Reconnaissance Wing MQ-1 Predator is shown during post flight inspection at dusk from Southern California Logistics Airport, formerly George Air Force Base, in Victorville, Calif. (Photo by Master Sgt. Stanley Thompson, U.S. Air Force)

to the JFACC's SADC and the Army Air Defense Artillery fire control officer (ADAFCO). Both the SADC and the ADAFCO were able to rapidly identify and engage enemy UAS that were identified on the common operating picture (COP) using the best asset available. The JAGIC also increased battlespace awareness by advising track producers of the correct ID when JAGIC had situational awareness of a track being reported incorrectly. In a few instances, the decision was made to re-role available close air support (CAS) aircraft to engage the threat. Information flow, up the chain, worked well in virtually every experiment and provided the supported ground commander rapid access to joint air defense capabilities. In addition, JAGIC members were able to find and target enemy UAS launch sites within the division AO and destroy the UAS prior to launch.

JAGIC also conducted a limited amount of real-time Fires deconfliction and control of ACMs to allow air defense fighters to operate in the division controlled airspace. As would be expected, these tasks were easier in airspace with a low density of firing systems and ACMs, and harder as the density increased.

Unfortunately, JAGIC was less capable of passing information about enemy air threats down the chain. As mentioned previously, the JFACC/AADC has a requirement to provide timely threat warnings and control air-to-air engagements. Due to the distributed nature of mission command, the Army does not have a single element with authority, visibility, and rapid communications with all Army assets, to include aviation assets, operating within the airspace in the time required to conduct UAS defense activities. This required authority does not infer that the Army C2 elements have the power to change the asset's mission or issue new 'mission type orders,' it merely needs the ability to know what is flying where and to move them out of the way either to affect that asset's survival, or to enable a higher priority.

INSIGHT 7: Army air defense assets require a standard 'call for air defense' tactics, techniques and procedures (TTP). Thus far in this article, there has been no discussion of short range air defense (SHORAD). Army air defense

elements experimented with a number of different systems in the above-listed TRADOC experiments. The air defense community relies on a COP composed of feeds from a number of sensors including Airborne Warning and Control System (AWACS), ground and ship based radars, and other systems such as the Army Joint Land-Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS). The COP displays friendly systems and raw data for systems that are unknown. One of the primary tasks of air defense elements is to identify unknown tracks and tag them as enemy, friendly or unknown.

In many cases, the first person detecting a small, slow enemy UAS will be a Soldier on the battlefield. If the Soldier can confirm the UAS is an enemy system, he/she has taken the first and often hardest step in the UAS defense-kill chain and conducted the ID. Getting what the Soldier knows on the COP so the UAS can be engaged by either SHORAD or other air defense assets is the next important step; however, a standard service or joint air defense request system for visual ID does not currently exist.

The Army and Air Force need to develop a joint air defense request system that would include request network and TTP to enable radar and/or COP operators to correlate visual detections from ground units and enable follow-on engagements.

U.S. Air Force participation in Army experimentation has resulted in a number of significant insights for the Air Force/Army team, among them UAS defense. Taken holistically, these experiments have identified UAS defense as a joint endeavor from the outset. Enemy UAS must be considered in Phase II targeting and affect the JFC's ability to gain and maintain air superiority. Effective UAS defense operations require the joint force to fuse air and ground based sensors in a real-time common operating picture enabling the force to detect and engage threat UAS using lethal and non-lethal options. Command and control of air defense assets must allow rapid UAS engagement, while simultaneously providing threat warnings and controlling individual UAS attacks without fratricide. All of this must occur while integrating UAS defense opera-

tions with airspace control and Fires. If this sounds hard, it's because it is.

As future experiments unfold, it is critical the joint force understands the UAS threat and options for dealing with it in order to validate required capabilities and identify gaps. This must include the small 'backpack' Group 1 UAS that were not part of these experiments. At some point, the AF/Army team needs to conduct a Phase II, UAS defense event to develop a realistic expectation of attrition on enemy UAS in scenarios requiring forcible entry operations.

Finally, the author recommends UAS defense be a topic in the 2012 Army - Air Force Warfighter Talks. This topic should include kinetic and non-kinetic options for engaging enemy UAS and the required level of command and control to engage these time-sensitive targets. It should also include a way ahead for a 'call for air defense' TTP, as discussed in insight #7, to ensure distributed ground forces have the capability to defend against enemy UAS. As part of the warfighter talks, both services need to have a frank discussion on the effect of enemy UAS with respect to the current concept of air superiority. The U.S. cannot afford to give up the high ground, regardless of the type of threat a potential enemy brings to bear.★★

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Walk-and-Shoot:
Training Fires in Support of Maneuver

By CPT Eric Sewell

Most Army units have fought in counter-insurgency environments for the past decade and have become experts in conducting static fire-support missions such as counter-fire and clearance of fire drills in a tactical operations center. Few units, however, have been required to integrate Fires into a scheme of maneuver in the classic sense. Consequently, most of today's company-level leaders have little experience integrating Fires and maneuver.

To regain this critical skill set in our ranks, 1st Brigade Combat Team, 1st Cavalry Division, at Fort Hood, Texas, developed a walk-and-shoot concept to incorporate into training. The planning process began with defining a walk-and-shoot and identifying key tasks vital for training and testing. However, this in itself was not so easy, as CW2 Scott Zlatnik, the brigade targeting officer, accurately summarized. "No one in 1st Cavalry Division has done a walk-and-shoot since the advent of PowerPoint, so it looks like we will have to start this from scratch," he said. "The goal of the walk-and-shoot should be to train Soldiers and leaders how to best integrate all available fire support assets into the ground commander's scheme of maneuver."

We discovered the walk-and-shoot comes in many forms. It serves as a building block in developing the relationships and skill sets necessary for a BCT's maneuver leaders and fire supporters to maximize all forms of contact with the enemy in high-intensity conflict. The *Ironhorse* Brigade used a three-event 'crawl, walk, run' progression to develop the walk-and-shoot training event and to certify leaders. This article will detail the three events and provide some lessons learned to help other units improve on our concept.

First exercise. The 1st BCT, 1st Cavalry Division, conducted two walk-and-shoot training exercises in the first quarter of fiscal year 2011. The first walk-and-shoot was the culminating event for the brigade's fire support team certification. All company fire support teams (FIST) participated in a lane incorporating organic M120s (120 mm mortars) from each FIST's battalion and M109A6 Paladin (155 mm field artillery, self-propelled) support from 1st Battalion, 82nd Field Artillery.

The event focused on echeloning and shifting Fires as the maneuver element approached the objective. Three phase lines were established. FISTs were expected to echelon and shift Fires at each phase line, which notionally represented minimum safe distances upon approaching the objective. While it is unlikely that most fire supporters will ever do a textbook 'echelonment' of Fires in combat, doing it in training presents Soldiers with complexities that help them gain greater mastery of the concepts necessary to successfully integrate Fires and maneuver.

During the first walk-and-shoot, range-control constraints required us to stay 1,000 meters from impact; however, this distance was much closer than many fire supporters had experienced and allowed them to get a feel for what it's like to be close to incoming rounds. The primary objective in this training exercise was to learn the importance of assigning and maximizing priority of Fires for an asset whenever possible by using triggers. Initially, several FISTs began their missions with PoF for an asset but did not take the time to lay the guns on a priority target beforehand. When it was time to initiate Fires on a pre-planned target, the guns would take longer to shoot because they hadn't been instructed to lie on the target. Until the teams mastered these types of concepts, they struggled to keep continuous suppression on the objective as they maneuvered.

Second exercise. The *Ironhorse* Brigade's second iteration of the walk-and-shoot was the culminating event for our maneuver-shooter program. The target audience for this training event was maneuver company commanders/scout platoon leaders and their fire support officers. The scenario for this lane was much more involved than the first; including a full battalion maneuver operations order with accompanying target-list worksheet and fire support execution matrix.

Organic M120s, M109A6s and attack-aviation teams from 227th Air Cavalry Brigade, 1st Cavalry Division, supported this training event. The attack-aviation teams consisted of AH64s firing 30mm cannons and 2.75-inch rockets, and UH60s shooting door gunnery.

The maneuver commander developed a company scheme of maneuver, incorporating direct-fire engagements, fire control measures and intelligence preparation of the battlefield. The FSO was required to develop a scheme of Fires that integrated into the commander's maneuver plan. The scenario presented several planned targets in addition to several targets of opportunity. It was open-ended as much as possible so maneuver elements had the opportunity to use fire support assets as they saw fit to develop their engagement areas.

Creating a scenario that allows events to occur simultaneously and non-sequentially allows the participant to have a more realistic training event that can test his maneuver and Fires plan while forcing him to adjust the plan when he comes in contact. If the events in the scenario are set in one order, the training event becomes a series of fire support tasks and

Soldiers from 1st Battalion, 5th Cavalry Regiment, 1st Brigade Combat Team, 1st Cavalry Division, fire the M120 mortar system out of an M113 armored personnel carrier on Camp Taji, Baghdad, Iraq. (Photo by MSG Michael Daigle, U.S. Army)

loses the intended effect of teaching participants how to integrate Fires and maneuver effectively.

The key tasks trained during this exercise included:

- Echelon Fires on immediate threats while maneuvering to an objective
- React to contact by calling marking smoke rounds and adjusting close-combat attack on enemy threats
- Obscure enemy observation assets with smoke
- Call for and adjust fire on targets of opportunity
- Execute final protective fire. However, the most important task (which was implied) was integrating triggers from the maneuver commander's plan into the actual coordination of fire support assets

Challenges and considerations. During development of the first two walk-and-shoot exercises, we struggled over deciding whether trainees would maneuver mounted or dismounted. Although dismounted during the execution, many individuals commented that the training would have been better if performed in combat vehicles. There are advantages to conducting a walk-

and-shoot dismounted. In a dismounted setting, planning is simpler and only requires a small training area. Conducting the lane dismounted also provides a more intimate setting for mentoring and professional development. Conversely, conducting the walk-and-shoot while mounted allows trainees to gain confidence and proficiency on their designated platforms.

During the second walk-and-shoot, each company commander, with his FSO, participated in the lane under the battalion S-3's guidance. The 1st BCT commander, COL Scott Efflandt, spent an hour walking side-by-side with each team on the lane. The walk-and-shoot was a rare opportunity for the company commanders to spend time with their senior trainer in an operational setting.

The battalion OPORD given to company commanders in the second walk-and-shoot was written for a heavy combined-arms battalion facing a mechanized enemy force. The maneuver commanders had to jump from planning a mounted fight to dismounted maneuvering during the training event. This caused some confusion as to the proper approach to the event.

Lessons-learned. Our take-away is that training Fires and maneuver in a dismounted setting has benefits and helps trainees learn the basics, but it is best to train as you fight. As a heavy BCT, our future walk-and-shoots will incorporate our organic maneuver platforms.

Include attack aviation. Adding attack-aviation assets to the walk-and-shoot exercise exponentially increases the training's value. Air-to-ground integration requires much more thought about the area of operations as a three-dimensional environment. Airspace coordination areas and gun target lines become much more important to the ground commander when aviation is on station. This type of training develops an appreciation for fire support coordination measures in the maneuver commander's thought process.

Observers with limited experience controlling attack-aviation assets tend to let the Apaches 'do their thing' without giving the pilot a clear picture of the situation on the ground. After practicing, our observers became more skillful at giving aviation assets effective task and purpose. The participants learned

that most pilots' primary focus is receiving an accurate location of friendly troops and establishing a target using friendly location as a reference.

It seems intuitive, but early in the training many ground controllers struggled to provide pilots enough information to paint a clear picture of ground activity. Controllers either gave too little information, or overcomplicated the process by giving pilots directions in miles rather than giving them a cardinal direction. Successful observers generally used simplistic walk-ons, using cardinal directions and distances from mark to target (i.e., north of mark, 100 meters) or orientation based off the observer's/ Apache's location (i.e., three vehicles in the open, attack vehicle furthest away from my/your current location).

Also, to avoid fratricide, controllers must understand it is crucial for the pilot to acknowledge the location of friendly positions before authorization to engage targets.

Exercise at platoon level. The next step, and the third event in our development of the walk-and-shoot concept, was to incorporate multiple fire support assets into platoon live-fire exercises (LFX) and/or Table 12 gunnery. The 2nd Battalion, 8th Cavalry, 1st BCT, conducted a platoon LFX incorporating all organic direct-fire assets and 120mm mortars in addition to M109A6 support from 1st Battalion, 82nd Field Artillery, and AH-64 support from 1st and 4th Battalions, 227th Air Cavalry Brigade. All of these assets supported a quick-reaction-force mission, which provided the platoon leader and his fire supporters an impressive array of firepower to manage.

The platoon's mission involved:
- Moving from a forward operating base to the objective
- Assaulting (dismounted) the objective while M1A2 Abrams, M2A3 Bradleys and M1114 up-armored high-mobility, multipurpose wheeled vehicle (humvee) provided support by fire
- Engaging the enemy from defensive positions

The platoons generally excelled at these tasks and were very fluid in their ability to maneuver on the battlefield. By far the most challenging aspect of the exercise was the air-to-ground integra-

tion and clearance of Fires handled between the platoon leader and FIST team.

Range restrictions required all direct- and indirect-fire assets to cease fire when aviation was cleared for attack, so the platoon leader and the FIST team had to talk constantly to control and mass their fire power effectively. Each platoon leader had to decide how he wanted to employ and control his assets. Some platoon leaders preferred to control attack aviation themselves. Others preferred to focus on the ground fight and task the FIST team to control aviation assets. Both ways worked for some and did not for others. In the end, we found it is more effective to find an individual who is comfortable controlling aviation, rather than to assign the task to a certain position.

Target leader/FSO relationship. A walk-and-shoot can be designed for different target audiences, but we found one of the best targets for this training is the company commander/FSO relationship. Many company FSOs and company commanders commented on the value of the opportunity to plan realistic maneuver and Fires together for the first time. This allows the FSO to prove himself to his commander as they work together in their intended relationship for the first time.

It is important to establish a positive working relationship with range control to mitigate range constraints as much as possible. Fort Hood range control played an integral part in the development of the walk-and-shoot concept. They attended many in-progress reviews and constantly advised us on ways to maximize our capabilities in the range training area.

When developing a walk-and-shoot, it is important to approach initial planning by building a robust scenario instead of asking for the capabilities of a specific range. Our first event was very restricted because we crammed it into one range. When we described to range control the type of event we wanted for the later progressions, they were able to help us build a better training event using a number of ranges together.

Desired end state. The desired end state of our walk-and-shoot training progression was threefold:
- That FISTs begin to master fire support as a dynamic task instead of sit-

ting on a stationary observation post calling for fire
- That maneuver elements develop an understanding of what capabilities fire support brings them on the battlefield
- That maneuver elements start to think about methods of employing Fires into their scheme of maneuver, as opposed to thinking of them as a separate entity operating independently on the battlefield.

Using our training model, BCTs can train Fires in support of maneuver in a crawl, walk, run-phased training campaign. In the crawl phase, FISTs must become competent using triggers and managing multiple fire support assets. The walk phase must combine fire supporters and maneuver leaders learning to integrate Fires into maneuver plans. The walk-and-shoot concept we're developing is the ideal tool to train the first two phases and advance to the run phase, which occurs when multiple fire support assets are integrated into the maneuver training of a platoon-sized element or larger.

Conducting all the prerequisite training to get to this phase of training most likely requires more than 12 months dwell time to accomplish. As low-intensity conflict winds down, dwell time increases and our Army prepares for the next high-intensity conflict, the training concepts outlined here can help our Army be successful in the future. ★ ★

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CPT Mark Morrison, commander of Troop A, 6th Squadron, 8th Cavalry Regiment, 4th Infantry Brigade Combat Team, 3rd Infantry Division, completes a reconnaissance handover upon the completion of the troop raid with 1LT Jacob Garrett, Headquarters and Headquarters Troop executive officer. (Photo by Ensign Lauren Karlewicz, U.S. Navy)

"Maybe it's time we got back to the basics of" ...Leadership

By MG Richard Longo and
Joe Doty, Ph.D. (Ret.)

The Army's 2010 Health Prevention Risk Reduction Suicide Prevention (HP/RR/SP) Report is a very well written and researched comprehensive analysis. This report was a result of the high number of suicides, attempted suicides, and deaths from high risk behaviors, across the Total Army in the last few years. Interestingly, Part III of the report is "The Lost Art of Leadership in Garrison." More recently, *Time* Magazine (July 23, 2012) ran a cover story titled "More U.S. Soldiers have killed themselves than have died in the Afghan War. Why can't the Army win the war on suicides?" Millions of dollars, time and other resources have been spent to address this problem. But the problem still persists. Discussions, across the Army, have centered on the 'why' behind all these tragic deaths – and often revert to a conversation on 'garrison leadership.' However, a significant aspect of the problem is not garrison leadership; it is leadership – at its most basic level – at the human, trust and relationship building level.

It is very clear what is meant by 'garrison leadership'– but the Army needs to be careful to not go too far and start redefining what leadership is and what is expected of our leaders. Is there a deployed leadership; an off duty leadership; a convoy leadership; a staff duty leadership; an inside (or outside) the wire leadership; a motor pool leadership; an athletic field's leadership?

Leadership is leadership. Attempts to compartmentalize or label it risks devaluing or minimizing critical aspects that are 'core.'

Additionally, there are on-going discussions in the Army about 'leadership in complex environments.' Again, we all know what is meant by 'complex environment' – but isn't a Soldier at Fort Hood, Texas, with post traumatic stress disorder (PTSD), marital problems, finance issues, a pending deployment, and a child with the measles also a 'complex environment?' Depending on the leader, this Soldier's problems may be more complex than getting an irrigation system going while having to deal with a corrupt Afghan power broker.

Leadership is leadership. Without question leaders need to practice and use different leader tools and techniques from their kit bag depending on the environment, task, personnel, context and the local politics on the ground – this is situational leadership or leadership in context. But at its core – leadership is leadership - the fundamentals are universal.

Leaders lead people, not machines or robots. And the only way to get to know them is to talk to and with them – really talk. Empathetically converse; talk to learn; listen to understand. Mike Krzyzewski, head basketball coach at Duke University and the USA Men's National team coach, speaks often about how people need to "look one another in the eye when they are talking to each other because this helps to build a relationship and trust." GEN (Ret.) Stanley McChrystal has said that through all his years in the military, he learned that "relationships are what hold a unit together." GEN Martin E. Dempsey, chairman of the Joint Chief of Staff, has made it clear that good units are based on "trust, discipline and fitness." Trust is built and maintained through relationships. There is an affective (emotional) aspect to real relationships that can only be strengthened through genuine, time consuming, two-way conversations. This is leadership at its core.

The Army's new (August 2012) Doctrinal Publication, ADP 6-22 *Army Leadership*, defines leadership as "the process of influencing people by providing purpose, direction and motivation to accomplish the mission and improve the organization." Most definitions across academia, other militaries, and industry are similar in content, meaning, and outcomes. Additionally, the Army Leadership Requirements Model in ADP 6-22 articulates the following:

SFC Shvoda Gregory, a motor sergeant for the 557th Engineer Company, 864th Engineer Battalion, talks to a small group of less than 20 specialists and newly promoted sergeants from throughout the battalion through the process of inspecting a squad of Soldiers in formation outside the battalion's headquarters on Joint Base Lewis-McChord, Wash., as part of a five-day junior leadership development course the battalion administers quarterly to better prepare its new and future leaders. (SGT Christopher Gaylord, U.S. Army)

> *" I am really worried about one of my squad leaders (SL). He is on his fourth deployment in nine years, some of which were 15 months. Outside the wire, he is at his best but inside the wire – well, I am really worried… Technology is the worst thing to happen to the human aspect of leadership….no one wants to just sit and talk to Soldiers and really get to know them…I am worried about people giving up on him (the SL) because that happens all the time."*
>
> — Infantry platoon leader in Afghanistan

1. Leader attributes – what the leader is:
   a. Leader of character – Army Values, empathy, Warrior Ethos, and discipline
   b. Leader with presence – military bearing, fit, confident, resilient
   c. Leader with intellect – mental agility, sound judgment, innovation, interpersonal tact, expertise
2. Leader competencies – what the leader does:
   a. Leads – leads others; builds trust; extends influence beyond the chain of command; leads by example, communicates
   b. Develops – creates a positive environment/fosters esprit de corps; prepares self; develops others, stewards the profession
   c. Achieves – gets results

ADP 6-22, pages 5-8 go into greater detail in defining and describing these attributes and competencies. This list is holistic and comprehensive and provides leaders and leader developers all they need to 'be, know and do' in all environments and contexts (certainly some more so than others – depending on the situation). For example, the Army is now much more focused on how to develop adaptable leaders – which falls under the 'intellectual capacity; mental agility, and innovation' category in our doctrine. Importantly for this discussion, however, are the attributes and competencies of empathy, interpersonal tact, mental agility, innovation, leads by example, leads others, communicates effectively, creates a positive environment, and develops others – all which speak to a responsibility (duty) to 'know your Soldiers.'

Input from the field. We posed this 'garrison leadership' topic to former commanders (company, battalion and/or brigade level) who commanded in Afghanistan and/or Iraq – some who are serving there now. To a person, they all agreed that, 'yes, leadership is leadership.' What follows are some of their thoughts:

"The varied environments do place different stressors on leaders for sure; on the other hand, the principles of leadership are applicable across all the diverse conditions concerned. Core values are at the foundation of how one leads, whether in combat or in garrison."

"We must always consider both the person and the environment…People have different experiences…while a drunk may sober up and be a great Soldier in a combat zone, he may return to garrison and end up DUI and the worst Soldier in the platoon. Conversely, the kid who couldn't adjust without a strong family support network in a combat zone may prove to be a stellar leader in garrison."

"Leadership is leadership, but it takes on many forms in many contexts. Garrison leadership is different from forward operating base (FOB) and combat and some people are better at each of them. But a good Army officer needs to be good at all of them, or as a minimum do all of them. The context of leadership has different shape, character, and nature – but it is still leadership."

"I constantly search for the 'cross over' in leadership: leader on the sports field, leader for the family, leader spiritually, leader in combat, leader in garrison. Are these different? No, but the necessary traits depending on the situation are. Sometimes, a leader in combat must be ferocious, where as I would argue that a leader in the household should not be. After all, it is our duty to kill in combat, like it or not. The key to leadership is personality management, what makes a person tick, how do I provide that person with purpose, direction, and motivation. Every Soldier is different."

"Leadership equals leadership period. I think it is a poor argument for those who distinguish it and argue that you can pick a style of leadership… similar to those who believe your enemy will conform to your expectations of battle…..leader attributes should evolve depending on what environment you are operating in…..for example, we know that decentralized operations work in today's operational environment. This means more authority, capabilities, and execution responsibility, in the hands of our junior leaders."

We also anonymously presented the platoon leader's leadership challenge above with a few senior Army leaders, soliciting these responses: "Wow – but really no surprise."

"There is a growing recognition that the leadership issues are company level and below on these issues and a contributing factor is a lack of face-to-face interaction."

"Too many people retreating to corners with a hot spot so they can 'talk' with like-minded people who only reinforce what they are thinking. No stimulation, no context, no texture or feel, no intimacy, no real connection, just a casual virtual shallow reinforcement of their fears and problems and a temporary escape that leaves them unfulfilled. Better to get away from the screen and live."

"Our culture has out-sourced much of life to gadgets and 'labor-saving' devices. The brain and soul are like muscles: if you don't use them, they atrophy. If you don't spend time getting to know your Soldiers, then it's too late when they need you because you haven't any insight."

"I have often thought that caring for my Soldiers was similar to caring for my children. If I invest the energy to talk to them on a regular basis when things are going well, if we make it a habit to communicate regularly, it is only natural that they will want to talk to me when things are not so good."

"But troops come in off a mission, clear the weapons, then start playing a violent video game. When do they get a chance to reflect, clear their minds, and talk about what is bothering them?"

These responses scream for getting back to the basics of leadership.

Paratroopers assigned to the 2nd Brigade Combat Team, 82nd Airborne Division, attend a class on troop leading procedures, at Fort Bragg, N.C., as part of the brigade's Team Leader Course. The paratroopers attended classes on unit history and how to properly counsel a Soldier. The course taught junior leaders in the 2nd BCT the necessary skills to lead paratroopers. (Photo by SGT Matthew Ryan, U.S. Army)

Or as one retired officer lamented, "It all comes down to leadership, and you can't buy good leadership."

We understand and acknowledge the new and different challenges that technology and social media play to face-to-face leadership. But, as previously mentioned, these are just new leadership challenges, just like any other challenge.

Without question, our many years of war in two theaters have changed the complexion and culture of our Army and has stressed our professional ethic. But the fundamentals of our ethics have not changed and the fundamentals of and responsibility for good solid ethical leadership have not changed.

Does 'care for Soldiers' mean the same thing today that it did 20 or 30 years ago? At its most basic level, 'care for Soldiers' means the Soldier has been well trained and has all the equipment (serviceable) needed to accomplish their mission/assigned tasks. However, it also means, for example, that if a Soldier is hurting mentally and emotionally in garrison -- the chain of command's responsibility (duty) to deal with that issue is the same as it would be at a FOB

or combat outpost (COP) in Afghanistan.

One former brigade commander has argued that we are no longer teaching our junior leaders how to 'care for Soldiers' in a garrison environment. But the real issue may not be 'garrison leadership' or 'we don't know how to do this garrison stuff' -- it may be the concepts of duty and discipline. Are we asking (expecting?) too much from our junior leaders? Are they too tired, emotionally, mentally, physically, and spiritually in between deployments to do 'all this other stuff' -- their duty? Do some of them also need help? Have we created a different standard in our Army culture between discipline and leadership in theater and discipline and leadership in garrison?

Our junior leaders are smart -- very smart. They are tough -- very tough. They have led Soldiers in complex and hellish combat. But all of that does not absolve them of their duty to genuinely care for their Soldiers and maintain order and discipline -- in garrison or anywhere else. Leaders, at all levels, have a duty to care for their Soldiers. If they can't or won't, who will?

In the military, leaders are leaders 24/7. This is not optional. Leaders being leaders 24/7 is part of our professional ethic. Our military profession does not have and cannot have part time leaders. The uniqueness, lethality, and responsibilities of the profession require 24/7 leadership. The old adage "he is a good Soldier/leader when he is on duty" is not, and never has been, part of our ethic. One only has to think back to the Navy's Tailhook scandal, or some of our many Army misconduct cases, to highlight this point.

It should be clear by now that the Army needs to make a concerted and focused effort to get back to 'leadership 101.' Leaders, at all levels, are responsible for knowing (really knowing) their subordinates. Junior leaders need to spend more time talking with (not to) their Soldiers -- both in garrison and while deployed. Senior leaders should model the behaviors we are seeking; colonels need to talk with (not to) majors, lieutenant colonels need to talk with (not to) captains, command sergeants major need to talk with (not to) sergeants first class. Once this role-modeling is in place, then and only

then can we expect, and demand, that junior leaders talk with junior Soldiers -- who tend to be most at risk. This is how trust and relationships are built and sustained. Or as the platoon leader in Afghanistan says, "you can learn a lot if you just let the other person talk."

This 'getting back to basics' approach won't necessarily solve all the problems our Soldiers are facing, which sometimes results in suicides. But this kind of genuine, authentic leadership will at least help to establish the kind of relationships with trust where leaders will have the opportunity to intervene and hopefully ease the pain or mitigate whatever is ailing the Soldier.

Our senior leaders, who are well versed in our professional ethic, have a responsibility to ensure they are setting the conditions for our junior leaders to develop as 24/7 leaders in any context. Is this more challenging and difficult now than it was 20-30 years ago? Probably, but it is still our duty. Additionally, our school houses have a responsibility to teach and help foster dialogue on our professional ethic, of which includes the fundamentals of good solid ethical caring face-to-face leadership.

Finally, commanders, at all levels, need to reaffirm and internalize that "I am responsible for everything my unit does and/or fails to do – both in garrison and in theater." Taking this challenging step (both philosophically and practically) will be an appropriate start in ensuring our great Soldiers are cared for in the manner in which our nation expects and they richly deserve. ★ ★

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Senior noncommissioned officers with the 8th Special Troops Battalion, 8th Theater Sustainment Command, practiced reflexive fire during professional development training at Schofield Barracks, Hawaii. (Photo courtesy of the 8th Theater Sustainment Command)

FIRES

Soldiers with A Battery, 1st Battalion, 377th Field Artillery, 17th Fires Brigade, watch a CH-47 Chinook helicopter take off after connecting it to an M-777 155 mm howitzer cannon as part of sling load operations training during Operation Rising Thunder at Yakima Training Center. The artillery Soldiers are honing their fighting skills and strengthen their partnership with other units and international allies. (Photo courtesy of Joint Base Lewis McChord, Wash.)

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