A Joint Professional Bulletin for US Field & Air Defense Artillerymen

Fires

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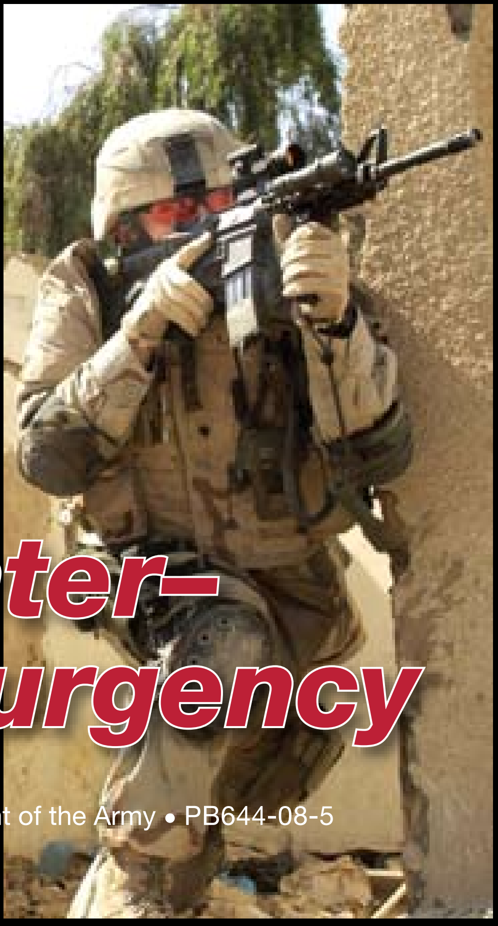
October-December 08



Counter–Insurgency

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Report Documentation Page	Form Approved OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
DEC 2008		**00-10-2008 to 00-12-2008**

4. TITLE AND SUBTITLE **Fires, A Joint Professional Bulletin for US Field & Air Defense Artillerymen. October-December 08**	5a. CONTRACT NUMBER 5b. GRANT NUMBER 5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER 5e. TASK NUMBER 5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Headquarters, Department of the Army,Fires Center of Excellence (CoE),Building 758, McNair Road,Fort Sill,OK,73503**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S) 11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**48**	

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ARTICLES

FIRES DEPARTMENTS

Editor's Note: The photo on Page 10 of the July-September edition does not depict the use of proper safety procedures. *Fires* regrets printing the photo and wishes to thank our observant readers.

Covers: See Page 9 for photo captions.

The *Fires* staff wishes to thank RCW Communication Design, Inc., of Alexandria, Virginia, for the quality design and layout of this magazine.

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PURPOSE: Founded in 2007, ***Fires*** serves as a forum for the professional discussions of US Army and Marine Field Artillery (FA) and Army Air Defense Artillery (ADA) professionals, both active and Reserve Component (RC); disseminates professional knowledge about the FA's and ADA's progress, developments and best use in campaigns; cultivates a common understanding of the power, limitations and application of joint fires, both lethal and nonlethal; fosters joint fires interdependency among the armed services; and promotes the understanding of and interoperability between the FA's and ADA's active and RC units—all of which contribute to the good of the FA and ADA, Army, joint and combined forces, and our nation.

OFFICIAL DISTRIBUTION: Free copies are sent to USA and USMC FA units: 7 per corps artillery, FA/fires brigade, brigade combat team (BCT), Stryker cavalry regiment (SCR), FA Marine regiment and battlefield coordination detachment (BCD) headquarters; 13 per FA/fires/battalion/squadron; 3 per fire support element (FSE), fires and effects cell (FEC), effects coordination cell (ECC) fire support cell (FSC), fire support coordination center (FSCC), force fires coordination center (FFCC) and separate battery or detachment; 3 per fire support team (FIST) and combat observation lasing team (COLT); and 1 per Master Gunner and Fire Support Officer (FSO). Free copies to Army ADA units: 7 per Army air and missile defense command (AAMDC) and ADA brigade headquarters; 13 per ADA battalion; and 3 per air defense airspace management (ADAM) cell and separate battery or detachment. The FA and ADA Schools' departments, directorates and divisions each get 2 copies. Other US Army and armed services units/organizations and US government agencies that work with FA or ADA personnel, equipment, doctrine, tactics, training organization or leadership issues may request a free copy—including, but not limited to, ROTCs, recruiting commands, libraries, attaches, liaison officers, state adjutants general, public affairs offices, military academies, laboratories, arsenals, major commands, etc. Contact ***Fires*** at http://sill-www.army.mil/firesbulletin/.

SUBSCRIPTIONS: Those not eligible for official distribution may subscribe to ***Fires*** via the US Superintendent of Documents, P.O. Box 37154, Pittsburg, PA 15250-7954 (1-866-512-1800) or via membership in the US Army FA Association (www.fieldartillery.org).

SUBMISSIONS: Email to the Editor, ***Fires***, at firesbulletin@conus.army.mil; mail to P.O. Box 33311, Fort Sill, OK 73503-0311; overnight to Building 758, Room 7, McNair Road, Fort Sill, OK 73503-5600; or call at DSN 639-5121/6806 or commercial (580) 442-5121/6806.

POSTMASTER: ***Fires*** (USPS 309-010) (ISSN 1935-4096) is published bimonthly; periodical postage paid by Department of the Army at Lawton, OK 73501 and an additional mailing post office. Send address changes to ***Fires***, P.O. Box 33311, Fort Sill, OK 73503-0311.

ADA 24/7 Hotline & Email	FA 24/7 Hotline & Email
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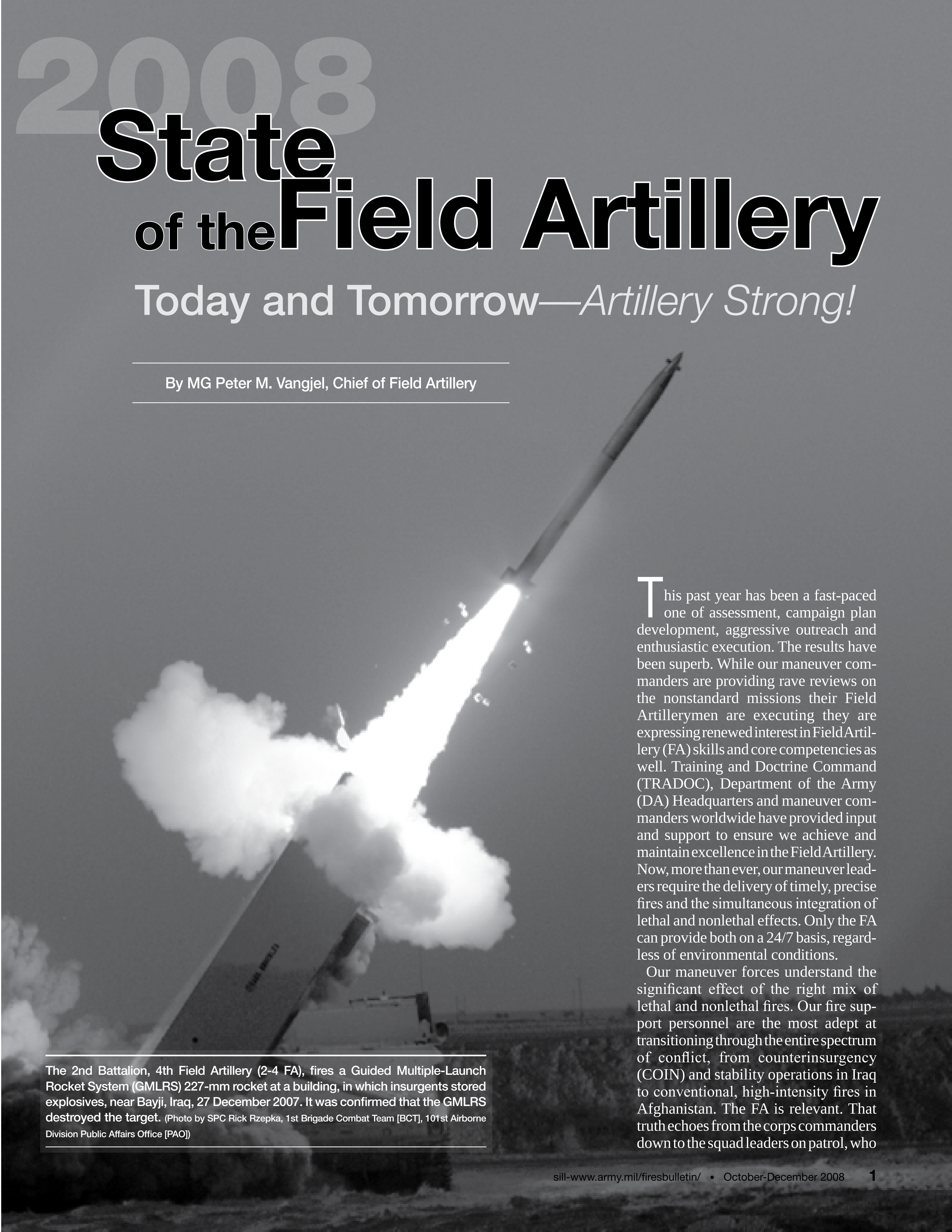
2008 State of the Field Artillery

Today and Tomorrow—*Artillery Strong!*

By MG Peter M. Vangjel, Chief of Field Artillery



The 2nd Battalion, 4th Field Artillery (2-4 FA), fires a Guided Multiple-Launch Rocket System (GMLRS) 227-mm rocket at a building, in which insurgents stored explosives, near Bayji, Iraq, 27 December 2007. It was confirmed that the GMLRS destroyed the target. (Photo by SPC Rick Rzepka, 1st Brigade Combat Team [BCT], 101st Airborne Division Public Affairs Office [PAO])

This past year has been a fast-paced one of assessment, campaign plan development, aggressive outreach and enthusiastic execution. The results have been superb. While our maneuver commanders are providing rave reviews on the nonstandard missions their Field Artillerymen are executing they are expressing renewed interest in Field Artillery (FA) skills and core competencies as well. Training and Doctrine Command (TRADOC), Department of the Army (DA) Headquarters and maneuver commanders worldwide have provided input and support to ensure we achieve and maintain excellence in the Field Artillery. Now, more than ever, our maneuver leaders require the delivery of timely, precise fires and the simultaneous integration of lethal and nonlethal effects. Only the FA can provide both on a 24/7 basis, regardless of environmental conditions.

Our maneuver forces understand the significant effect of the right mix of lethal and nonlethal fires. Our fire support personnel are the most adept at transitioning through the entire spectrum of conflict, from counterinsurgency (COIN) and stability operations in Iraq to conventional, high-intensity fires in Afghanistan. The FA is relevant. That truth echoes from the corps commanders down to the squad leaders on patrol, who need immediate precision fires to take out a sniper threatening their Soldiers.

The FA's performance in theater, together with senior leader discussions and maneuver commander requirements, have assured the permanence of FA and the Fires Warfighting Function. In addition, with the Non-Line-of-Sight Cannon (NLOS-C)—the first combat vehicle for Future Combat Systems (FCS)—rolling off the assembly line within the next two years and the NLOS Launch System (NLOS-LS) racking up successes with every test fire, FA officers, NCOs and Soldiers can rest assured that the FA's future is brighter than ever.

This era of persistent conflict has required us to change. We have adapted and continue to do so, using the FA Campaign Plan (FACP) as our guide. The FACP is the essence as well as the most critical tool for FA transformation.

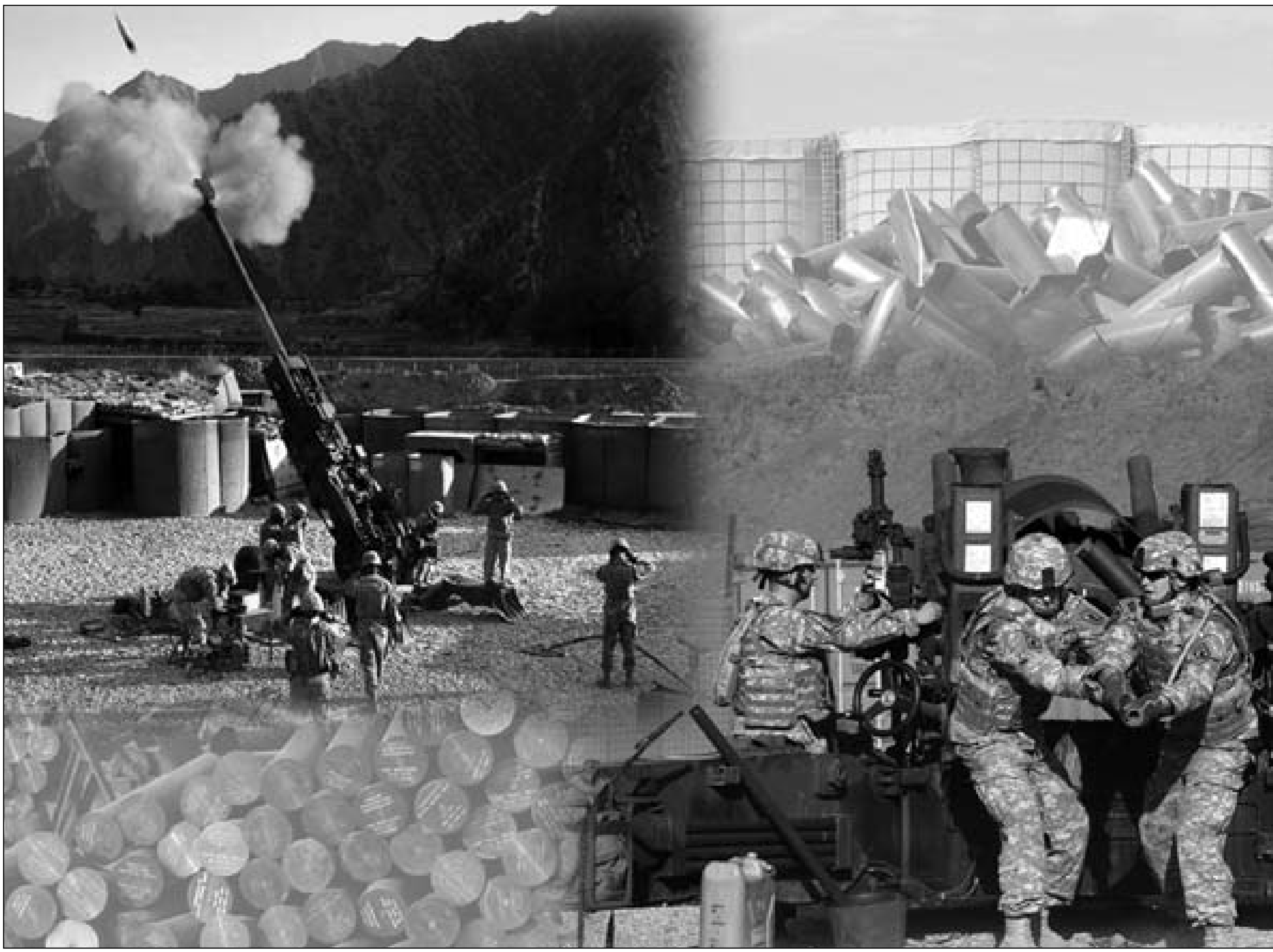
Our efforts piqued the interest of Chiefs of Artillery throughout the world. We had more than 22 Chiefs of Artillery and land force commanders visit Fort Sill, Oklahoma, in the past year alone, and the Fort Sill team has traveled extensively abroad.

We began the year analyzing reams of data collected during my assessment. I extend my personal thanks to every field commander—from captain to lieutenant general—for their candor, honesty and insights. Because of these FA leaders and their Soldiers, we were able to develop the FACP to guide Branch efforts for the next five to 10 years.

The FACP is a comprehensive document that addresses every aspect of FA fires and fire support. We integrated our efforts using the key concepts of doctrine, organization, training, materiel, leadership, personnel and facilities—harmonizing them into four major lines of operation (win the current fight, reset, transform for future operations, and sustain Soldiers, leaders and families), which align with Army priorities.

We spent the middle months of the year rallying resource support for the FACP and its supporting plans—most notably the "Return of the King," the supporting plan designed to address the pressing short-term need of reducing FA core-skills atrophy. We received positive reviews and support from TRADOC and, most importantly, authority and resources to implement required changes and adjustments. The FACP was hung on Fires Knowledge Network (FKN), soliciting user input for the past two months. The approved final version will hit the street in January 2009.

We had no intention of waiting for the release of the FACP to begin work.



We closed out the year by implementing several initiatives in support of the FACP with our available resources.

People. Soldiers and families are our number one asset. Key for me is ensuring that they have time to reflect upon their experiences and become better leaders in their future assignments. The past six years have been tumultuous for FA. We performed superbly, but it has been costly in terms of stress on our Soldiers, leaders and families.

Reduced Attrition. There are encouraging signs. FA captain attrition has been reduced by five percentage points, although it remains higher than in some other branches. Many factors contribute to attrition, the first of which is our OPTEMPO. Currently, FA remains the most deployed branch in the Army in terms of officer percentages. Our captains are telling us that multiple deployments prior to the FA Captain's Career Course (CCC), combined with the likelihood of serving on military transition teams (MiTTs) upon CCC completion, are impacting retention negatively.

The MiTT mission is key to our success in Iraq and Afghanistan and Artillerymen perform it to the highest standard; however, some captains are frustrated by yet another separation from family and misperceive MiTT duty as detrimental to their career progression. Additionally, with the numerous in-lieu-of missions that Artillerymen are tasked to accomplish, captains believe that they are not serving in the capacity for which they joined the Army—specifically as Artillerymen. Although the pride and professionalism of our Artillery Soldiers and leaders have been a hallmark during the War on Terrorism (WOT), many young officers want assurance that they will not be performing in-lieu-of missions indefinitely.

MiTT Relief and Incentives. We are implementing initiatives to rebalance the FA and to enhance its preparedness, relevance and stature in the process. We are working to increase dwell time to allow time to train and execute core competencies.

Gunners from A/4-319 FA Regiment, upper left, conduct direct-fire training in Afghanistan. Soldiers from C/3-321 FA, lower right, fire an M777A2 from Camp Blessing, Afghanistan. The expended ammunition casings shown are from a photo taken at Forward Operating Base Cobra, Afghanistan. (Illustration by Shirley K. Dismuke, Strategic Communications, Fort Sill Oklahoma; photos courtesy of A/4-319 FAR, C/3-321 FA and B/4-320 FAR)

CPT Chunka A. Smith, right, an Air Defense Artillery (ADA) officer, asks an FA lieutenant about his spotting during the Fires/Effects Transition Team Course at Fort Sill, Oklahoma. ADA officers train alongside FA officers during the three-day live-fire exercise, in preparation for military transition team (MiTT) assignments. (Photo by CPT Jonathan C. Schmidt, 1-30 FA)

One significant change in support of our efforts to reduce captain OPTEMPO comes from personnel contributions from our ADA comrades who are assuming responsibility for one-third of the MiTT fire support assignments. We bring ADA officers to Fort Sill, assign them a personal mentor and make them fire support practitioners in preparation for their one-year tours. This program alleviates a burden on FA captains, allowing them to return to FA units immediately upon graduation from CCC. We anticipate this program will continue at least through 2011.

And while MiTT assignments for FA officers have not completely gone away, we took steps to make them more attractive by requesting a $5,000 to $10,000 bonus for MiTT duty and by designating some MiTT assignments as Key Developmental (KD) positions for our midgrade officers. These positions allow officers to get in the fight, gain operational and strategic situational understanding and reset their deployment clocks.

At Human Resources Command, our FA Branch Chief is committed to ensuring every major who serves in a MiTT KD billet is assigned to another KD assignment in the FA. With continued emphasis on stability operations capabilities, MiTT assignments are another opportunity for our Artillerymen to demonstrate adaptability and flexibility—and to enhance their careers in the process. We also are shaping our career-field designation contributions, allowing our captains to "re-Red" because we are contributing fewer officers to alternate career fields.

Growing Officers. To strengthen the long-term health and growth of the Branch, we have focused on lieutenant accessions. Through our aggressive support of Reserve Officer Training Corps (ROTC), Leader Development and Assessment Course and US Military Academy (USMA) Cadet Field Training and Mounted Maneuver Training, we have achieved impressive results. There is a 33 percent increase in USMA accessions and more ROTC cadets have requested FA as a branch choice than we have allocations to fill. While Officer Candidate School will continue to fill officer requirements for FA as well as the other branches, our cut will be less than last year's high of 47 percent, ensuring better balance in our officer corps.

Command Opportunities. Further, there are excellent opportunities for promotion and career progression. Overall, FA officer promotions are at an all-time high for captain through colonel. Opportunities to command at the battalion level never have been better. Although modularity decreased the number of brigade-level commands, I continue to engage senior Army leaders to ensure the Army recognizes that Artillerymen are

CPT Loretto Borce, executive officer and assistant team chief, MiTT, 3-7 FA, 3rd Infantry BCT, distributes supplies to village children southwest of Kirkuk, Iraq, 18 January. (Photo by SPC Michael Alberts, 3rd BCT, 25th Infantry Division PAO)

capable of commanding Brigade Combat Teams (BCTs), Maneuver Enhancement Brigades, Training Support Brigades (TSBs) and Garrison Commands and that our senior NCOs equally are fit to fill the senior enlisted positions. Just this past year, we had one of our own selected for brigadier general after serving as a garrison commander.

Slowly but surely, we are seeing change in promotion board selections. General officers (GOs) are expected to be the consummate connectors, integrators and leaders. No others have more experience and can integrate capabilities better than our Artillerymen who perform such tasks throughout their careers. I challenge commanders to do all they can to develop our officers to be competitive for BCT command. We intend to help commanders in that process here at Fort Sill as well.

The trend we have seen in the field is that, more frequently, maneuver commanders are requesting Artillerymen to be their executive officers, deputy commanders, and battalion and brigade S3s. We are educating maneuver commanders to recognize that the same capabilities that make FA officers effective in those BCT positions also make them successful BCT commanders. I continuously look for ways to enable our officers to compete and be selected for BCT command from both the policy and "training required" perspectives. My bottom line is that our officers must remain competitive for colonel command opportunities and key staff positions to assure GO selection opportunities.

Fire Support Coordinator (FSCOORD). A significant point to consider is that we are beginning to see that, while still very important, colonel command is not the sole selection criterion for GO. Skills and experience are critical, and this bodes well for our FSCOORD positions, Battlefield Coordination Detachments (BCD) and TSB commands.

We are proposing to assign a FA GO as the FSCOORD at the Army Service Component Command (ASCC) level for select Combatant Commands to integrate lethal and nonlethal effects in the Combatant Command theaters of operation. This may create opportunities for GO progression for officers who may not have commanded fires brigades. We have highly skilled officers in FSCOORD positions at BCD and TSB billets who clearly are qualified to be that GO at the ASCC and, as I said before, who better than an Artilleryman to integrate lethal and nonlethal effects?

Warrant Officers. Our enlisted personnel status is very strong. FA enlisted strength stands at 104 percent—a remarkable statistic considering the number of multiple deployments our Soldiers and families have been enduring. This is good news because our NCO Corps provides the "seed corn" for FA warrant officer accessions. Our warrant officer ranks are experiencing pressures for rapid, unprecedented growth. I remain committed to selecting and training the right leaders for warrant officer positions. Although we don't expect much more than a 70 percent fill on warrant officers this year, we anticipate being full strength by fiscal year 2011 (FY11)—the same year the Chief of Staff of the Army wants to have the Army in balance. The growth requirement has been short fused but we will not rush to failure. We depend on our warrant officers' technical expertise and that can't be grown overnight.

All things considered, progress in the personnel arena has been enormously positive. We have made huge strides in enabling our Soldiers and leaders to have time and opportunities to learn, reflect and develop, but these programs will take time to mature fully.

Materiel. The FA now, more than ever, is comprised of systems of precision systems. We are working continuously to incorporate precision capabilities in each of the five elements of accurate and predicted fire—accurate target location and size, accurate firing location, accurate ammo and weapon information, accurate meteorological information and accurate computational procedures. These elements form the cornerstone of our profession and are the basis for the metrics that commanders use to determine our effectiveness across the full spectrum of operations. Speed and accuracy are critical requirements and precision capabilities must permeate every aspect of our gunnery systems to include munitions, weapons platforms, target acquisition and meteorological systems, and fire support command, control and communications capabilities.

Precision Fires in the Fight. FA precision capabilities are making significant contributions in theater. The Excalibur and the Guided Multiple-Launch Rocket System (GMLRS) are being used with great effect. To date, more than 1,000 GMLRS rockets and 70 Excalibur rounds have been fired in support of maneuver commanders in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) by both US and Coalition Forces. Our maneuver commanders continue to call on FA for their all-weather precision needs to achieve instant effects on the battlefield. The feats of GMLRS—the "70 kilometer sniper rifle"—continue to be told, with new stories and tactics, techniques and procedures (TTPs) added each week.

The concern for collateral damage is ever present and our systems provide some scaled lethality in support of ongoing combat operations. Precision artillery munitions and supporting targeting capabilities provide commanders greater options and flexibility for using artillery in restricted and constrained terrain. Most importantly, maneuver commanders are completely confident in cannon and rocket munitions accuracy and timeliness in situations involving troops in contact. In several cases, commanders have called in fire missions within 50 to 100 meters of light Infantry, redefining our concept of "danger close." We continue to look at options to provide scalable lethality to address targets across the entire spectrum. "Dial-an-effect" capabilities are being researched and we hope to have something to test within the next 12 to 18 months.

To provide increased accuracy and precision when using conventional artillery munitions, we are assessing precision guidance kits (PGKs) that can be used with conventional artillery ammunition. In their current design, PGK fuse-guidance systems are projected to be accurate to within 30 meters at all ranges, as opposed to unassisted munitions warheads where accuracy decreases as the range-to-target increases. First, we will fit PGKs to most of our 155-millimeter projectiles and subsequently to the 105-millimeter ammunition. PGKs allow for more efficient cannon artillery fires, thus requiring fewer rounds to achieve the desired effect on the target. PGKs will not replace Excalibur; they will complement it, providing more accurate suppressive fires for targets to be attacked with conventional munitions.

Presently, the Infantry BCT (IBCT) does not have an organic precision capability. My queries to maneuver corps, division and BCT commanders revealed that their priorities for fire support are accuracy, responsiveness, mobility and range—in that order. Because nearly 60 percent of the future force will consist of IBCTs, we are exploring ways to address the precision capability gap, examining everything from target location to delivery-system digitization. We have some promising insights that should enable us to begin closing this gap in FY09.

Future Precision Fires Systems. FA is leading the way for FCS with NLOS-C. The BAE Systems NLOS-C plant in Elgin, Oklahoma, will produce the first platform of FCS. NLOS-C will provide networked, extended-range precision attack of both point and area targets for the FCS-equipped BCT (FBCT). Imagine, an NLOS-C will be able to fire six rounds within one minute—its sustained rate of fire—and have them impact on the same target at the same time. NLOS-C gives us a new way to mass fires because now we can mass precision, which will afford opportunities to engage—and destroy—more targets with less ammunition. One NLOS-C system will achieve the same effect on a target that today requires an entire battery.

We are continuing to work on the NLOS-C ammunition resupply capability. A key concern is the ability of a two-man crew to sustain 24/7 operations; therefore, I am pressing for an ammunition supply capability that accommodates a third crew member to rotate between the resupply vehicle and the cannon crew as required. NLOS-C is approved for initial production and will be fielded to the first battery in FY10.

While the NLOS-C is our weapon system of the future, we must not forget that Paladin howitzers will be a part of our inventory until 2050. Accordingly, we have developed Paladin Integrated Management (PIM), a cost-effective sustainment program for our M109A6 Paladins.

This program places the howitzer on a modified Paladin chassis with Bradley internal components and suspension and will incorporate any potential NLOS-C developments. During this process, we will solicit user feedback to improve the components as they are built for NLOS-C. While the PIM is not a new howitzer, the result will be a viable, sustainable howitzer that keeps pace with Bradley and Abrams vehicles and uses common chassis components, saving repair part dollars.

In the future, the NLOS-LS will be part of each BCT fires battalion. The system consists of more than a dozen individual, containerized Precision Attack Missiles (PAMs). The PAM is launched vertically and uses navigational aids to find the target. The 12-pound, shaped charge warhead can defeat a variety of targets. The system is unique in that it gives the BCT commander organic precision-guided munitions (PGMs) capable of engaging and defeating moving targets out to 40 kilometers. NLOS-LS prototypes already have been fielded to the Army Expeditionary Task Force (AETF) and the new equipment training was a complete success. Testing is on track and, although we still have a long way to go, I am pleased with the progress thus far.

> ***Our challenge is to develop Soldiers and leaders who are competent in their core competencies, while creating agile and adaptable leaders of character. Our answer to this challenge is to stand-up the Joint Fires University (JFU).***

Training. We continue to implement a new institutional training paradigm that ensures leaders learn how to think versus what to think. During the Cold War era, institutional training provided instruction that taught students the basics at the Fort Sill FA School and relied on unit training to refine core-competency skills. Not anymore. The FA School had to adapt to meet the requirements of an era of persistent conflict. Today's curriculum is far more aggressive and focused. Our intent is to produce the best trained and most knowledgeable FA Soldiers and leaders, who are proficient in their core competencies upon arrival at their units. Our Soldiers and leaders must be able to teach and perform core tasks upon graduating from schools at Fort Sill so they can hit the ground running and make an immediate contribution. We still have some work to do at Fort Sill, but hopefully, this will ease the task of integrating newly-assigned Soldiers in our already over-burdened units.

FSCOORD Course. In response to the changing environment, we created the FSCOORD Course to train and equip fire support professionals with the right skills and confidence to integrate lethal and nonlethal fires. The first contractor-run course began in January, and we conducted eight courses this calendar year. The FSCOORD Course is a living course in that we refine it as we receive field input. We modify course material to ensure it is relevant to current and future fights and maintain our Fires expertise by sharing TTPs.

We are the premier worldwide-deployable 24/7 all-weather fire support force and will continue to integrate and deliver timely, joint lethal and nonlethal fires to dominate any operating environment.

The course trains fire support officers and senior fire support NCOs within the BCTs fires cells. It includes video teleconferences with the combat training centers as well as units in theater. We have received tremendously positive feedback from our graduates and their maneuver commanders in theater. Because the demand has been so great, we are moving elements of the course to the Intermediate Level Education (ILE) at Fort Leavenworth, Kansas, as an elective.

Distance Learning. The FA School's Lessons Learned Cell and Doctrine Division are collecting current trends and best practices for sharing with the Army through participation in a number of online Warfighting Forums. The results of these sessions are compiled and added to lessons learned collected from the field to comprise a significant reachback capability FKN.

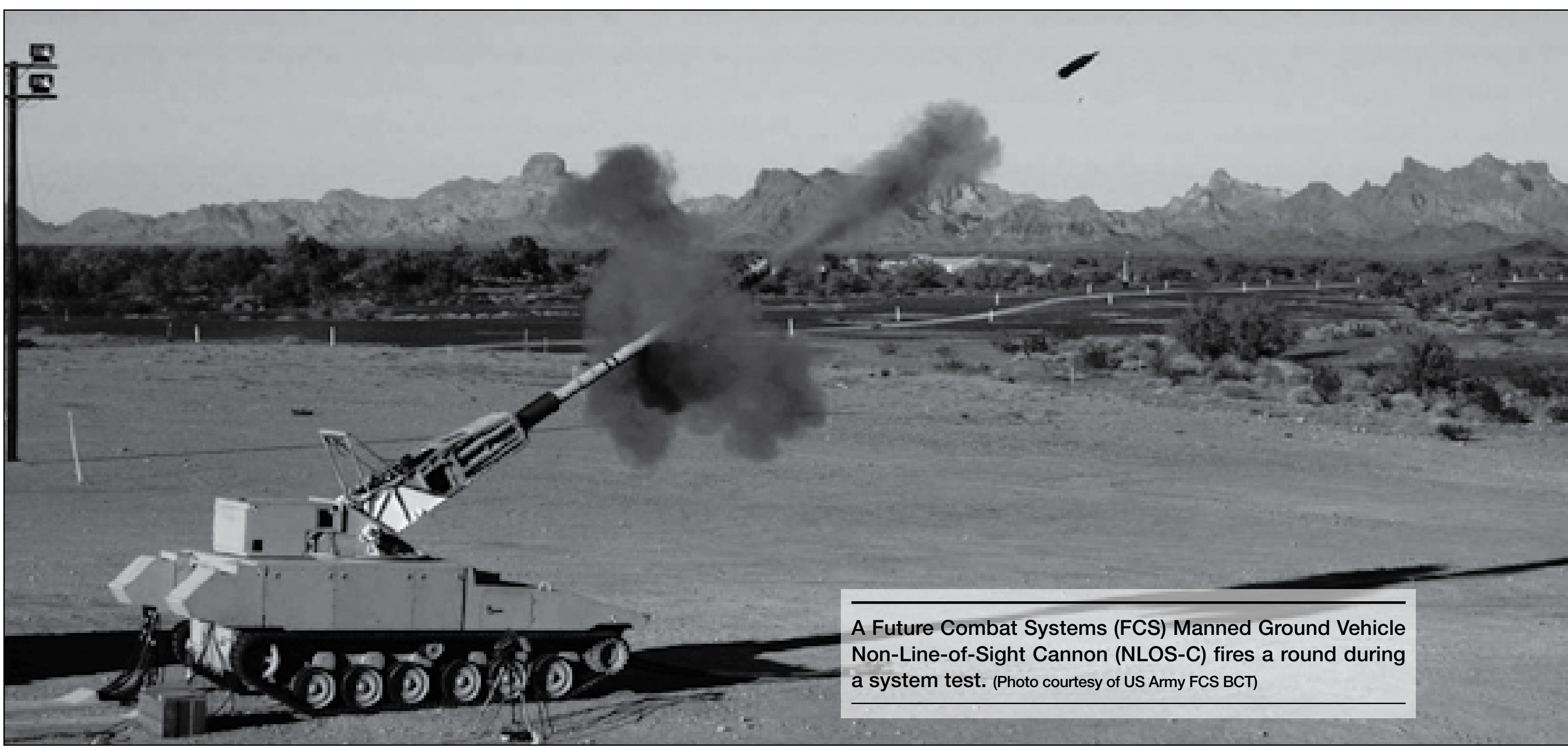
One of the most visible signs of FA transformation is the redesign of FKN with expanded capacity. The Fires Center of Excellence (CoE) Homepage is divided into forums that contain fully-functional blog and conferencing capabilities. Our Redlegs from around the globe can share real-time experiences and engage in relevant discussions about our Branch and our Army. These capabilities will help core-competency retention by encouraging debate, the creation of new ideas and the sharing of new tactics, techniques and procedures. FKN also allows for single sign-on access to a host of FA training courses.

Tactical Information Operations Course. Emphasizing full-spectrum capabilities, the Tactical Information Operations Course (TIOC) continues to be one of our most popular courses. Many officers rave about the training and it was recently recommended to the Combined Arms Center (CAC) Commander at Fort Leavenworth, Kansas, by two Armor captains from Fort Knox, Kentucky. They stated that it was the best training they had received in the Army. We anticipate adding a course of similar design to the ILE elective curriculum entitled "Targeting in a Hybrid Environment." Look for it sometime in FY09.

We want all Functional Area 30 IO officers to attend this course as part of their professional development requirements. We also are offering this course to the US Marine Corps to train its officers in IO at the tactical level.

Army Operational Electronic Warfare (EW) Course. Fort Sill continues to be the trainer for offensive EW planning, synchronization and integration for brigade and higher organizations. Until a full-time EW military occupational specialty or functional area is approved and filled, Fort Sill will continue to train fire support personnel as EW integrators. The Army Operational EW Course is six weeks long and awards an additional skill identifier of 1J upon completion. To date, we have graduated 276 students from the EW course who soon will be in the field applying this new skill. EW is here to stay and certainly will be featured in all future conflicts. The Fort Sill mission is to build EW warriors.

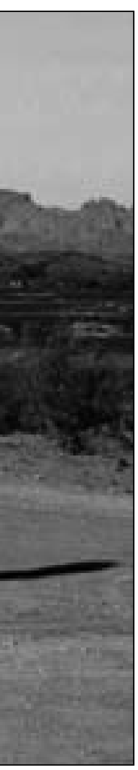
Training Aids, Devices, Simulations and Simulators. Technological training tools have enhanced training for combat missions—at Fort Sill, at home



A Future Combat Systems (FCS) Manned Ground Vehicle Non-Line-of-Sight Cannon (NLOS-C) fires a round during a system test. (Photo courtesy of US Army FCS BCT) station and while deployed. The three-dimensional (3-D) video computer technologies allow increased student throughput, class interaction and self-paced, individual training. These 3-D simulations conversely allow Soldiers in the field to reach back for refresher training.

The Joint Fires and Effects Trainer System (JFETS) is an immersive system that provides Soldiers and their leaders a capability to execute multiple, adaptive fire-support training scenarios that place them in a variety of operational environments where ambiguity and uncertainty prevail. Validated as an immersive trainer for institutional use, we have had interest from field commanders to use the trainer in an operational environment. Forces Command (FORSCOM), US Army Central Command, US Army Europe, Eighth US Army and US Army Pacific Command have expressed an operational need for such a system.

The Call for Fire Trainer (CFFT) provides a significant capability in the 'crawl-walk-run' methodology of training, particularly in training foundational principles, refresher training, sustainment training, and introducing the student to joint fires observer (JFO) tasks (crawl-walk). JFETS, meanwhile, provides the next level of training for a Soldier by putting the Soldier in an environment more closely replicating stressful, tactical conditions (walk-run). The realism found in JFETS, combined with its linkage to collective simulations such as the Joint Conflict and Tactical Simulation, provides more sophisticated training scenarios and more opportunities to develop adaptive Soldiers and leaders.



JFETS simulator capabilities could make it a potential flagship for future FA fire support training. No other Army system of record can emulate virtual fires in realistic open, urban and close-air support (CAS) environments and also provide the commander with a responsive after-action capability to assess training the way that JFETS does. The integration of all elements of fire support into this virtual training environment generates multilevel training experiences that stress Soldiers and their leaders, allowing them to develop a feel for the battlefield rhythm that only can be achieved in this type of immersive environment.

Fort Sill is exploring how to provide the JFETS experience in a mobile system to meet corps and division commanders' requirements and to enable on-site JFO and US Air Force joint tactical air controller (JTAC) training, as well as facilitate core-skills training for our National Guard units. Placing this capability at divisional or primary training locations will provide FA commanders a significant training capability to meet unit needs.

Army Evaluation Task Force Soldiers load NLOS-Launch System Container Launch Units for transport. For more information, see Page 19. (Photo courtesy of US Army FCS BCT)

I am pressing hard for a completely closed-loop simulation that will exercise the entire fire support system in an immersive simulated environment—similar in concept to JFETS. The Fires CoE Battle Lab is developing an interface that will enable the M109A6 Paladin Fire Support Combined-Arms Tactical Trainer (FSCATT) to communicate with the Advanced FA Tactical Data System (AFATDS). This concept will allow a fires battalion to train all the elements of the FA gunnery team simultaneously in their core competency tasks. A closed-loop simulation may be the answer to arresting skills atrophy by providing a simulated means to maintaining core competencies at home or while deployed, regardless of mission.

Reset. Reset is the systemic effort required of units to repeatedly re-man, re-equip and retrain to maintain the core combat capabilities required in an era of persistent conflict. Underlying this is the idea that fires battalions must have help to reset effectively. The Fires CoE must provide external assistance to fires organizations for training and certification to help reduce stress on FA units and enable them to restore battalion-level collective core competencies.

With TRADOC's help, I have funded two contracted mobile training teams (MTTs): the Battery and Below MTT and the Collective Training Evaluation Team (CTET). Both teams will be available to commanders beginning in January 2009 to assist with Reset and/or predeployment training. The purpose of these teams is to help the force restore Fires Warfighting Function skills and FA core competencies that may have atrophied during the performance of nonstandard missions in support of the WOT.

The Battery and Below MTT focuses on leader training and train-the-trainer instruction, covering cannon battery operations through FA Table VIII. The CTET focuses on collective and leader training (on core FA skills and tasks) at the platoon, battery and battalion levels. It can help with training from fire support team and combat observation lasing team lanes to battalion exercise evaluations. The Fires CoE will allocate these assets consistent with FORSCOM priorities but also will accept support requests from the field on a case-by-case basis. The procedures to request a MTT are available on FKN at **https://www.us.army.mil/suite/page/584601**.

I would like to briefly address some initiatives that we are considering as we move forward into 2009. They will offer tremendous capabilities to our Fires Soldiers.

Fires CoE Initial Operating Capability. We are well on our way to standing up the Fires CoE. ADA units are on the move, and we will begin to see ADA Soldiers and leaders assigned to Fort Sill in increasing numbers. I intend to have the Fires CoE established with an initial operating capability (both FA and ADA GO commandants on the ground at Fort Sill) no later than fourth quarter FY09, with full-operating capability by the end of third quarter FY10. The first ADA CCC to be taught at Fort Sill will be in August 2009. While the FA and ADA will remain two distinct branches with their respective courses and schools, the pooling of resources will allow us to take on other initiatives we could not have executed previously.

Joint Fires University. In his 2008 Leader Development Guidance, the Chief of Staff of the Army charged the Army to transform training and education. Our challenge is to develop Soldiers and leaders who are competent in their core competencies while creating agile and adaptable leaders of character. Our answer to this challenge is to stand-up the Joint Fires University (FCU).

The vision is for the JFU to be the leader in providing education, training and the development of experts in the art and science of integrating and delivering lethal and nonlethal fires. The JFU objective is to produce Soldiers, leaders and units that enable the maneuver commander to dominate full-spectrum operations using fires. As we stand-up the Fires CoE, so too will we stand-up the JFU which will combine emerging technologies with emerging training and education methodologies to provide a "university without walls." The JFU will tap into other Service universities and enable our Soldiers to take courses of interest to broaden their knowledge and enhance joint interoperability. The JFU will serve as an enabler for training, education and leader development in the institutional, operational and self-development domains. I have charged the Fires CoE staff to develop the structure, faculty and training/education methodologies during the next year to transform Fort Sill into a university that enables a culture of life-long learning and prepares our Soldiers for the challenges of this era of persistent conflict.

Joint CAS (JCAS) CoE. My long-term vision for the future of the Fires CoE is to grow and evolve into the JCAS CoE. This evolution will enable the Fires CoE to execute training the way the joint force fights, and it is critical to the future development of the FA, the Army and the joint Fires community. The transition to the Army JCAS CoE will incorporate space capabilities and emerging technologies, coalition and other Service personnel, manned and unmanned aircraft, traditional fires units, and airspace management tools into a unique training environment that will prepare Soldiers, leaders and staff organizations for full-spectrum operations.

I personally want to offer my thanks and congratulations to every Artillery Soldier, leader and family member for a job exceptionally well done.

In building the Army JCAS CoE, we will incorporate a "joint training triangle" connecting Fort Sill with Altus Air Force Base (AFB) in Oklahoma and Sheppard AFB in Texas. This union will maximize the digital capabilities of the Army Radar Approach Control System, Defense Approach Surveillance Radar and Defense Approach Automation System to create a common air picture for southwest Oklahoma. My intent is to tackle airspace command and control issues and resolve them, using the radar operating within the joint training triangle. This idea is unique and will allow us to address civilian aircraft-clearance procedures in our "theater of war." I am confident that we will serve as a catalyst for the development of airspace command and control doctrine and provide a premier joint training experience for all Services and Coalition nations training within the triangle.

Concurrent with this effort will be the expansion of the JFO Course and the introduction of new training programs, like the JTAC Qualification Course. These courses will enable Fort Sill to provide education and leader development to the institutional, operational and self-development domains for multiple Services. Joint education will be a key component in developing agile and adaptive fire supporters who can fight *anywhere—anyplace—anytime*.

The past year has been highlighted by Soldiers' accomplishments and complemented by several recently-fielded revolutionary munitions and systems; all of which enhance our ability as FA Soldiers to integrate timely and effective lethal and nonlethal fires in support of the maneuver commander. Precision is the way of the future, and we must continue to pursue precision capabilities with every weapons system for each type of BCT.

The combination of our great FA leaders and Soldiers, transformed organizations and increased capabilities makes us the maneuver commander's "right hand" for integrating all effects into the combined-arms fight. I personally want to offer my thanks and congratulations to every Artillery Soldier, leader and family member for a job exceptionally well done.

We are the premier worldwide-deployable 24/7 all-weather fire support force and will continue to integrate and deliver timely, joint lethal and nonlethal fires to dominate any operating environment. This is what our maneuver commanders expect from us—and what we will deliver—every time. It has been a phenomenal year and 2009 promises to be even better. I encourage all Artillerymen to stay in touch. Look for the opening of the FA Museum at the FA Fires Seminar in June 2009.

Anticipate—Integrate—Dominate! Artillery Strong!

Major General Peter M. Vangjel is the Commanding General (CG) of Fort Sill, Oklahoma, the Commandant of the US Army Field Artillery (FA) School at Fort Sill, and Chief of FA. He was the Direc¬tor of Strategy, Plans and Policy, Office of the Deputy Chief of Staff, G-3/5/7, in Washington, DC; Effects Coordinator for the MultiNational Corps-Iraq, deploying to Operation Iraqi Freedom; Commander of XVIII Airborne Corps Artillery, Fort Bragg, North Carolina; and the Deputy CG, US Army Recruiting Command, at Fort Knox, Kentucky. He served as the Chief of Staff, 1st Infantry Division, in Germany; Commander of the 18th FA Brigade (Airborne) and the Senior Plans Officer for the 1st Battlefield Coordination Detachment, both part of the XVIII Airborne Corps; and the FA Colonels Assignment Officer at Personnel Command (later Human Resources Command). He also served as Commander, 5th Battalion, 3rd FA (5-3 FA) at Fort Sill, and the Executive Officer, deploying to Operations Desert Shield and Desert Storm, and S3 of 1-27th FA in Germany. He holds two masters degrees, one in National Security and Strategic Studies from the National Defense University, Washington, DC.

Fires LEADERS' LIBRARY

Air Defense and Field Artillery Soldiers and leaders are more responsible for their career development and personal knowledge acquisition than ever before.

The Leaders' Library section features books and articles *your* leaders consider informative, important and relevant to today's continuously evolving operating environment and developing Pentathletes. Submit feedback to **https://www.army.mil/suite/portal/index.jsp**.

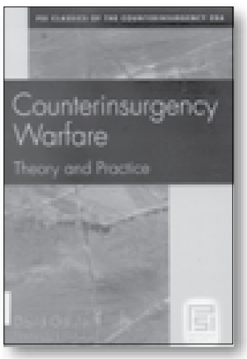
I would like feedback from the field to know how these Leaders' Library selections apply, if at all, to your current situation.

MG Peter M. Vangjel
Chief of Field Artillery (FA)
Commanding General, FA School and Fort Sill

Recommendations:

The Battle for Peace—a Frontline Vision of America's Power and Purpose by General Tony Zinni and Tony Koltz, New York, NY: Palgrave Macmillan, 2006, 256 pages, $24.95.

Learning to Eat Soup with a Knife—Counterinsurgency Lessons from Malaya and Vietnam by John A. Nagl, Chicago, IL: The University of Chicago Press, 2002, 280 pages, $17.00.



Review of *Counterinsurgency Warfare: Theory and Practice* by David Galula, Praeger Security International, 2006, 105 pages, $24.02.

David Galula captures the lessons of irregular warfare in this concise, intelligently written guide. His observations and principles on the importance of winning favor with the civilian population are timeless and applicable to any culture.

As an officer in the French Army, Galula witnessed the employment of guerrilla warfare strategy and tactics first hand. Realizing that counterinsurgency (COIN) warfare was not a temporary phenomenon, but rather a trend in post-World War II conflict, Galula chose to test his theories. His efforts produced a 326-page memorandum entitled "Pacification in Algeria, 1956-1958," that led to this book, a study in COIN's nature, published in 1964. Before his efforts, the most recent doctrinal COIN publication was the US Marine Corps' Small Wars Manual published in 1940.

Galula's plan for defeating insurgents remains as relevant today as it was 40 years ago. He discusses the foundations of "revolutionary" war, insurgency doctrine and prerequisites for insurgent success. The remainder of the book illustrates COIN strategy and doctrine, educating the reader about details of insurgency without unnecessary information.

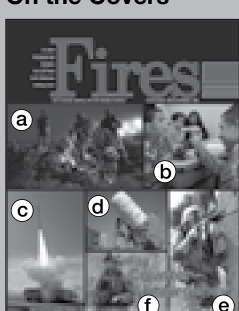
Though the book is most useful to contemporary military professionals, its subject matter may interest a broad range of readers' tastes. Fortunately, Galula captured lessons that can be implemented by today's military. For example, General David H. Petraeus' "clear-hold-build" strategy for Iraq was introduced by Galula in his eight-step method for translating his theories into an effective strategy.

Galula's methods for defeating the insurgent form a useful, uncomplicated doctrine that builds a knowledge base for executing COIN warfare. Perhaps the greatest testament to Galula is the US Army's and Marine Corps' decisions to use his book as a blueprint for *Field Manual 3-24 Counterinsurgency* and the *Marine Corps Warfighting Publication 3-33.5 Counterinsurgency*, respectively.

Given Galula's role as a military advisor in some of history's most notable COIN struggles, this is an excellent reference for today's professional military officer.

MAJ Thomas M. Genter
Interim Attack Operations Cell Chief
G3, 32nd AAMDC, Fort Bliss, Texas

On the Covers



a. 2LT Chang Ahn, left, and MAJ David McCulley, 5th Battalion, 82nd Field Artillery (5-82 FA), update perimeter maps at Joint Base Balad, Iraq, in September. (Photo by SSgt Aaron Allmon, 1st Combat Camera)

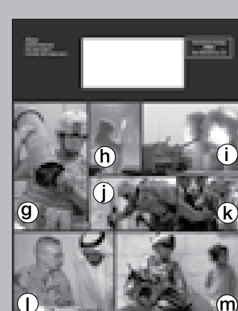
b. While working at a free clinic in Mahmudiyah, Iraq, in September, CPT Chris Prevette, Headquarters and Headquarters Battery (HHB)/3-320 FA, checks the health of a young Iraqi boy. (Photo by SPC Richard Del Vecchio, 55th Combat Camera)

c. A successful test fire of a Terminal High-Altitude Area Defense (THAAD) system. (Photo courtesy of Lockheed Martin)

d. A US Navy Counter-Rocket, -Artillery and –Mortar (C-RAM) Sailor, a member of the Joint Intercept Battery, Task Force (TF)Iron Shield—composed of both Army and Navy members—performs maintenance on a C-RAM system component in Baghdad, Iraq, in July. (Photo by FCCS [SW] Donald Leppert, TF Iron Shield)

e. A Soldier from A/1-151 FA reacts to small-arms fire during a search mission in Al Madain, Baghdad, Iraq, in September 2005. (Photo by SPC Gul A. Alisan, 55th Combat Camera)

f. A Soldier from HHB/3-320 FA, 101st Airborne Division, patrols a neighborhood in Mahmudiyah, Iraq, in February. (Photo by SPC Luke Thornberry, Combat Camera)



g. SGT Jan Reiersen, 4-25 FA, carries a charge-7 redbag, a propellant used to power 155-millimeter shells, during a fire mission in Afghanistan. (Photo by SPC Eric P. Jungels Jr., US Central Command Public Affairs)

h. A Ground-Based Midcourse Defense System test fires at Vandenberg Air Force Base, California, in September 2007. (Photo courtesy of 100th Missile Defense Brigade)

i. An FA unit fires a new modular artillery charge from Camp Taji, Iraq. (Photo by SSG Jon S. Cupp, 1st Brigade, 1st Cavalry Division)

j. A Soldier from A/ 1-10 FA, 3rd Heavy BCT, 3rd Infantry Division (ID), searches for weapons in Narhwan, Iraq, in November 2007. (Photo by SGT Timothy Kingston, 55th Combat Camera)

k. SGT Dustin Pollard, A/1st BCT, 4th ID, ensures Iraqi police weapons are cleared, Baghdad, Iraq, in August. (Photo by SPC Charles W. Gill, 55th Combat Camera)

l. 1LT Derek K. Loveland, C/2-8 FA, 1st Stryker BCT, 25th ID, hands a weapons card to an Iraqi sheik in July 2005. (Photo by SPC Jeremy D. Crisp, XVIII Airborne Corps Public Affairs Office)

m. SGT Joshua Kowalik, HHB/1-320 FA, 2nd BCT, 101st Airborne Division, provides security during a patrol in Baghdad, Iraq, in September. (Photo by SPC Charles W. Gill, 55th Combat Camera)

An Iraqi man unloads crates of chicks in Arab Jabour, 27 April. Iraq's chicken industry had a major breakthrough 4 June, when grant money was secured to help reopen the Unis Chicken Hatchery. (Photo by SGT David Turner, 2nd Brigade Combat Team [BCT], 3rd Infantry Division Public Affairs)

FA and Economic Development in Iraq: *One Chicken at a Time*

By COL David J. Brost and
LTC Richard A. McConnell, both FA

"It's all about job creation. Creating jobs provides Iraqis a choice—continue to support the insurgency or become a self-sufficient and productive citizen."

MG Rick Lynch
Commanding General, Task Force (TF) Marne
and MultiNational Division, Center (MND-C)

Oh, for the "good old days" in the Field Artillery (FA) of focusing on solving the five requirements for accurate, predicted fire and putting steel on target. One needed to strive for the optimal accuracy on one's weapons system during target engagement. In such a lethal engagement-rich environment, social, political and infrastructure concerns (such as creating jobs) was not the goal. We focused our fire support assets on supporting the maneuver plan as we "destroyed, neutralized and suppressed the enemy with cannon, rocket and missile fire." This excerpt from the FA's mission, as written in *Field Manual(FM) 6-50 Tactics, Techniques and Procedures for the FA Battery*, dated December 1996, reflects the environment for which many of us prepared.

Periodically, FA adjusts to changes in the environment, technology and threat. Today, we are in such a period of transition. Who should coordinate the nonlethal fight (information operations, psychological operations, civil affairs and public affairs) in a counterinsurgency (COIN) environment? Field Artillerymen synchronize both lethal and nonlethal effects across numerous branches and functional areas. In short, the nonlethal fight needs the attention of the Army's premier effects professionals—the FA.

The Targeting Process. FA officers understand the targeting process and the construct with which to guide its planning and execution—Decide, Detect, Deliver and Assess (D^3A). The D^3A methodology efficiently manages the employment of lethal munitions *and* effectively administers the planning and execution of nonlethal initiatives and activities. FA must study how the D^3A methodology applies to the nonlethal environment.

Using the D^3A methodology, when is the best time to transition from lethal to nonlethal operations such as economic development? Economic development and capacity building occurs only when security takes hold. As part of the surge forces, TF Marne averaged 25 insurgent attacks per day. Significant security achievements have been made through 12 deliberate division-level lethal operations, transitioning to living among the population (by building and occupying 57 new patrol bases), improving the Iraqi security forces and creating the Sons of Iraq program.

Throughout the southern belts of Baghdad, attacks have been reduced to an average of two attacks a day in an area roughly the size of West Virginia. With the people's need for security being met, the population is looking for improvements in other basic need areas—such as jobs, health care and clean water. Without improvements in these basic need areas, the hard-won gains in security are potentially at risk.

Job Creation. While TF Marne made impacts in water and health care, the hardest area to "jump start" was the creation of jobs. Jobs were created by aggressively promoting "Buy Iraqi First" programs and pursuing marketing products and capabilities of the state-owned industries within TF Marne's operational environment.

Privately owned enterprise is a more difficult area in which to create jobs. Even though this area has the most job creation potential and is the "economic engine" to the recovery of Iraq, it is difficult for the Iraqi government to aid (and Coalition Forces to stimulate) privately owned enterprises. Getting the Iraqi population back to work is essential for returning to normalcy. So where does the FA community fit into this picture?

FA's Role. Today, FA constantly must assess its effects on an operational environment that is as complex as it is fluid. COIN doctrine teaches that to be successful, you must separate the local population from the insurgency. During the nonlethal targeting process, TF Marne realized that providing for the basic services and revitalizing the local economy were keys to driving the wedge between the local population and the insurgents. TF Marne nonlethal targeting planners made a realization—in this maturing COIN environment, we had to redefine the problem and tailor our approach to that problem through our nonlethal targeting methodology to create jobs.

What works in one unit's operational environment may not be applicable in another unit's operational environment. You must evaluate what potential "vertical value chains" are present, determine if you can start/restart the production and produce a marketable product. (Vertical value chains are characterized by the full spectrum of a manufacturing process from raw materials to distribution of the final product.)

This article highlights how TF Marne realized the tremendous nonlethal effects it could have in its operational environment. This article's purpose is to outline the process TF Marne went through to learn our role in this fluid and ever-changing environment, using nonlethal means. Hopefully, other Field Artillerymen can use our methodology to address vertically integrated value chains to continue the progress toward an irreversible momentum in achieving a peaceful and productive Iraq.

FM 3-24 Counterinsurgency, dated December 2006, states, "In COIN, the side that learns faster and adapts more rapidly—the better learning organization—usually wins. Counterinsurgencies have been called learning competitions." Thus, this publication identifies "learn and adapt" as a modern COIN imperative for US forces.

Nonlethal Effects. As the war in Iraq matures, lethal effects take less precedence in day-to-day operations in many areas and often are replaced by nonlethal effects. In *FM 3-24*, there is considerable discussion about an insurgency's life cycle, which includes the nature of a maturing COIN. As a COIN matures, one witnesses the emergence of a more legitimate government, less tolerance of insurgent groups and even reconciliation of former disenfranchised groups (some former insurgents) who join the legitimate government. The recently published *FM 3-0 Operations* describes this holistic approach as political, military, social, economic, information, infrastructure, physical environment and time (PMSEII-PT).

In his article "Learning Counterinsurgency: Observations from Soldiering in Iraq," in the January February 2006 edition of *Military Review*, Lieutenant General (LTG) David H. Petraeus states, "Observation Number 3 is that in a situation like that in Iraq, money is ammunition. In fact, depending on the situation, money can be more important than real ammunition …"

TF Marne initially focused on the economic piece and ultimately on the other portions of PMSEII-PT. Focusing on the economic piece within PMSEII-PT was the nexus for us to learn how to use money as ammunition.

Before one can use any munitions properly, one must be sure of one's target. Remembering the five requirements of accurate, predicted fire, it is important to emphasize the first of the five—accurate target location and size. The figure, Page 14, is a depiction of our nonlethal target—the poultry industry in the form of a value chain. We used this model to conduct our analysis of the problem.

Chickens. How were jobs created in TF Marne's operational environment? Chickens. TF Marne focused on the economic welfare of the provinces and *qadas* (*qada* is the next level of government beneath the province) within our operational environment by stimulating the creation of jobs. In the case of the Mahmudiyah Qada, TF Marne revitalized the mostly dormant poultry industry. By breathing life into this once vibrant, now dysfunctional economy, we created the foundation for continued growth, potentially supporting the goal of achieving irreversible momentum toward a peaceful and productive Iraq.

How did we discover our role? We extensively studied our operational environment. TF Marne then adapted a holistic approach, applying what we learned to the poultry industry within our operational environment.

In framing the problem, we assessed the needs within the communities within our brigade combat teams' (BCTs') operational environments. As 3rd BCT, 101st Airborne Division, and embedded provincial reconstruction team (ePRT) analyzed job creation potential in their operational environments, the once thriving chicken processing plant in Mahmudiyah Qada appeared a lucrative option.

Further inquiries determined that Al Qaida and other insurgent groups had brought this industry "to its knees" by displacing the farmers, stealing the chickens and using the farms themselves as cache sites (with a similar effect on the feed mill industry).

Thamer Hussain Kashkool shows visitors his damaged feed mill during a 16 May visit in Sayifiyah. The feed mill is part of Iraq's poultry industry value chain (See figure, Page 14). (Photo by SGT Jason Stadel, 2nd BCT, 3rd Infantry Division Public Affairs)

Many of these facilities were in disrepair, but the skeletal framework of a potential money-making industry lay waiting to be jump-started.

With improved security and Al Qaida operatives driven out, these farmers and businessmen were looking for a way to regenerate an industry they knew, but they lacked the start-up capital. Here was an opportunity to achieve some effects using money as munitions; however, past hard learned lessons advised caution.

T.E. Lawrence's admonition in his *Twenty-Seven Articles*, "Do not do too much with your own hands," is good advice to consider because past Coalition efforts in Iraq attempting to use "money as munitions" provided less than satisfactory effects. Additionally, the newly published *FM 3-0* defines battle command anew with the addition of understanding to the battle command model of visualize, describe, direct.

While security is essential to setting the stage for overall progress, lasting victory comes from a vibrant economy, political participation, and restored hope.

Market Analysis. TF Marne was careful to get an accurate understanding of the situation, ensuring our actions were not "doing too much," i.e., producing $12 chickens, which is not a competitive price. We targeted our actions on renewing an industry that had the potential of sustainable, and hopefully, irreversible momentum.

In past efforts to use money as munitions, efforts were made to address the obvious immediate problems—helping local farmers, fixing a feed mill, etc. Some efforts were "a mile wide, but an inch deep." We should have focused on "100-meters wide and 100-meters deep." If you fail to address the entire value chain of the product, you will not know if that farmer can find a market for his product. Attempting to create a large number of jobs within the Mahmudiyah Qada, the ePRT, 3rd BCT and 3rd Infantry Division addressed the entire value chain of the poultry industry to ensure a marketable product.

Before applying financial resources to a problem like fixing the local poultry industry, you must decide whether or not there is there a market for the product. Numerous studies validated that the Iraqi diet is protein deficient. While Iraqi poultry farmers can not compete with frozen chicken imports from the US and Brazil (average price of $4 a chicken), they can compete in the fresh chicken market where consumers are willing to pay more for *Halal*-processed chicken. (*Halal* is the Arabic word for "lawful" or "permitted." For an animal to be slaughtered in accordance with Halal, the following rules apply. The chicken should not be dead before slaughter; a Muslim should perform the slaughter; any flowing blood of the carcass should be drained completely; and the choice of modern and in-vogue method has to be considered with caution, mirroring the Islamic ethos.)

When deciding on whether to fund a project, you must determine whether the industry is sustainable after the initial capital infusion or will it continue to need financial assistance. While you can not fix all of the problems in Iraq, you can fix select ones. The key is recognizing which ones to fix. Before funding was committed, prices of fresh chicken were validated in the local area as well as in Baghdad. Instead of attempting to fix numerous feed mills or hatcheries, only one was fixed—capable of producing enough chicken feed for the 20 chicken farms that were repaired. By fixing one-third of the poultry industry, interdependence was created among the poultry industry.

With the poultry industry revitalized, local farmers can increase production to the full number of chickens they can raise, thus driving increased demand for additional hatcheries, chicken farms and, ultimately, additional poultry processing plants. The hope was this would create momentum within the economic portion of PMSEII-PT, positively influencing other portions of that metric.

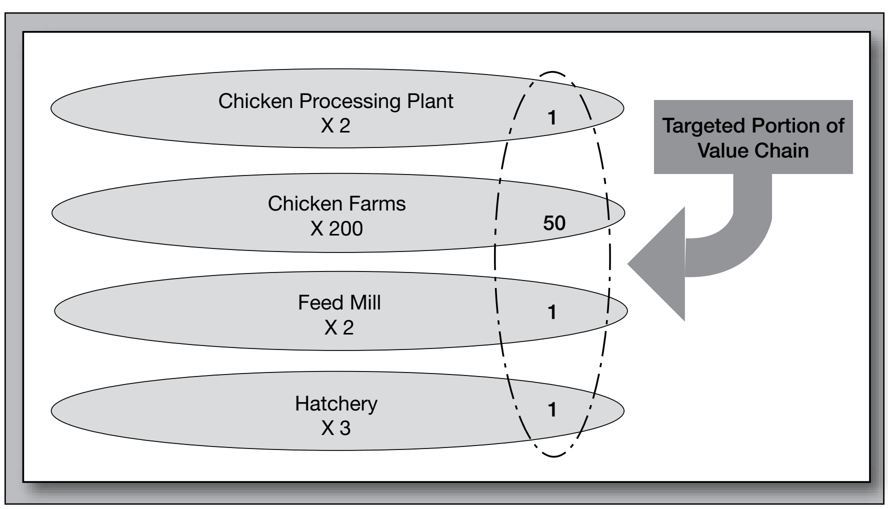
Interdependency. In his January-February 2006 *Military Review* article, LTG Petraeus states, "Observation Number 4 reminds us that increasing the number of stakeholders is critical to success … we began asking, when considering new initiatives, projects or programs, whether they would help increase the number of Iraqis who felt they had a stake in the country's success."

After several meetings with local businesses and with the ePRT's help, a remarkable occurrence took place—an Iraqi business venture emerged—the Mahmudiyah Poultry Association, a cooperative (co-op). As our understanding of this industry matured we learned that co-ops existed in the past. The actions we took during studying the possibility of helping regenerate this industry caused stakeholders to unite together. The most important characteristic of this development was that the Mahmudiyah Poultry Association *crossed sectarian lines*. Sunni, Shia and Kurds are all part of the association.

This co-op spanned the Mahmudiyah Qada, consisting of owners of feed mills, poultry farms, hatcheries, commercial egg producers and the processing plants. This trans-sectarian co-op represented diverse religious, tribal and political affiliations—people who set aside differences and recognized the need to work together to create a sustainable poultry industry.

What was important to this project's success was that the Mahmudiyah Poultry Association—not the Coalition Forces—selected the farms, feed mill, hatchery and processing plant to rebuild. The Iraqis initially selected a fair ethnic distribution of locations on which to focus. Because the Iraqis selected the locations, one tribe or religion could not say that the Coalition Forces were favoring one tribe or group over another.

The Mahmudiyah Poultry Association created interdependency among these groups that otherwise would have not interacted with one another. This ef-



Mahmudiyah Poultry Association Vertical Third of Value Chain. Task Force (TF) Marne helped revitalize the mostly dormant industry.

the D^3A methodology that is so familiar to the FA. Hopefully, effects such as these can be replicated in other areas within Iraq and Afghanistan. If similar effects are replicated along the PMSEII-PT model, it is likely that the FA will be in the center of that effort.

Whether or not the "good old days" of lethal fires are gone for good is not the point of this article. Rather, in today's COIN battle, the Army needs someone to tackle the nebulous and uncomfortable task of coordinating the nonlethal fight. This does not mean we abandon our lethal core competencies; but FA must incorporate its newest doctrinal core competencies—nonlethal fires.

As the COIN environment continues to mature in Iraq, nonlethal targeting of elements feeding into PMSEII-PT will continue to be important, and the fires community will continue to lead the way in this endeavor. For TF Marne, learning to use money as a weapons system created more stakeholders in a peaceful and productive Iraq, resulting in huge dividends toward creating an irreversible momentum for peace.

One Iraqi chicken hatching plant owner packs eggs in crates, 8 April. TF Marne helped stimulate the industry. (Photo courtesy of 3rd Infantry Division)

fect resembled a form of reconciliation within the economic environment that started to create an irreversible momentum. The responsibility for continued success was squarely placed on the Iraqi businesses.

A key to the success of any comprehensive economic project in a COIN environment is the partnering of multiple agencies to divide the labor and share the funding requirements; however, historical examples indicate this has not been the norm in Iraq. The Mahmudiyah Poultry Association is an exception.

TF Marne enlisted the help of the Baghdad PRT, which fell under the jurisdiction of the Department of State (DOS). The DOS provided a poultry specialist from the Office of Provincial Affairs, who provided education and expert advice on the Iraqi poultry industry. He was instrumental in analyzing the potential economic payoffs and, more specifically, advised TF Marne where to focus its collective efforts and finite resources.

Similar to the Baghdad PRT, the 3rd BCT's ePRT advised the Mahmudiyah Poultry Association; oversaw veterinary inoculations, deliveries of fertile eggs to the hatcheries and chicks to the chicken farms; and coordinated support with the Coalition. Another major accomplishment was the ePRT's continued negotiation with the owners of the chicken processing plants—the last segment in the value chain.

The main remaining issue with the processing plants was the need to reinvest profits back into the poultry association to ensure long-term sustainability of the program. Having adequate funds would ensure the Mahmudiyah Poultry Association can continue conducting business with limited Coalition assistance.

Restored Hope. *FM 3-24 Counterinsurgency* states, "While security is essential to setting the stage for overall progress, lasting victory comes from a vibrant economy, political participation, and restored hope."

How was it possible to achieve all these incredible effects for "restoring hope" and laying the ground work for "political participation" from chickens? TF Marne used nonlethal targeting and

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Colonel David J. Brost, Field Artillery (FA), is the Fires Support Coordinator for the 3rd Infantry Division, Fort Stewart, Georgia, deployed in support of Operation Iraqi Freedom (OIF). Previously he was Director of the FA Proponency Office (FAPO) at Fort Sill, Oklahoma. He commanded 1st Battalion, 12th FA (1-12 FA), 17th FA Brigade, formerly of III Corps Artillery, at Fort Sill, deploying the battalion in a nonstandard mission in support in OIF II. Among other assignments, he was the Senior Assessments Officer in the Anti-Terrorism/Force Protection Division of the J3, Joint Staff, at the Pentagon, and the 17th FA Brigade's S3 and Executive Officer at Fort Sill.

Lieutenant Colonel Richard A. McConnell, FA, is the Chief Observer/Trainer, Operations Group S/F, in the Battle Command Training Program at Fort Leavenworth Kansas. Previously he was the 3/4/2 Military Transition Team (MiTT) Chief in Mosul from 2006-2007. He was a Fire Support Observer/Trainer in the Battle Command Training Program before his MiTT assignment During OIF I, he was the S3 and executive officer of 1-12 FA. Among other assignments, he commanded Headquarters and Headquarters Battery (HHB), 41st FA Brigade, V Corps Artillery, in Germany, and was a Battery Fire Direction Officer in 1-320 FA, 101st Airborne Division (Air Assault), in the Gulf during Operation Desert Storm.

Excalibur

New Precision Engagement Asset in the Warfight-

By LTC Noel D. Grubb, FA, and Mark W. Belcher

Our Soldiers and Marines engaged in combat operations in both Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) now have an additional capability in their toolkits. This new asset is the XM982 (Increment 1a-1) Excalibur Artillery projectile. Currently fielded to Paladin M109A6 and M777A2 howitzer Field Artillery (FA) units in both theaters, Excalibur stands ready to support the maneuver warfighter by providing increased accuracy and range.

Excalibur is a unitary, high-explosive 155-millimeter Artillery Precision-Guided Munitions (PGM) capable of striking its intended target with a less than 10-meter circular error probable (CEP) at all ranges from 8 to 24 kilometers for the currently fielded Increment 1a-1. Follow-on Increments 1a-2 and 1b will be able to reach 40 kilometers if fired from the M109A6 and the M777A2, and 30 kilometers if fired from the Future Combat System Non-Line-of-Sight Cannon.

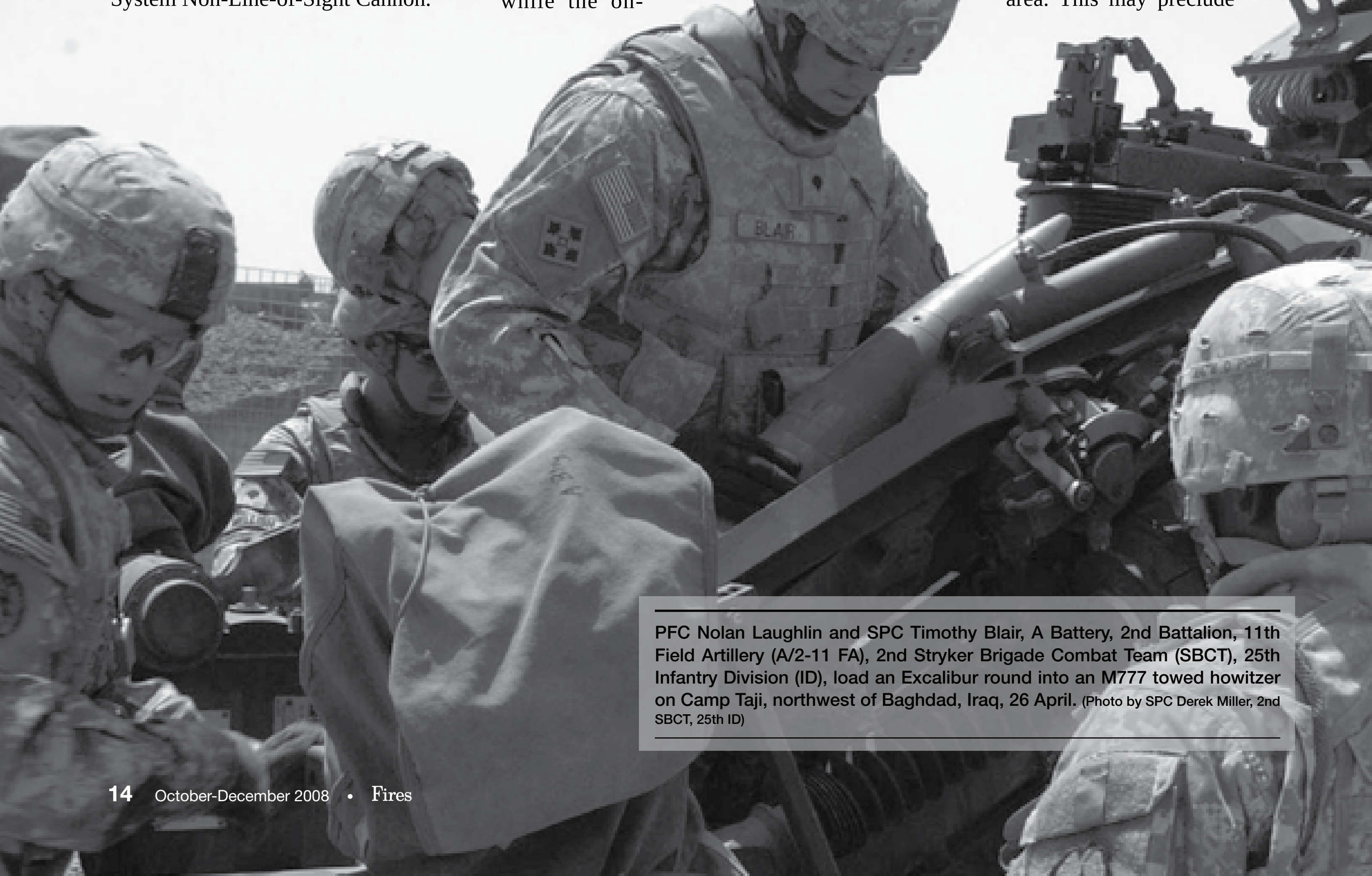
Capabilities/Benefits. This 24/7 precision capability gives the brigade combat team commander the ability to strike high-payoff and most-dangerous targets quickly and accurately. The 50-pound warhead, combined with precision accuracy, provides concentrated lethal effects with low collateral damage. Additional benefits include an all-weather, all-terrain capability and the ability to strike targets with friendly troops engaged close to the fight.

Upon leaving the howitzer gun tube, the base fin hood discards, and the base fins deploy and stabilize the round. At a point near ballistic apogee, the four canards deploy which guide the round to its intended target, while the on-board inertial navigation unit continually maps the flight path.

Most unique is the Excalibur's attack angle. The Excalibur is fired at high angle to achieve maximum range and optimal flight path to perform the terminal maneuver to achieve a nearly vertical angle of attack.

As the round nears the target, the projectile orients itself to a near-perpendicular angle of fall. This near-vertical approach optimizes lethal effects on the intended target. This nonballistic trajectory and near-vertical attack angle make the Excalibur an ideal solution for engagements in complex and urban environments. For example, Excalibur can be used to attack targets in urban canyons that cannot be attacked with munitions with lower angles of fall.

Maneuver forces often encounter insurgents operating from an urban area. This may preclude



PFC Nolan Laughlin and SPC Timothy Blair, A Battery, 2nd Battalion, 11th Field Artillery (A/2-11 FA), 2nd Stryker Brigade Combat Team (SBCT), 25th Infantry Division (ID), load an Excalibur round into an M777 towed howitzer on Camp Taji, northwest of Baghdad, Iraq, 26 April. (Photo by SPC Derek Miller, 2nd SBCT, 25th ID) a conventional tactical response due to collateral damage concerns. Or the forces may encounter improvised explosive devices and/or their emplacement teams, where a conventional tactical response would be ineffective. Excalibur now gives the warfighter the means to strike back and strike hard.

Excalibur "in Action." A good example of Excalibur's capabilities occurred during a July 2007 mission when Excalibur was used to engage and neutralize targets without a single US ground troop being involved. Abu Jurah, the most wanted al-Qaeda leader in Iraq at that time, died in the Arab Jabour area just south of Baghdad after US troops received word that he and 14 others were meeting in a house there. The supporting FA unit fired two Excalibur rounds at the house. The house was damaged heavily, but near-by homes were untouched. An AH-64 Apache helicopter and a US Air Force F-16 jet helped complete the mission.

> ***That Excalibur round saved numerous lives. Numerous, 'cause instead of having to clear those buildings, we can drop a round through the roof . . . .*** **LTC Morris Goins, Commander, 1st Squadron, 12th Cavalry**

A second example occurred during Operation Arrowhead Ripper in which elements of the attacking unit began receiving small-arms fire from a sniper position. This sniper position was located on the second floor of a two-story building in a densely populated urban area. Adverse weather at the time ruled out the use of close air support.

Dismounted infantry was dispatched to isolate the building and took up positions within 50 meters of the target, at which time the request for Excalibur was initiated. Two Excalibur rounds (one in "delay" mode, one in "point detonation" mode) were fired at the sniper target location. Both rounds impacted on target resulting in the complete destruction of the target—yet the family in the house next door was unharmed.

Safety Features. The urban environment has been an advantage to our adversaries until now, but Excalibur has several safety functions that add to the usability of this type munitions in cities. The first function requires the round to be within 30 meters of its intended target before it will arm itself. This feature provides an extra margin of safety, though ground forces still must follow danger-close procedures and find protective cover whenever possible. Unlike conventional artillery that can have large probable errors in range, Excalibur consistently has a less than 10-meter CEP which keeps the blast effects limited to the target.

The second function is the ballistic impact point (BIP). Upon firing, the Excalibur conducts an internal built-in-test. If a problem is detected, the Excalibur will enter a fail-safe mode and continue to fly its ballistic flight path to the BIP. The round will not detonate while in the fail-safe mode. This safety feature enables the maneuver commander to manage the risk of a failed round, avoiding unintended collateral damage.

Excalibur also has the ability to be fired as much as 300 mils, or 17 degrees, off the gun-target line and still maneuver to hit the target. At the current max range of 24 kilometers, that means that the gun can aim 7200 meters left or right of the intended target. This allows the Artillery unit to place the BIP in a safe area, such as a lake or empty field.

Misconceptions. There are a couple of misconceptions about Excalibur. The first is that it doesn't pack much of a punch, and the second is that it has an inadequate storage life.

Explosive Power. Excalibur has roughly the same explosive power as an M107 high-explosive projectile—but because of Excalibur's precision and near-vertical angle of fall, it provides several orders of magnitude more lethality and a more uniform detonation pattern. Like M107 high explosive munitions, a single Excalibur round will not level most buildings. With the ability to penetrate 4 inches of reinforced concrete (8 inches for 1a-2 and 1b), the thickness of a typical load bearing roof, Excalibur will penetrate and detonate with devastating lethality in the immediate rooms.

Storage Life. Excalibur was built to a specification for a controlled storage life of five years and an uncontrolled storage life of two years (1a-2 limits are 20 years storage with five percent reliability degradation allowed after 10 years storage). As with all munitions, when the life of the round reaches those time limits, it merely needs to be returned to the ammunition supply point for inspection.

An Excalibur explodes out of an M777 howitzer on Camp Taji, 26 April. The Excalibur fired was the first round of this type fired by A/2-11 FA, while deployed in support of Operation Iraqi Freedom. (Photo by SPC Derek Miller, 2nd SBCT, 25th ID)

Excalibur is new, but the warfighter is putting this new capability to work already. Excalibur is in the brigade combat team commanders' FA battalions. As our forces fight more and more inside the urban environment, PGMs have increased their role in the fight. Excalibur stands ready to fill that role.

Lieutenant Colonel Noel D. Grubb, Field Artillery (FA), is the Excalibur New Equipment Training Chief at Fort Sill, Oklahoma. Previously, he was a Division Assistant Fire Support Coordinator for the 35th Division, Fort Leavenworth, Kansas. He commanded Headquarters and Headquarters Battery, 1st Battalion, 127th FA (HHB/1-127 FA), Kansas Army National Guard, deploying in support of Operation Iraqi Freedom; and commanded C/1-127 FA as one of the first three Paladin Battery Commanders for the Army National Guard. He has a bachelor's degree from Emporia State University in Emporia, Kansas, and is a graduate of the Command and General Staff College at Fort Leavenworth.

Mark W. Belcher is a Camber Contractor supporting the Project Manager for Combat Ammunition Systems and the Training and Doctrine Command Capabilities Manager-Cannon at Fort Sill, and is a former FA officer. He has more than 22 years of experience in the Defense Industry for US Army Artillery programs and is certified in Defense Systems Acquisition Management. He has a Bachelor of Science in Engineering from the US Military Academy, West Point, New York.

A Counter-Rocket, -Artillery and –Mortar (C-RAM) System fires during a test fire in 2007. (Photo courtesy of ITT Corporation Advanced Engineering and Science Value Center

First C-RAM Joint Intercept Battery Organizes for Combat

On a blistering summer night in Baghdad, a US Army forward area air defense (FAAD) operator inside an engagement operations cell receives an alert of a fast moving ballistic target heading toward a coalition forward operating base (FOB). Outside, speaker towers sound—"Incoming! Incoming!"— warnings of an indirect fire attack, alerting local troops to seek cover.

In a matter of seconds, the FAAD operator clears the airspace through a Sentinel radar system and gives the order to fire. Inside a local control station shelter, a Navy Phalanx crewmember releases the hold-fire safety and instantly 20-millimeter rounds spit out the cannon barrel toward the descending rocket.[1] The dark skies suddenly light up with brilliant streaking tracer rounds that strike the rocket fuselage, destroy the warhead, and send both into a free-fall tumble of fragments to the ground, resulting in another ineffective enemy attack.

By MAJ Christopher C. Corbett, ADA

Members of 2nd Battalion, 44th Air Defense Artillery (2-44 ADA) and Task Force (TF) Iron Shield, supported by a new joint fires cell counter-rocket, -artillery and -mortar (C-RAM) tactical command post (TAC), have succeeded in transforming operations in Iraq to counter the persistent rocket,

artillery and mortar threat This is a top priority for the Army, Navy and the Department of Defense. The first-time deployment of C-RAM joint intercept batteries ushered in significant changes in organization and efficiency that greatly improved the program's effectiveness in Operation Iraqi Freedom (OIF) and in the continental US (CONUS) training base.

Challenges. Countering the enemy indirect-fire threat with the right troops, training and equipment was a tough task initially for the Services. In 2004, MultiNational Forces, Iraq submitted an operational needs statement to answer warfighting commanders' request for a counter-indirect fire capability. Leveraging existing sensors, shooters and commercial off-the shelf technology, defense industry and military experts were able to test and, incredibly, field a C-RAM system of systems less than a year later.

In 2005, C Battery, 5-5 ADA (C/5-5 ADA), deployed separately to Iraq as the first C-RAM battery and quickly proved the capability's effectiveness against insurgent indirect fire attacks.[2] However, these Soldiers were pioneers for the program and had to blaze their own trails to determine how to task organize for combat; how to develop tactics, techniques and procedures; and what equipment they really needed to perform their mission.

At that time, because C-RAM only had been approved at Department of the Army as an initial capability and not yet as a program of record, traditionally robust domains of supporting doctrine, organization, training, materiel, leader development, personnel and facilities simply didn't exist. (The process of transitioning C-RAM to an official program of record began this year in May.) Despite these challenges, Army and Navy leadership continued to work together to find the right mix of military occupational specialty (MOS) skills, manning and equipment to further C-RAM capabilities and to defeat enemy indirect fire in OIF.

Initial task organization. The introduction of a new Army-Navy joint intercept battery (JIB) structure in the spring of 2008 task organized C-RAM units better for combat by playing to the respective strengths of each Service. However, in C-RAM's early years, the Navy and Army alternated responsibility for sourcing the sense, warn and intercept missions in Iraq, which in turn led to training and equipping challenges that forced each Service out of its core competencies. Initially C/5-5 ADA was augmented by seven Sailors when the unit first deployed in 2005 and performed all C-RAM functions of sense, warn and intercept with sections dispersed across several FOBs throughout Iraq.

During follow-on rotations, task organization became more specific, such as in 2006 when A/5-5 ADA, augmented by 12 Sailors, served as an intercept battery and C/5-5 ADA served as a sense and warn battery.[3] Successive C-RAM rotations included Navy Intercept task forces that were composed purely of Sailors trained on both Navy and Army systems. Meanwhile, the various CONUS training bases struggled with teaching Phalanx Close-In Weapons System skills to Army Soldiers and, conversely, faced challenges with training Navy Sailors on sense and warn equipment operation and maintenance.

…these Soldiers were pioneers… [they] had to blaze their own trails to determine how to task organize for combat; how to develop tactics, techniques and procedures; and what equipment they really needed to perform their mission.

ADA Soldiers traveled as far as San Diego, California, to attend Phalanx operator-maintainer courses, while Sailors ventured inland to train on Army equipment, such as the Field Artillery's Lightweight Countermortar Radars and ADA Sentinel radars. Navy crewmembers also had to master new command and control systems including FAAD and Air and Missile Defense Workstation equipment at Fort Sill, Oklahoma; Fort Bliss, Texas; and even Huntsville, Alabama—home to the C-RAM program manager. Collaboration between the CONUS training base and theater C-RAM liaison officers (LNOs) continued to tackle this challenge.

Finally in 2007, Army and Navy leaders reached a more common-sense approach to organizing, training and deploying C-RAM formations for combat, deciding on a joint unit organization. "We were trying to train Army Soldiers to do Navy jobs and then train Navy Sailors to do Army jobs. Now, we have each Service playing to [its] unique strengths," said Lieutenant Colonel Randall A. McIntire, former commander of 2-6 ADA, the C-RAM training battalion, before implementing a practical service-specific training strategy in March 2007.

Joint Teams. Implementing a JIB structure greatly enhanced the C-RAM unit's effectiveness while reducing turbulence and time needed for the generating force to train deploying C-RAM formations. Specifically, the JIB that deployed to Iraq in the spring of 2008 with 2-44 ADA organized for combat by creating units nearly equally composed of Navy Sailors who operate the Phalanx guns and Army Soldiers who operate the multiple sense and warn sensors, command and control equipment and engagement operations centers. This organization better enabled the Services to leverage and maximize their core competencies.

For example, petty officers with years of experience fixing and firing the Close-In Weapon System on Navy ships easily made the transition to a Land-Based Phalanx Weapon System designed to defeat insurgent indirect-fire targets on Coalition Forces in FOBs. Similarly, seasoned Army MOS 14J Early Warning System Operators, skilled in operating complex air defense Sentinel radars, FAAD software and Air and Missile Defense Workstations quickly mastered their new operational environment in Iraq, providing critical warning and intercept of enemy indirect-fire attacks. Instead of trying to adjust to strange equipment with a smart, adaptive enemy, Navy and Army crews more rapidly joined the counter-indirect-fire fight because they were playing to their Service strengths and MOS technical skills.

Task organizing to leverage Service capabilities is improving theater performance and training-base efficiencies and Soldier-Sailor morale. Before their current deployment, 2-44 ADA crewmembers became proficient on C-RAM-specific individual skills and equipment, many of which complemented their existing familiarity with ADA's FAAD sensors and command and control systems.

On average, this Army individual training now comprises six weeks of instruction and certification. Similarly, the Navy's Land-Based Phalanx Weapon System course is six weeks in duration and prepares Sailors to handle the unique configuration requirements of a Phalanx mounted on a mobile flatbed. Currently, additional collective training and mission

During routine maintenance on a Land-Based Phalanx Weapon System, US Navy Sailors FC1 (SW) Yusuf Kezala hands a barrel to FC2 Robert Armstrong (left) and FC2 Jeremiah Stellpflug, members of the Joint Intercept Battery Task Force (TF) Iron Shield, composed of both Army and Navy members, in Baghdad, Iraq, 24 July. (Photo by FCCS [SW] Donald Leppert, TF Iron Shield)

rehearsal exercise live-fire certification at Fort Bliss adds up to approximately three months of predeployment training for the average C-RAM Soldier and Sailor. This current training strategy is a vast improvement from the early days of the program when mission-focused Army units often sent Soldiers to seven-month long Phalanx courses before deploying for periods of up to 15 months.[4]

Trimming the Sails. Of course, the JIBs experienced their share of "growing pains" with this new organization. Units had to work through the unique situation of having two O3-level officers in charge in each task force, with an Army captain as battery commander and a Navy lieutenant as deputy commander. Additionally, there was the challenge of being "khaki top-heavy" as the Navy had to balance out the number of E7 and higher supervisors with the number of Sailors needed to man several guns at various locations around each FOB.

Also, embedded within each JIB are 10 TAC LNO positions that ultimately form the MultiNational Corps, Iraq's Joint Fires Cell C-RAM TAC. Much like a traditional TAC, the leaders and staff are positioned forward in the operational environment to help orchestrate the conduct of operations and direct unit activities.

However, the C-RAM TAC does not command and control units like doctrinal TACs do. It has a purely enabling function of providing operational training and readiness oversight to the four US C-RAM batteries and their sections dispersed throughout the Iraq theater of operation at remote FOBs and major base camps. Ultimately, the TAC concept validated itself by providing much needed prioritization, direction, organization and leadership in lieu of an intermediate C-RAM headquarters.

In the beginning, this unique support relationship to the batteries took some time to implement and had to be explained carefully to the respective multinational divisions that the C-RAM units are attached to, including administrative and logistical support. For the JIBs, it also led to some initial turbulence with clarity of command and support relationships. During an interview in Iraq on 26 September, Navy Lieutenant Robert Harris, Task Force Iron Shield deputy commander and officer-in-charge, said it was a challenge, "…but the mission quickly helped us to finish our team's forming, storming and norming. The TAC helps by supporting the JIB with C-RAM expertise that our parent unit doesn't have, and it ensures the JIB stays nested with the overall corps C-RAM fight."

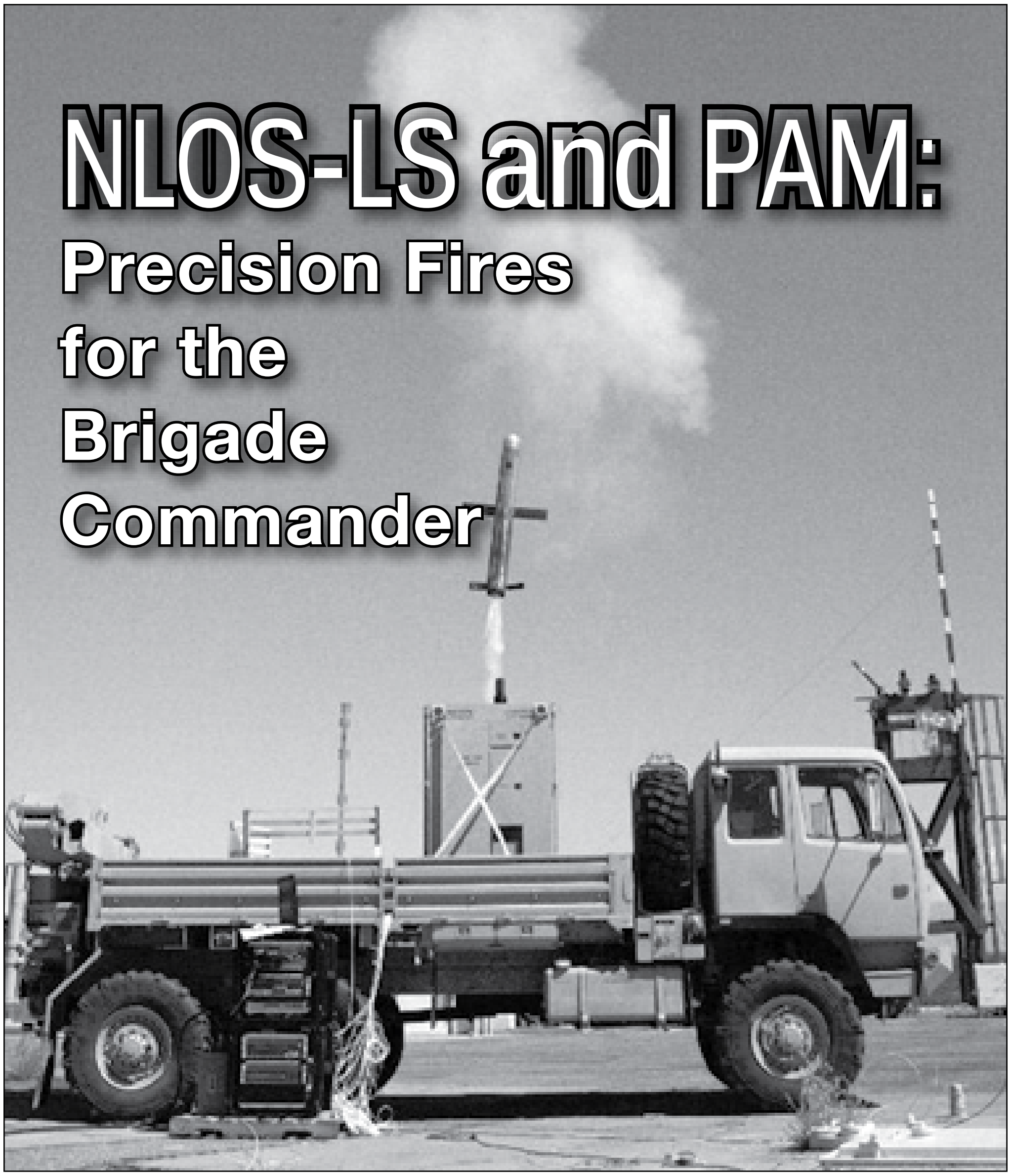
Despite these challenges, the two US JIBs (TF Brotherhood and TF Iron Shield), along with a United Kingdom intercept battery, have achieved more than 100 successful intercepts to date by destroying or deflecting incoming enemy mortar and rocket rounds. As the JIBs continue to refine their manning and troop-to-task organization, they are passing these lessons learned and best practices back to the generating force and CONUS training base to improve the success of future C-RAM rotations.

Defeating the enemy rocket, artillery and mortar threat is a multidimensional challenge that can not be accomplished by any one piece of equipment, tactic or organizational/individual effort. However, through teamwork and innovations like the proactive C-RAM capability and the JIB concept, our collaborative efforts prove that we are a thinking, adaptive force that is able to change rapidly to defeat our adversaries.

Endnotes:

1. Technical advice provided by First Sergeant Todd S. Manes, D Battery, 2nd Battalion, 6th Air Defense Artillery (2-6 ADA), Fort Bliss, Texas, Counter-Rocket, -Artillery and -Mortar (C-RAM) Center of Excellence training unit, 26SEP08 email correspondence.
2. Ibid.
3. Major Stephen Clay Goff and Second Lieutenant Steven B. Wright, "5-5 ADA Deploying with a new Mission," *Fires* Bulletin (Fort Sill, OK: US Department of the Army), May-June 2008.
4. Ibid.

Major Christopher C. Corbett, Air Defense Artillery (ADA), is the Counter-Rocket, -Artillery and -Mortar (C-RAM) Project Officer at the 6th ADA Brigade, at Fort Bliss, Texas. Until recently, he was the Theater C-RAM Deputy for the Joint Fires Cell, MultiNational Corps, Iraq, deployed in support of Operation Iraqi Freedom. He also has served as Operations Officer and Executive Officer for 2nd Battalion, 6th ADA (2-6 ADA), C-RAM Center of Excellence, at Fort Bliss, Texas; Assistant Professor of Military Sciences, US Military Academy at West Point, New York; E Battery Commander, 2-43 ADA at Fort Bliss; and Patriot Reduced Readiness Battery Detachment Commander, Operation Desert Fox II, Ali Al Salem Air Base, Kuwait. He holds a master's degree from the University of Rhode Island in Kingston.



NLOS-LS and PAM:

Precision Fires for the Brigade Commander

One of a series of tests of the Non-Line-of-Sight Launch System Precision Attack Missile captive test vehicle is performed at the White Sands Missile Test Facility, White Sands, New Mexico, July 2006. (Photo courtesy of Netfires, LLC)

By MAJ Christopher L. Shields and LTC Arthur G. Weeks, both FA

The Non-Line-of-Sight Launch System (NLOS-LS) is the future of precision strike Field Artillery. Today, in Iraq or Afghanistan, the brigade commander fighting on the ground requires a precision strike asset under his control—munitions that can be fired at moving or stationary targets and have a minimum collateral damage risk. Whether the mission is to engage Osama Bin Laden perched in a hayloft in a remote village in Afghanistan or an Iraqi insurgent 60-mm mortar team driving away from a point of origin in a bongo truck, the NLOS-LS—once fielded—can accomplish either with precision and accuracy.

The NLOS-LS will be the only organic Field Artillery system to provide the maneuver brigade commander with an extended-range, precision-attack capability against both armored and nonarmored targets, moving or stationary, during day, night and degraded weather conditions. The NLOS-LS (XM-501) consists of a Container/Launch Unit (CLU), a Computer and Communication System (CCS) and 15 Precision Attack Missiles (PAMs).

The PAM has a minimum range of 500 meters and a maximum range of 40 kilometers. The PAM uses a dual-mode, infrared (IR) and semi-active laser seeker to strike hard or soft targets precisely. Mission planning and execution for NLOS-LS is accomplished with the Advanced Field Artillery Tactical Data System (AFATDS) located in a dedicated platoon fire direction center called the control cell.

It is important to understand that the NLOS-LS CLU is platform independent. The CLU has an internal power source that allows it to operate independent of support for more than 24 hours. Each CLU also is equipped with an intrusion detection system. The primary consideration for emplacement is radio connectivity between the control cell and the CLU.

Current testing configuration for the NLOS-LS consists of two CLUs mounted on an M1084A1R family of tactical vehicles (FMTV). The CLU can be transported on a M1074 Palletized Load System, by air using a UH-60 or CH-47 helicopter or by aircraft on a C-130. It can fire from atop one of the stationary FMTVs or be removed from the transport vehicle and fired from the ground.

This platform independence allows the system to be positioned almost anywhere. If it were fielded operationally today, there are numerous forward operating bases and combat outposts in Iraq that would benefit from the increased firepower of having a CLU collocated, ready to be launched. Firing data would be sent from the control cell located in a more secure location, by radio or on a local area network.

The PAM. The PAM is designed to receive in-flight target updates from the observer, allowing the missile to locate a moving target even if the target is moving erratically. The PAM's IR seeker detects heat signatures in the seeker footprint and selects the single best target-like object based on its speed, direction and location. At any point before PAM seeker lock, it is possible to cancel the mission. Once the mission cancel command is initiated, the PAM chooses a predesignated free fire area in which to impact. If a free fire area is not available or has not been designated, the PAM has the ability to avoid "hot" objects and hit empty ground in the vicinity of the reported target location instead.

Part of PAM's flexibility comes from the five engagement modes. In addition to the three laser-guided modes and the IR mode, the missile has a Global Positioning System grid attack mode. The missile's maximum altitude can be controlled, and the flight path can be shaped with waypoints for airspace and terrain avoidance.

The PAM's multiple engagement modes enable the NLOS-LS to engage various types of targets in challenging conditions with a high degree of accuracy. For example, if the Artillery forward observer (FO) has a laser guidance capability, he can choose one of three laser-guided engagement methods. The *laser designate mode* uses only the reflected laser energy off of the target for the PAM to target and does not use the PAM's IR seeker. This method works well on stationary targets.

If a target is moving, the recommended method of engagement is to use the *laser anoint mode*, which does not require the laser spot to remain steady. The observer just needs to "paint" the target long enough for the PAM IR seeker to "see" it, and then the PAM switches to IR mode to continue tracking the target until impact.

If the FO can not shine his laser designator directly on a target because of laser countermeasures or restricted line-of-sight, he can use the *laser offset anoint mode*. In this mode, the PAM requires accurate target identification and a low target location error (TLE), but the observer only needs to "paint" close to the target; this will cue the IR seeker to find the best target match near the laser spot and engage it.

Using the *IR engagement mode*, the FO must provide an accurate target description and location. Once the PAM is above the location, it will select the best target match using the IR seeker. This method is effective against moving and stationary targets.

An FO needs only to obtain an accurate grid to his stationary target for the PAM to be used in the *grid attack mode*, but the TLE should be no larger than the target itself.

Control and management of the PAM missions is centralized at the NLOS-LS platoon control cell. The control cell is a rigid-wall, command post platform with a quick erect antenna mast mounted on a M1152 High-Mobility, Multipurpose Wheeled Vehicle and manned by two Military Occupational Specialty (MOS) 13D FA Automated Tactical Data Systems Specialists.

NLOS-LS' flexibility, precision and low probability of collateral damage will keep Field Artillery relevant and in the fight for years to come.

The control cell receives fire missions via AFATDS and sends mission data to a specific CLU using the Single Channel Radio System and Soldier Radio Waveform. The control cell is collocated with the CLUs, and the entire platoon operates from the same firing point. The control cell has the flexibility to communicate directly to an observer to process an NLOS-LS fire mission, or it can use the traditional method of communicating through a battalion fire direction center.

Testing. The 5th Brigade Fires Battalion, 1st Armored Division (Army Evaluation Task Force), modeled as part of a heavy brigade combat team, currently is testing the NLOS-LS at Fort Bliss, Texas, and White Sands Missile Range, New Mexico. The tests encompass all aspects of system utilization from tactics techniques and procedures for tactical movement and employment of the system to exercising the digital fire mission thread from "sensor to shooter."

March heralded the first in a series of three test events for the first cycle of Future Combat System (FCS) equipment—the Technical Field Test, followed by the Force Development Test and Evaluation and a Preliminary Limited User Test. All of these events support the FCS Spin Out 1 testing program.

A flight Limited User Test is scheduled for the second quarter of fiscal year 2009 that will pass the PAM through to its final testing gates, the Initial Operational Test and Evaluation. Upon successful completion of these tests, the NLOS-LS will gain approval for Low-Rate Initial Production.

SGT Ramon Serna (on truck) and SGT Tyler J. Dean, Fires Battalion, 5th Brigade, 1st Armored Division (5-1 AD) (Army Evaluation Task Force), conduct Container/Launch Unit reload procedures during certification at Oro Grande training area on Fort Bliss, Texas, in January. (Photo by MAJ Walter J. Smiley, 5-1 AD)

Security Considerations. The fires battalion has devoted special efforts to refining tactical employment options, such as independent platoon operations and collocating with a cannon battery. If the tactical scenario and threat allow for independent operations, the platoon will operate from assigned position areas for artillery behaving like a cannon battery, but with a longer range and more precise strike capability. The platoon is positioned to engage the brigade commander's high payoff targets, shaping the battlefield to support the decisive effort.

Current manning levels within the NLOS-LS platoon—two MOS 13B Cannon Crewmen assigned to each

FMTV team and two Soldiers manning the control cell—dictate that the majority of operations be conducted collocated with a cannon battery for additional security. Our exercises indicate that many security threats could be mitigated with the addition of a third Soldier to each team within the platoon as well as a ring-mounted M249 or M240B machine gun on the FMTV.

While the lack of internal security options in an NLOS-LS platoon make collocating with a firing battery an attractive solution, leaders also must consider the specific placement of CLUs within the firing points for safety (avoiding launch hazards) and to minimize detection of visual and aural launch signatures. Overall, collocating NLOS-LS platoons within cannon artillery batteries does provide an effective means of engaging both long- and short-range targets with a mixture of precision and area munitions throughout the brigade battlespace.

A major threat to legacy artillery systems always has been enemy counterfire. Radar-initiated counterfire is not a threat to NLOS-LS units because of the non-ballistic nature of the NLOS-LS missiles' flight path. The control cell AFATDS plots the most direct path with waypoints that steer the missile around or over air corridors and airspace coordination areas and supports the observer-target line for laser-guided missions.

PAM's maneuverability facilitates airspace deconfliction, and it results in an indirect trajectory which makes radar acquisition difficult and flight path determination next to impossible for enemy radar systems. We have used the Tactical Airspace Integration System during testing as another tool to update army airspace command and control within the AFATDS, allowing for even quicker clearance of targets.

The NLOS-LS empowers tactical FA by allowing the maneuver brigade commander to engage high payoff targets precisely at extended ranges with a missile organic to his organization. The NLOS-LS' flexibility, precision and low probability of collateral damage will keep Field Artillery relevant and in the fight for years to come.

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Lieutenant Colonel Arthur G. Weeks, FA, is the Commander of 2-3 FA, 1st Brigade, 1st Armored Division and the former Commander of the Fires Battalion, 5th Brigade, 1st Armored Division (Army Evaluation Task Force). He previously served as the First US Army Liaison Officer to the British Army's Operational Training and Advisory Group in Kent, England. He served as the 1st Infantry Division Artillery S3, deploying in support of Kosovo Forces 4B. He also served as the Battalion XO and S3 for Task Force 1-6 FA, and deployed in support of Operation Iraqi Freedom II.

103rd FA Brigade Retires Its Colors

The 103rd Field Artillery (FA) Brigade, one of Rhode Island's National Guard Field Artillery units, inactivated and its colors were retired on 6 September in Providence, Rhode Island. The 103rd FA Brigade had command and control over its 1st Battalion and three associated firing batteries.

The 103rd FA Brigade, with a long and distinguished history, is able to trace its lineage back to the Providence Marine Corps of Artillery. The Corps was organized and chartered in the Rhode Island Militia at Providence in October 1801. Between April 1861 and April 1863, eight batteries consisting of 1,588 men—who enlisted and trained (primarily at the Benefit Street Arsenal) for the 1st Regiment, Rhode Island Light Artillery—prepared for battle during the Civil War.

The state of Rhode Island furnished these eight batteries, along with the 1st Battery and the 10th Battery, for a total of 10 light artillery units during the Civil War. These units were involved in the bloodiest and most bitter fighting of that conflict and their efforts won the 103rd Field Artillery's first battle streamers.

In 1916, as the nation watched World War I (WWI) unfold in Europe, General John J. Pershing led an expeditionary force against Poncho Villa. During this Mexican border conflict, Light Battery A, Rhode Island Field Artillery was called into federal service 19 June 1916, for duty with General Pershing. Members of the 103rd repeated history in August 2006, when they were deployed to the Mexican border as part of "Operation Jump Start."

The brigade also saw action during WWI with the American Expeditionary Force as the 1st Battalion, 103rd FA Brigade, an element of the 26th "Yankee" Division; and during WWII when the brigade was placed into federal service and attached to the 43rd Division in February 1941.

Members of the brigade have been deployed to Iraq since 2001. Even as the brigade's colors were being retired, Soldiers from C Battery, 103rd FA Brigade, were still serving in Iraq as part of Operation Iraqi Freedom. They redeployed to the US on 27 September.

Even as the brigade's colors were being retired, Soldiers from C Battery, 103rd FA Brigade, were still serving in Iraq as part of Operation Iraqi Freedom.

Although the brigade is inactivated, the battalion headquarters unit and the three firing batteries will remain a vital force in the Rhode Island National Guard. These units are now aligned under the 197th Fires Brigade, New Hampshire Army National Guard.

As the face of warfare changes, the National Guard must as well. These changes will allow the National Guard to fulfill its mission of protecting US and state citizens better.

SGT John Cervone
Combat/Journalist
Joint Force Headquarters, Rhode Island National Guard

2008 *Fires* PHOTO CONTEST WINNERS' GALLERY

1ST PLACE, CATEGORY I, TRAINING FOR COMBAT/STABILITY OPERATIONS

SPC Phillip L. Coomer
5th Battalion, 7th Air Defense Artillery

SGT Christopher Breazeale, 5th Battalion, 7th Air Defense Artillery, engages a target with a .50 caliber machine gun during the unit's Joint Task Force-East train up at Grafenwoehr, Germany, in January.

1st Place, Category II, Actual Combat/Stability Operations

1LT Jonathan R. Tipton

41st Brigade Combat Team, Oregon Army National Guard

Students and their teacher (foreground center) at a school in Kabul, Afghanistan, outside the Afghanistan National Army (ANA) Darulaman base, receive items from ANA and US forces in the summer of 2007. Those bringing the items include, from right, COL Omar Khell Mangal, ANA; MAJ Robert C. Fraser, Oregon Army National Guard; unidentified teacher; and in the background, CDR Rachel Marie Fant, US Navy; and an unidentified ANA soldier.

2ND PLACE, CATEGORY I, TRAINING FOR COMBAT/STABILITY OPERATIONS

PFC Hans P. Hottel

1st Battalion, 125th Field Artillery, Minnesota Army National Guard

Soldiers of B Battery, 1st Battalion, 125th Field Artillery, at Camp Ripley, Minnesota, fire the first round from a Paladin self-propelled howitzer, 10 June. The unit redeployed after serving for 22 months as part of the 1st Brigade Combat Team, 34th Infantry Division, for Operation Iraqi Freedom 06-08.

3RD PLACE, CATEGORY I, TRAINING FOR COMBAT/STABILITY OPERATIONS

SPC Phillip L. Coomer

5th Battalion, 7th Air Defense Artillery

SPC Anthony Rice, PFC Derrick Cuzzort and CPL Nicalas Teixeira (left to right), 5th Battalion, 7th Air Defense Artillery, stack on the wall getting ready to move to another location during a Joint Task Force-East train up in January at Grafenwoehr, Germany.

HONORABLE MENTION, CATEGORY I, TRAINING FOR COMBAT/STABILITY OPERATIONS

GMG3 Jonathan J. Kammen, US Navy, Retired

A High-Mobility Artillery Rocket System (HIMARS) from the 3rd Battalion, 27th Field Artillery Regiment, 18th Fires Brigade, fires during live-fire qualification training on Fort Bragg, North Carolina, 29 January.

2ND PLACE, CATEGORY II, ACTUAL COMBAT/STABILITY OPERATIONS

1LT Jonathan J. Springer

2nd Battalion, 320th Field Artillery Regiment

Soldiers from A Battery, 2nd Battalion, 320th Field Artillery Regiment (2-320 FAR), 1st Brigade Combat Team, 101st Airborne Division (Air Assault), fire a high-explosive (HE) artillery round from their M119A2 howitzer during Operation Fulton Harvest in the Al-Jazeera desert, Iraq, in mid-January.

** Note: Each entrant can submit up to three photos. 1LT Springer's photos, which all reflect the same operation, won 2nd and 3rd Place and Honorable Mention.*

3RD PLACE, CATEGORY II, ACTUAL COMBAT/STABILITY OPERATIONS

1LT Jonathan J. Springer

2nd Battalion, 320th Field Artillery Regiment

See 2nd place caption above.

HONORABLE MENTION, CATEGORY II, ACTUAL COMBAT/STABILITY OPERATIONS

1LT Jonathan J. Springer

2nd Battalion, 320th Field Artillery Regiment

See 2nd place caption above.

2009 *Fires* Photo Contest: Deadline 1 August

This annual contest obtains high-quality photos that tell the story of today's Army/Marine Field Artillery and Air Defense Artillery units and Soldiers conducting training or engaged in full-spectrum operations in the War on Terrorism. These photos may appear as a cover or other shots for future editions of the magazine, as part of the Chief of the Fires Center of Excellence (CoE) poster series or in other esprit de corps or strategic communications projects.

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

Two Prize Categories – Six Prizes. A First Place prize of $500, Second Place prize of $200 and Third Place Prize of $75 will be awarded in each of two categories: (1) Training for Combat/Stability Operations and (2) Actual Combat/Stability Operations. Winning photos will be posted on the magazine's website at **sill-www.army.mil/firesbulletin**.

Rules. Photos not meeting the following rules will be disqualified.

- Only photos taken between 1 July 2008 and 30 June 2009 are eligible.
- A maximum of three photos per photographer can be submitted.
- Photos can be entered only by the photographer who took them.
- Each entry must meet the requirements of the specified category and be received by the magazine no later than 1 August 2009.

> *Contest is open to any military or civilian, amateur or professional photographer.*

- Each photo must be a color jpg or tif image with little or no compression.
- Each photo must be taken with a camera with a resolution of five megapixels (5mp) or better on its highest resolution setting (jpg image file size should be greater than two megabytes [2MB] in most cases). Photos cannot be manipulated to increase resolution.
- Images cannot be manipulated other than the industry standard for darkroom processing, such as dodge, burn, crop, etc., as per Department of Defense (DoD) Directive 5040.5, "Alteration of DoD Imagery."
- Each image must have information embedded in the "File Info" or "Properties Summary." This includes the photographer's name, unit/affiliation, email address, mailing address and phone number. Caption information must include who, from what unit, is doing what, where and when (date) in the photograph—for example: "SGT Joe B. Smith, C/2-20 Fires, 4th Fires Brigade, Fort Hood, Texas, fires the M777A2 during unit qualification training in January."
- Photos cannot be copyrighted or owned by an agency/publication; the image must be cleared for release and publishable in the magazine.
- Horizontal or vertical photos may be submitted, but vertical shots work best.

Judging. A panel of editors, professional photographers and military personnel will select winners. The judges' decisions will be final. Judging criteria is as follows.

- Power and Impact of the Message that the Image Conveys
- Composition, Clarity, Lighting, Focus and Exposure of the Image
- Creativity and Originality

Submissions. All submissions may be used at the discretion of the magazine staff. Photos can be sent by email or compact disk (CD). CDs will not be returned.

- Email image files (one image per email) to *Fires* Bulletin at firesbulletin@conus.army.mil. Mark the subject line as "2009 Photo Contest/Photo #1 (2 or 3), Entry Category–Your Last Name."
- Each entrant must email his rank, full name, mailing address (permanent preferred), phone number and a secondary email address for contact purposes.
- Mail CDs to: ATTN: Photo Contest at P.O. Box 33311; Fort Sill, OK 73503-0311. FedEx or UPS submissions to Building 758, Room 7, McNair Road, Fort Sill, OK 73503-5600.

Questions. Contact the *Fires* staff by email at firesbulletin@conus.army.mil or by phone at DSN 639-5121/6806 or commercial at (580) 442-5121/6806.


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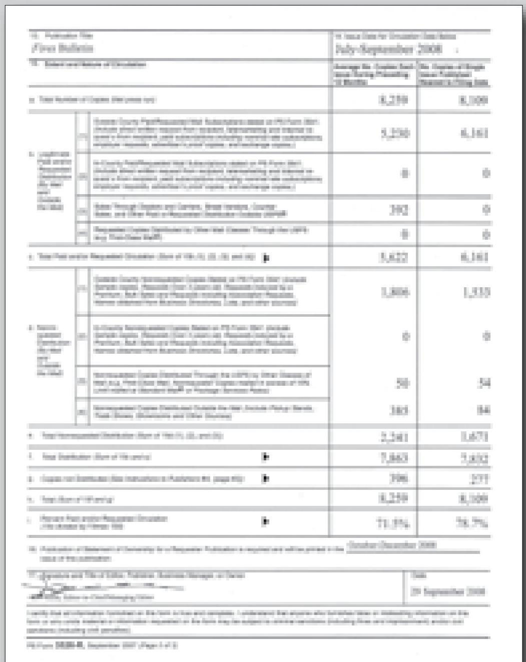

Frontier Arithmetic
One FSO's Innovative Approach

By MAJ J. Scot Davis, IN

Across the joint force, creative problem solving and a high intellectual capacity are demanded of today's military leaders. One Field Artilleryman demonstrated this capacity with his innovation and mental agility when he addressed a complex civil-military operation (CMO) that confronted our rifle company in Iraq.[1]

The solution First Lieutenant Bradford M. Brannon III came up with for the complex CMO task is also an example of the type of nonlethal effects Field Artillery (FA) junior officers achieve for maneuver commanders—even when the lethal effects they also train for are limited by the realities of stability operations.

Examining this one operation and the innovation that led to its success illustrates the value of nourishing the maneuver commander to fire support officer (FSO) relationship and the importance of adapting the FSO's doctrinal fire support responsibilities to stability operations. Also, ways for leaders to bolster creative problem solving and leverage nontraditional talents of their troops are suggested.

Displacement along an Ethnic Fault Line. B Company, 1st Battalion, 21st Infantry Regiment (B/1-21 IN), 25th Infantry Division (Light), deployed to Kirkuk, Iraq, during 2004. Iraq's fourth largest city, oil-rich Kirkuk sits astride an "ethnic fault line" at the convergence of four ethnic groups. In October 2004, Kirkuk's estimated population of 800,000 included Arabs, Kurds, Turkomen and Assyrians; the remaining percentage was of mixed ethnicity.[2]

B/1-21 IN was responsible for the security, stability, transition and reconstruction of one-third of this city. Within those 32 square kilometers sat two large, internally displaced persons (IDP) camps populated predominantly by Kurds. The two nearly-contiguous camps embraced Kirkuk's municipal soccer stadium, its immediate grounds and a sprawling tent city

Residents of the internally displaced persons (IDP) camp gather around the Soldiers from B Company, 1st Battalion, 21st Infantry Regiment (B/1-21 IN), 25th Infantry Division (Light), deployed to Kirkuk, Iraq, during 2004, as the unit begins the population-count process. (Photo courtesy of B/1-21 IN) that crept ever-eastward into the surrounding desert.

Within these camps lived the victims of Saddam Hussein's Anfal Campaign and Arabization of the al-Tamim (Kirkuk) Province. Evicted from their homes, many of these Kurdish residents chose to remain in Kirkuk—regardless of the accommodations—rather than relocate to other cities in northern Iraq. Often the only shelter available to these families was abandoned or seized government buildings, other public structures such as the soccer stadium, hastily-constructed mud huts or tents.

The company we relieved cautioned us that these camps were suspected of harboring illicit arms markets. Over time, our initial tactical interest in these ever-spreading camps was replaced by a more operational focus and strategic immediacy with the onset of the anticipated fall 2004 census and the January 2005 provincial and national elections. The magnitude and composition of this growth and its enablers became priority intelligence requirements (PIRs) for our higher headquarters.

Receipt of Mission and Tentative Plan. The company was tasked to conduct a thorough population assessment of the two IDP camps. This mission, to be conducted as an area reconnaissance, required the use of the entire company (less one squad occupying a 72-hour combat outpost and one platoon securing the company patrol base and providing the quick reaction force if needed) and one attached civil affairs team. The first step was to develop a detailed plan to accomplish this complex tactical mission.

Shortly after assembling my staff (including my executive officer or XO, FSO and first sergeant), my FSO, Brannon, suggested that he might have a unique solution to the tactical problem of counting potentially thousands of people, but he would need some preliminary data. The 1st Platoon was dispatched to collect this data via an area reconnaissance of the camps.

The data collected during the platoon's reconnaissance included identifying entrances to the camps; determining the trafficability of road networks around, into and within the camps; identifying the locations and names of local leaders, nongovernmental organizations or intergovernmental organizations; and marking key locations (to include camp perimeters) with Global Positioning Systems. Also, the platoon leader returned with digital photos and detailed sketches to augment our limited overhead imagery, which proved indispensible for mission planning and aided in the identification of graphic control measures.

Unconventional Reachback. To count the camps' inhabitants and households, Brannon—who majored in Forestry at Auburn University, Alabama—theorized that counting people in a tent city was akin to calculating the volume of wood in a forest.

He verified his theory by contacting his former college professor, Dr. Glenn Glover, who, after conferring with colleagues at the university, agreed that a reasonable estimate could be developed using the same formula and sampling techniques used by foresters.

Armed with the professor's positive reply and the platoon's data, the FSO calculated what percentage of the tents and people within the camps' calculated area (minus open ground) had to be counted to use as representative samples of the population in question. (See "Frontier Arithmetic in Action," on Page 30 for details of the calculation, the tactical plan and subsequent sampling.)

This was about creative problem solving and leveraging nontraditional talents and expertise resident in organizations throughout the joint force to accomplish nonstandard missions.

The FSO's methodology was folded into the tactical plan. We assembled and distributed a written operations order and briefed the platoons about their assigned areas of sampling and both quantitative data (to determine population estimate) and qualitative data (to give a better picture of the IDP problem). We executed the mission one June afternoon without incident.

After the data from the sampling was compiled, the results indicated a total population estimate of 6,176 people. The data retrieved from the population also indicated no evidence of the arms markets our predecessors had warned us about.

During the after-action review, the civil affairs team leader concurred with our calculations and accepted our total population estimate.

Lessons for the Joint Force. What is important about this CMO tactical problem is not the final numbers; rather it is the thinking that went into deriving these population estimates. This was about creative problem solving and leveraging nontraditional talents and expertise resident in organizations throughout the joint force to accomplish nonstandard missions.

With the benefit of hindsight, new and emerging doctrine, and a growing strategic perspective, this article offers some ways to bolster creative problem solving and leverage nontraditional talents. Leaders should demonstrate mastery of their craft, nourish the maneuver commander-FSO relationship, use their fire support team (FIST), know and employ their subordinates' special talents and demonstrate mental agility.

Demonstrate Mastery of Your Craft. B.H. Liddell Hart wrote, "It is ever a paradox in military affairs that the only way to obtain license for intellectual ideas is to prove oneself an expert at conventional practices."[3] I may never have accepted a forester's solution to an unfamiliar CMO had I not first been confident in that forester's principal duties as the company FSO. Through several varied operations, Brannon impressed me with his mastery of the art and science of fire support. More importantly, he demonstrated this mastery to my mortar section, rifle platoons, Soldiers and to our battalion. Because of his performance as an Artilleryman, I was confident that his plan as a forestry undergraduate student was sound and worthy of exploration.

Nourish the Maneuver Commander-FSO Relationship. Maneuver commanders must nourish this relationship. In "the field," it is the FSO who walks with the commander. In the patrol base or assembly area, it's the FSO who helps the commander plan (and communicate). In short, the FSO is never very far from the commander.

It was no different in Iraq. My FSO rode with me to the objective, usually calling out the waypoints to ensure we turned at the right unmarked street or alley. He lived with us, ate with us, attended religious services with us and was an integral member of our company. Had we not developed such a strong relationship built on teamwork, trust and mutual respect, I may not have employed him as I did in Iraq. In a long-duration stability operation punctuated by short periods of offensive operations, the tendency is to question or even forget the Field Artillery's role. A commander who fails to maintain this critical combined

SSG Luis Roman Parra passes toys and supplies out to some of the IDP camp residents. (Photo by SSG Ivan A. Hernandez, B/1-21 IN)

arms relationship—through the FSO—does so at his and his company's peril.

Use Your FIST. There are two components to this mantra when conducting stability operations with infrequent offensive operations—find useful non-doctrinal roles for your FIST personnel and employ them as true fire supporters at every opportunity. If a commander does not employ his FIST effectively and fairly, he risks losing the firepower insurance it provides.

During stability operations, the FIST's doctrinal fire support responsibilities may be a small, but important, portion of its total contribution to achieving the maneuver commander's objectives. Army stability operations doctrine recognizes this: "familiar FA targeting methods also relate well to information operations (IO). Therefore, the fire support officers (FSOs) [sic] may also be a maneuver company IO."[4] The Marine Corps explains in joint CMO doctrine that "To complement the Civil Affairs Group (CAG), the USMC has assigned its artillery community with the secondary mission of conducting CMO."[5] Recognizing this, maneuver commanders must develop useful roles for the FIST that sustain its relevance to the unit, albeit along different lines of operations.

My FSO's duties became so diverse and intertwined with company operations and management that he jokingly was referred to as the "FXO". This sobriquet took nothing away from the XO or diminished his role; rather, the responsibilities of a rifle company living and operating daily in an Iraqi city far exceeded those we trained for in Hawaii.

The FSO managed the company's 14 interpreters and the three major civic action projects for which we were responsible. He disbursed funds for projects and contracted with local Iraqi businessmen to provide services for the patrol base. He became the company's "informant manager" and was our liaison to the battalion's team police. Finally, he served, in effect, as a sort of S1 and S4 for the company's three police stations.

Of course, the FIST is comprised first and foremost of fire supporters, and every effort must be made to employ them in this role. While Brannon spent much of his day attending to his "FXO" duties, his Soldiers continued to serve as forward observers and critical members of their platoons. They accompanied squad and platoon patrols, occupied day and night observation posts (OPs), and routinely called for indirect fire—illumination—over suspected rocket and mortar firing points.

The FSO rotated his Soldiers through the battalion tactical operations center for experience in clearing fires at the battalion level and involved them in fire support planning. He continued to develop fire plans in support of company missions and platoon patrols, routinely trained his FIST on OP-related tasks, planned harassment and interdiction fires, ensured our patrols were covered by critical friendly zones and coordinated regularly with the supporting firing battery and radars.

Know and Employ Your Subordinates' Special Talents. Our new counterinsurgency doctrine states that "Leaders are increasingly responsible for … establishing climates that tap the full ingenuity of subordinates."[6] At the tactical level, this means commanders must know what unique skills and talents reside in their organizations and how to employ them. This is nothing new.

In World War II, the Army actively recruited ski instructors, mountain climbers and members of the National Ski Patrol for the 10th Mountain Division. When I inprocessed to C Company, 3rd Ranger Battalion, as a private many years ago, I was asked to identify any special skills I had such as welding, heavy equipment operator or foreign language ability. More recent examples include: tapping New York police officers, activated in the 42nd Infantry Division, New York Army National Guard, for their knowledge of organized crime and gang networks; and, making use of US Marine Corps Reservist Colonel Matthew Boganos' knowledge of art history, classical literature and archeology to recover the Iraq National Museum's looted antiquities.[7]

This does not apply solely to the Reserve Component. With a volunteer military population as diverse as ours, surely there are experiences, educations and innate talents we can leverage. Find the farmers, electricians, criminal justice majors, former police officers, construction workers, carpenters, mechanics and linguists. Think outside the box—do not discount a skill, past job, upbringing or college major no matter how esoteric or seemingly unrelated. In today's ambiguous environment, even something as arcane as forestry science may prove useful.

Demonstrate Mental Agility. All leaders must have an innovative and agile mind. The Army's "Leadership Requirements Model" lists among its attributes "A leader with intellectual capacity" who displays "mental agility, sound judgment, innovation, interpersonal tact, and domain knowledge."[8]

Commanders may identify unique skill sets and talents in their organizations, but it is an individual responsibility to champion them, offer them as solutions and apply them when they are needed. This imperative transcends rank and service and is as germane at the strategic and operational levels of war as it is at the tactical.

In *The Centurions*—a 1961 French novel that many consider a prescient treatment of counterinsurgency warfare—one of its heroes, Colonel Pierre Raspéguy perhaps summarizes this case study in creative thinking and innovation with the following advice: "The soldier has become something infinitely valuable … for our sort of war, you need shrewd, cunning men who are capable of fighting far from the herd, who are full of initiative too—sort of civilians who can turn their hand to any trade."[9] Raspéguy was speaking of the French lessons of Indochina and Algeria; his words ring just as true today for the present and future battlegrounds of the Long War.

Major Jeffrey Scot Davis, Infantry (IN), is an Army Strategic Plans and Policy Officer for US Strategic Command at Offutt Air Force Base, Nebraska. He has served as J5, Chief of Policy for Joint Task Force North at Fort Bliss, Texas; and C/J3 Plans Officer for Combined Forces Command/US Forces Korea, Seoul, Korea. He commanded B Company, 1-21 Infantry; and served as Brigade Plans Officer for 2nd Brigade Combat Team, 25th Infantry Division (Light), during Operation Iraqi Freedom. He is a graduate of the US Military Academy and has a master's degree from the University of Southern California in Los Angeles.

Endnotes:

1. *Joint Publication (JP) 3-57 Civil-Military Operations*, 8 July 2008. Distinct from civil affairs operations, *JP 3-57 Civil-Military Operations* defines CMO as "The activities of a commander that establish, maintain, influence, or exploit relations between military forces, governmental and nongovernmental civilian organizations and authorities, and the civilian populace in a friendly, neutral or hostile operational area in order to facilitate military operations, to consolidate and achieve operational US objectives." Every military organization has some capability to support CMO, and CMO may be conducted at all levels of war. This operation fell within the subset of Populace and Resources Control.
2. Headquarters, 1st Battalion, 21st Infantry Regiment, "Kirkuk Ethnicity Survey," briefing slide, Kirkuk, Iraq, 1 October 2004.
3. Captain Sir Basil Liddell Hart, Thoughts on War (London: Faber and Faber, Ltd.), 1944.
4. US Department of the Army, *Field Manual 3-21.10 Infantry Rifle Company*, (Washington, DC: US Department of the Army), 27 July 2006.These doctrinal fire support responsibilities include: fire support planning, fire support coordination, target location, calls for indirect fire, battlefield information reporting and emergency control of close air support.
5. Joint Staff, *Joint Publication 3-57 Civil-Military Operations*, (Washington, DC: Joint Staff), 8 July 2008.
6. US Department of the Army, *Field Manual 3-24 Counterinsurgency*, (Washington, DC: US Department of the Army), 15 December 2006.
7. See Matthew Bogdanos and William Patrick, Thieves of Baghdad: One Marine's Passion for Ancient Civilizations and the Journey to Recover the World's Greatest Stolen Treasures (New York: Bloomsbury Publishers), 2005.
8. US Department of the Army, *Field Manual 6-22 Army Leadership*, (Washington, DC: US Department of the Army), 12 October 2006.
9. Jean Lartéguy, *The Centurions*, trans. Xan Fielding (New York, NY: E.P. Dutton and Co., Inc. and London: Hutchinson and Co., Ltd.), 1961.

Frontier Arithmetic in Action

Conducting a population census normally is not within the realm of the US Army's training. When B Company, 1st Battalion, 21st Infantry (B/1-21 IN), was tasked with this duty, First Lieutenant Bradford M. Brannon III, the company FSO, developed a method to do just that by using a formula learned while getting his undergraduate degree in Forestry from Auburn University, Alabama.

Brannon emailed his former college professor, Dr. Glenn Glover, who, after conferring with his colleagues, agreed with the lieutenant's theory that a reasonable estimate could be developed using the same formula and sampling techniques used by foresters.

In his return email, the professor gave the following advice: "For a tent to be included in the sample … it is the same as for a tree—the center or 'pith' of the tree must be within the plot boundaries not just the edge of the tree. Likewise, the 'center' of a tent must be within the plot boundary to be counted." The email also contained the formula and detailed instructions on how we could obtain representative samples of the population in question and calculate the overall population using relatively simple algebra and trigonometry.

Armed with the information and data from the platoon's reconnaissance, Brannon calculated the actual area of the tent city (minus the open ground) to be 35.2 hectares (352,000 square meters) and determined that a 36 percent inventory sampling would

Some of the IDP camp "residences" at Kirkuk's municipal soccer stadium. (Photo by SSG Ivan A. Hernandez, B/1-21 IN)

be sufficient (in the forestry field, a 10 percent sample is deemed sufficient). Given the task organization, the FSO knew that he had the equivalent of six squads to collect the data. (In retrospect, we could have performed an even more accurate assessment had I, as commander, allowed fire teams to operate independent of their squads. However, this was June 2004, and I was still a bit wary of subdividing squads, even in the Kurdish areas.)

Because every Soldier knows his 100-meter pace count, the FSO selected sample areas that were 100 meters in diameter.

$$P = p_{avg} \text{x} h_{avg} \text{x} 1/a \text{x} A$$

Where:
P is total population of the camp
p_{avg} is average population per household
h_{avg} is average number of households per plot
a is area per plot (expressed in hectares)
A is total area of the camp (expressed in hectares)

Notes:
1. Determine area per plot using the familiar formula a = $\prod r^2$ where r is the radius of the plot (we used a 50m radius since each Soldier knows his 100m pace count).
2. One can use meters or hectares as long as the units are consistent (1 hectare equals 10,000 square meters).
3. We used the variable h for "household" since dwellings in this tent city consisted of tents, mud huts and other structures.
4. p_{avg} and h_{avg} are computed based on raw data from the squads. Develop a tally sheet or chart for squads to complete during the sampling.
5. Total area (A) can be computed using a Global Positioning System or through a simple map reconnaissance.
6. Number of plots does not figure in the formula, but it is used to calculate averages and to determine the overall percentage of the sample: ((#plots x a)/A) x 100 yields the percent of the camp sampled. We used a 36 percent sample.

Key Points:
1. In a clockwise manner, determine the population of every third tent. Verify the total number of residents, not just the number there at the time of the count.
2. Annotate the number of tents and number of residents of selected tents. Record the total and move to next plot.
3. Have one data recorder, two Soldiers (for the 50-meter radius accuracy) and several counters.
4. Remain unbiased. Try to get as close to the grid as possible, and try to be as close to the 50-meter radius as possible.
5. Count only tents with the center of the tent inside the 50-meter radius.
6. Review sample data sheet before beginning data collection.

** You probably will not find this exact formula in a forestry textbook because we adapted the variables for our use. However, the math is sound and based on Dr. Glenn Glover's correspondence with 1LT Bradford M. Brannon III.*

Formula and methodology that B Company, 1st Battalion, 21st Infantry, used to calculate the internally displaced persons camp population.

Brannon selected the centers of these 100-meter circles by developing a random number generator that provided 10-digit grid coordinates within the predetermined camp boundaries. Squads would enter these grid coordinates into their Global Positioning Systems as waypoints and move to them before conducting the sample. In this manner, the FSO hoped to eliminate observer bias. Each squad would take three plots, yielding 18 100-meter plots for the company.

Merging the Tactical and the Technical. Once explained, Brannon's methodology was folded into the tactical plan. I divided the camps into two objectives: Objective Stadium and Objective Tent City. Phase lines, limits of advance and existing terrain features further divided these objectives into more manageable sectors for the platoons to patrol and for me to monitor the progress of the operations.

Objective Stadium was bounded by a low wall that encircled the soccer stadium and what we in the US would consider the parking lot. Because this area was smaller and because the vertical dimension of the stadium itself did not subscribe to the formulaic parameters of the tent city, we dispensed with the FSO's methodology for this objective only and instructed squads simply to count the number of dwellings and the number of inhabitants in a sampling of those dwellings.

This was a four-phase operation. Phase I, the initial reconnaissance, already was completed; The company would conduct Phase II (Reconnoiter Objective Stadium) and Phase III (Reconnoiter Objective Tent City) sequentially. Phase IV involved a final circumnavigation of the tent city perimeter and an orderly withdrawal.

Each squad and platoon was to collect both quantitative data and qualitative data to elicit a complete picture of the city's internally displaced persons (IDP) problem. Questions to be asked dealt with families' ethnicity, city of origin, final destination, duration in the camp, financiers of the move, and type of employment, as well as the presence of nongovernmental organizations and observations on the availability and quality of public services like water, sanitation, and electricity. The plan included having Soldiers distribute candy, toys, school supplies and clothing sent by people back home, and psychological operations (PSYOP) handbills provided by the civil affairs team.

Explaining and Executing the Plan. We assembled operational graphics, photographs, maps, and the FSO's charts and instructions into a written operations order that we distributed and briefed to the platoons (see figure). The attached civil affairs team also was briefed on the scheme of maneuver and the methodology. The mission was executed one June afternoon without incident.

The calculations for the stadium yielded a total of 2,745 residents occupying 322 households for an average of 8.5 residents per household. The calculations for the tent city suggested a total population of 3,431 residents occupying 543 households with an average of 6.3 residents per household. Our total population estimate was 6,176, which the civil affairs team leader concurred with during the after action review.

The company FSO's knowledge of forestry not only helped to simplify an enormous, complicated nonstandard task, producing accurate results; but pointed out the need for commanders to know their subordinates' "other" skills and to capitalize on them.

MAJ J. Scot Davis, IN
Army Strategic Plans and Policy Officer
Offutt Air Force Base, Nebraska

Working With Transition Team Interpreters

By MAJ Thomas M. Genter, ADA

A critical component of the advisor/counterpart relationship is the interpreter. "Terps," as they commonly are called, are integral members of the transition team. Fluent local nationals with local knowledge are a prerequisite for transition teams.

Important Skills. Every Iraqi transition team interpreter's experience base should include personalities of Iraqi Army (IA), national police, border patrol, etc., counterparts, host nation unit accomplishments and advising techniques used by prior transition teams. Even more important is a thorough comprehension of national history, religious customs, tribal relations, local politics and personalities of local "spheres of influence."

Insights to such complex relations and individual narrations only can be accomplished by time and exposure to the indigenous people and their customs. As a rule, local national interpreters, because of origin of birth and connection to the local population, are the best choice for transition teams.

Local national interpreters help the advisor form a strong bond between himself and the host nation counterpart. The advisor's ability to provide sage advice, which may or may not be accepted willingly by the counterpart, relies on his capability to build rapport, establish a meaningful relationship and gain influence. The advisor/advisee relationship is formed through countless hours of interaction and is an essential aspect of the advisor mission.

The interpreter, by default, facilitates the communication and relationship-building process and becomes a trusted member and friend to the advisor and counterpart. Without a competent interpreter, communications can be misunderstood, frustrating both the advisor and counterpart, straining the relationship and, ultimately, hindering mission accomplishment.

Beneficial Insights. Our team was fortunate to fall in on a group of six experienced and talented local national interpreters. The end of our tour in Iraq represented the third military transition team (MiTT) to work with our band of interpreters. The interpreters provided insights that were invaluable to our team. Because of their long history with our IA unit, they provided a better understanding of our IA counterparts.

Beneficial to the relationship-building process is a good introduction to the counterparts' strengths and weaknesses, willingness to accept advice and personal histories, such as tribal affiliations, residence locations, time in the positions, trustworthiness, leadership abilities, motivations, prejudices and fears. Although a previous MiTT will provide detailed biographical sketches, an interpreter's viewpoint is useful because it represents another, often more informed, perspective.

Because our interpreters had more experience with our IA counterparts than any previous MiTT or task force, they naturally segregated and aligned themselves with Iraqi staff sections and officers they were more comfortable with. For example, "Josh," (a Turkomen from Mosul) worked with the IA Battalion S1 and knew administrative operations and the S1 very well; after all they had worked together for the better part of the last three years.

As a result, he could inform the MiTT S1 advisor about the history of "ghost soldiers." The IA commander, because of tribal relations, was pressured into allowing some soldiers to skip duty and still receive their paychecks every

Sam, the interpreter (left), translates while MAJ Thomas M. Genter (right), part of a Military Transition Team (MiTT) with the 1st Brigade Combat Team (BCT), 1st Infantry Division (1st ID), asks an Iraqi Army officer and several Iraqi Army soldiers (faces covered) for an update during an operation conducted in Hawijah, Iraq, October 2007. (Photo by MSG Jeffrey S. Lane, MiTT, 1 BCT, 1st ID)

month. These and other problems only could be corrected through transition team involvement. Had the interpreter not been aware of the pay discrepancies and his counterpart's inability to rectify the situation, the scam would have hampered the unit's professionalism and accountability further.

Local Versus Category II Interpreters. Reliable and trustworthy local national interpreters are more valuable to transition teams than US Department of Defense (DOD), Category II linguists.[1] All Category II interpreters, because of security requirements, must be US citizens. Due to their assimilation of American culture, even though they may have originated in the host nation, their extended absence essentially makes them foreigners.

Additionally, Category II interpreters may originate from countries other than the host nation, which can cause some problems. Counterparts may not accept interpreters from other nations readily because of perceived differences in social status, race and ethnicity.

Foreign interpreters are not as good as local interpreters for distinguishing dialects of different regions—very useful in determining if someone (especially a detainee) belongs to the area or not. Because Category II interpreters are US citizens, their tours of duty are only one year; and, as a result, they are uninformed or "out of touch" with the social dynamics and challenges of the unit and the local landscape.

Common Pitfalls. As beneficial as local linguists are to the transition team, there are several pitfalls to avoid. Local interpreters, through time and experience, become very familiar with your counterparts. As a result they may feel inclined to interject their opinions and advice into conversations.

I've witnessed on several occasions, during military operations, a frustrated interpreter take charge of an IA squad. Leadership is not a forte for the IA, especially at the company level. If a transition team member or an interpreter is willing to take charge, the Iraqi soldiers will follow happily.

As a transition team member, the focus is to help the Iraqis accomplish the mission without Coalition support or assistance. If at anytime the interpreter is speaking or acting without your guidance, it is time to pull him aside and remind him of his role and responsibility. At no time should the interpreter be disrespectful or rude to you or your counterpart.

Even more troublesome is the potential for interpreters to leak information regarding operations, or worse, provide early warning to the enemy. Appoint an interpreter manager, normally the team's intelligence advisor, and ensure that he is capable of enforcing the policies and procedures found in MultiNational Forces, Iraq, Memorandum 11-1 Command, Policies and Procedures.[2] Also, conduct interpreter debriefs upon conclusion of leave, maintain positive control of cell phones at all times and allow cell phone usage only when a DOD Category II interpreter is available.

An active transition team during a normal day at the forward operating base will require at least four interpreters working at least eight hours. These eight hours normally take place between 0900-2100 hours, mission dependant.

Helpful Tips. Appendix C Linguist Support found in *Field Manual 3-24 Counterinsurgency* offers several tips for working with translators. The appendix is a good source of reference for linguist support in military operations and provides a solid foundation for transition team members.

However, some techniques and advice are not applicable to transition teams because of excessive generalizations. For example, *FM 3-24* recommends avoiding American humor because it is too culturally specific. However, we found that humor is a great tool to ease the almost constant seriousness of combat operations and helps when forming bonds of friendship and trust. The figure shows some helpful hints when using an interpreter.[3]

According to *FM 3-24*, successful counterinsurgency operations require "one to become an expert at people, topography, history, religion and culture of the area of operations. Local national interpreters perform a vital role in providing the transition team with local "situational awareness and understanding." Without their expertise and professionalism, the transition team mission in Iraq certainly would fail. Leverage their ability and insight to learn as much about your area and its people as possible.

Consider interpreters as political and cultural advisors. But most importantly, treat them as a part of the team.

Endnotes:

1. *Field Manual 3-24 Counterinsurgency* defines Category II linguists as "US citizens with a security clearance."
2. MultiNational Forces, Iraq, Memorandum 11-1 can be found at **http://www.iraq.centcom.smil.mil/mnfi_sipr.cfm**.
3. Major Jon K. Sowards and SSG Paul Weaver, Center for Army Lessons Learned Newsletter, No. 05-27, December 2005.

- Speak in the first person and tell your interpreter to do the same.
- Instruct your interpreter to translate accurately and to avoid paraphrasing.
- Speak in short phrases with simple vocabulary.
- Ensure your interpreter knows the proper roles and actions during battle drills.
- As much as possible, include the interpreter in mission preparation to make him part of the team.
- The interpreter must use the same tone and inflection you use.
- Make sure they maintain a professional appearance.

Some Helpful Hints When Using an Interpreter, from the Center for Army Lessons Learned (CALL) Newsletter, No. 05-27, December 2005.[3]

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Fire and Maneuver: Versatility in COIN

By CPT Christopher R. Vegas and 1SG Theodore M. Brock, both FA

The 1st Battalion, 10th Field Artillery (1-10 FA), known as Task Force (TF) Rock redeployed to Fort Benning, Georgia, in January 2006 after serving 12 months in Iraq for Operation Iraqi Freedom III. The unit then reorganized into the traditional role of providing close in fire support for the Hammer Brigade Combat Team (BCT). During the next 15 months, the battalion prepared for its future deployment, requiring its Artillerymen and Infantrymen to perform counterinsurgency (COIN)—training to attack the enemy along all logical lines of operations. The battalion's leadership stressed the importance of staying ahead of the enemy, learning faster and adapting more rapidly than he does, whether at the National Training Center (NTC) in Fort Irwin, California, or in downtown Narwhan, Iraq.

Deployed in March 2007, for the next 14 months the battalion conducted multiple missions in three provinces across Iraq, executing detainee operations in the largest detainment facility in the world, providing terrain denial fires in Baghdad and Basra, and owning the largest operational environment in Area of Operations (AO) Hammer.

This article describes the preparation, tactics, techniques and procedures (TTPs) TF Rock learned during previous deployments and the challenges it faced delivering fires in support of COIN operations.

Predeployment Training. While preparing for deployment, the brigade commander ordered the battalion to train as a maneuver headquarters; one firing battery transforming into a motorized rifle company and one conducting traditional Artillery operations—the norm for most Artillery battalions in Iraq. Though the battalion becomes very busy with COIN operations, there still are FA missions that have to be resourced and executed, presenting more challenges than the typical maneuver headquarters faces.

A Paladin from B Battery, 1st Battalion, 10th Field Artillery (B/1-10 FA) conducts a calibration test at Basra Air Station, Iraq. (Photo courtesy of 1-10 FA)

Lessons learned from the unit's previous deployments led the battalion commander to modify the training for combat operations. He chose to remove training normally integral to high intensity combat (HIC), such as smoke missions, coordinated illumination, and large irregular shaped targets.

Removing these missions, which have no relevance in support of COIN operations, allowed the battalion to conserve critical ammunition needed both to familiarize the fire direction centers (FDCs) with proper calibration procedures and for numerous multiple-round missions. Both firing batteries conducted Qualification Tables VIII and XII. Then A Battery conducted the required motorized rifle-company training, while B Battery performed Table XV qualification and conducted additional training, preparing for counterfire and terrain denial operations.

With the uncertainty of the types of missions facing Artillery battalions, firing batteries should qualify their sections on a modified Table VIII, including a low-angle fire-for-effect mission (counterfire), a low-angle adjust-fire mission (terrain denial), a calibration mission, a priority target mission, and, if possible, an Excalibur mission. These allow the units to perform multiple-round missions that section chiefs need to refine their crew drills.

Knowing that the entire battery would not be needed to conduct FA operations, TF Rock faced the challenge of training all Soldiers in COIN operations basics. This demanding training paid off, ensuring that everyone was proficient in COIN basics, key Arabic phrases and cultural concepts. The battery prepared for full-spectrum operations while at NTC, such as providing fixed-site security for the joint security station and manning the firing headquarters, command-security detachment, forward operating base (FOB) quick reaction force and the detainee holding area.

Our brigade and battalion generated multiple smart cards containing pertinent data, such as improvised explosive device (IED) defeat, culture, useful

Arabic phrases and combat lifesaving skills. Carrying these smart cards helps each Soldier and allows sergeants and leaders to conduct hip-pocket training during any downtime no matter where they are.

Full-Spectrum Operations. Shortly after arriving in theater, MultiNational Corps, Iraq, ordered TF Rock to Camp Bucca—the world's largest detainment facility—to conduct detainee operations. The Soldiers quickly grasped the skills, providing the proper custody, control and care for more than 3,500 detainees on a daily basis. The cultural, language and COIN training they had received in the states was integral to their ability to quell riots, attempted escapes and many other harmful situations during their tenure at Camp Bucca. Their competent actions helped bring dangerous and radical insurgents to justice.

Many of the unit's officers and NCOs took part in detainee release boards, and their experiences armed these leaders with the knowledge they would need later in conducting COIN operations. Because many of the detainees were released due to lack of evidence, these leaders learned that precise and comprehensive detainment paperwork can ensure the proper people are brought to justice.

Also, this assignment provided an opportunity to serve with our sister Services, the Air Force and Navy, in joint operations.

Joint Operations. After four months at Camp Bucca, the battery fielded the new Excalibur precision-guided munitions (PGM) with a follow-on tasking to support British forces at Basra Air Station—the "incoming indirect-fire capital" of Iraq. Along with this mission, the battery assumed control of firing operations out of FOB Hammer in support of 3rd BCT, 3rd Infantry Division.

Integrating a platoon-sized element into Battery A, 1st Royal Horse Artillery Regiment, better known as The Chestnut Troop, proved easier than expected. Aside from the daily rocket barrages, the biggest challenge was adapting to the British Artillery operational style. Our battalion operations sergeant major and fire control NCO initially joined the battery to smooth over these few integration issues.

Soldiers of both units took many lessons learned and the feedback was that they thoroughly enjoyed the experience of working with their greatest ally. From shooting artillery side by side, participating in a pick up game of volleyball or sweating during a heated game of soccer (or "futball," as they call it), the experiences will last throughout our careers in the Army as well as some new friends who will last a lifetime.

Soldiers from B/1-10 FA practice riot-control procedures in preparation for assuming duties at a detainment compound at Camp Bucca, Iraq. (Photo courtesy of 1-10 FA)

At FOB Hammer, the battalion chain of command decided to place the battery FDC in the brigade tactical operations command (TOC), collocated with the brigade fire support element (FSE), eliminating the need to man the battalion FDC. This TTP proved very effective and was used throughout OIF V at FOB Hammer.

Instead of communicating through FM radio, the FSE and FDC were in constant face-to-face communication, alleviating much of the confusion that can come with distance. Along with the FSE, all other fire support assets were in "arm's reach" of the brigade aviation element and the air liaison officer, greatly reducing fire mission processing times and allowing for a faster counterfire battle drill. This enhanced the brigade's ability to clear the ground, Army and Air Force air and simultaneously lay the howitzers. The result was a smooth fire mission process that eliminated the normal lag that comes with communicating over FM, my internet relay chat (mIRC) or secure voice over internet protocol (SVOIP).

Lessons Learned. One important lesson learned was to, if at all possible, collocate the battery FDC with the brigade TOC during training leading up to the mission readiness exercise and perfect counterfire battle drill before arriving in theater. This allows for a smooth process from day one of operations. Also, removing the need to man a battalion FDC allows military occupational specialist (MOS) 13D Field Artillery Tactical Data Systems Specialists to fill other key areas in the TOC. This frees more Soldiers to man the command group's security detachment, which came "out of hide" from our battalion.

Providing fires 24-hours a day, on two fronts, called for a meticulous troop-to-task list. Managing leadership of the battery's firing units, howitzer and FDC sections during environmental and morale leave was a challenge and had to be met with precise planning to ensure firing capability was not lost. To alleviate such issues, the battery conducted numerous Table VII certifications, certifying almost every gunner with each section chief in the battery.

In some instances, certifying a strong gunner with an experienced cannoneer was also an alternative. During normal operations, the latter might be unadvisable with multiple occupations and other requirements requiring an experienced gunner, however in a stationary environment, an experienced cannoneer proved very reliable at cutting charges and verifying firing data. This technique eased many of the issues with breaking crews and certifications during environmental and morale leave.

TTPs. TF Rock adopted several TTPs in theater to the unit's needs. When conducting Table VIIs, the battery leadership generated a more refined certification, focusing on terrain denial, counterfire, Excalibur, calibration, voice commands and troubleshooting procedures. The missions were processed during the certifications just as during a live terrain-denial or counterfire mission.

All missions initially were given in a "lay but do not load" status to allow for clearance of ground and air. Also, all firing data was verified by voice back to the FDC to ensure safety. Terrain denial missions were sent as "adjust fire," with the first round used to verify accuracy and adjust onto the target, followed by the fire-for-effect portion. The counterfire was sent as a "fire for effect" from the start with the radar used as an observer.

Once cleared, the FDC changed the method of control to "when ready," also sending the command quadrant. The Excalibur portion of the certification covered system initialization, fire mission processing and troubleshooting procedures. To ensure that the sections maintained their gunnery skills, the chain of command conducted certifications quarterly.

Our fire mission processing relied heavily on voice fire commands that initially were very rusty. As a battery, we got "back to the basics" of voice fire commands to alleviate the confusion. At shift changeover, the FDC would send dry fire missions to the howitzer to shake off the cobwebs and to ensure voice and digital communications. For upcoming terrain denial missions, the FDC would gather the mission data and conduct a technical rehearsal to ensure there were no delays during the actual fire mission.

Shortly after assuming duties at FOB Hammer, operational tempo created a need for a third firing unit location. This generated a definite need for outside help to man three FDCs continuously. The battalion provided a few outside MOS 13D NCOs and Soldiers to ease the strain of manning the battery's FDCs. Mixing battalion FDC personnel into battery-level FDCs during the transition from tactical to technical fire direction seemed to alleviate issues.

No matter the mission being conducted, one Soldier's actions can have a strategic impact, and commanders cannot be everywhere they are needed.

Leaders Empowered/Complacency Avoided. One piece of advice to offer an Artillery commander preparing his unit for combat is to empower leaders at the lowest level to make command decisions. The term "Strategic Soldier" is very common today in Iraq. No matter the mission being conducted, one Soldier's actions can have a strategic impact, and commanders cannot be everywhere they are needed.

Along with challenging the FDCs, the expansion to three locations also required a meticulous troop-to-task list. Managing personnel, administration, environmental and morale leave, ammunition and supplies for three different locations throughout two different multinational divisions was very challenging. A strong first sergeant and a mature executive officer made the process much easier, as TF Rock split the battery headquarters with the first sergeant at FOB Hammer and the battery commander in Basra. The battery ran three firing locations for three months before departing Basra Air Station and consolidating the headquarters at FOB Hammer.

Running 24-hour operations from two locations and 12-16 hours at a third proved taxing for sections. Realizing that long hours in the stifling turret of a Paladin could lead to complacency, the battalion commander recommended that, when possible, the battery should limit time in the turret to eight hours.

The shortened shift gave the battery the flexibility to perform weekly maintenance on all of the howitzers and other taskings. Late in the tour, the same decision was made for FDCs as promotions and experience led to more flexibility.

To combat complacency throughout the tour, as lulls between fire missions can be extensive, the howitzer and FDC sections conducted hip-pocket training. Topics ranged from manual gunnery and computations to ammunition management and specialty munitions fire missions processing techniques.

Ammunition/Weapons Issues. The quality of Class V ammunition throughout the tour was troublesome. The many pushes the brigade received were poor with multiple lots; Vietnam-era propellants had lost their stabilizers (bottom on the base charge turns denim blue), and there were also dry-rotted and eroding propellant increments. Numerous attempts through the brigade to request lots we already had calibrated were unsuccessful.

These ammunition issues led to complications with calibration. Many of the different lots did not have enough propellants to calibrate effectively, giving the unit fewer attack options. It also led to the disposal of multiple propellants for every push received, further amplifying the need for effective and accurate calibration to ensure that all projectiles fell within the constraints of the collateral damage estimate. Units should become familiar with the calibration process while at home station and conduct a base line calibration with their equipment while in Kuwait before moving north.

However, inference of muzzle velocities, normally a useful method to save rounds, is not as important because in most cases there only will be two howitzers operating on a given firing point. We sacrificed the few extra rounds necessary to calibrate both our hot and warm gun, as actual muzzle velocity variance readings are more reliable than inferred calculations.

When new ammunition is received, calibrating both hot and warm howitzers ensures firing capability when maintenance issues arise. Also, preparing the FDCs to juggle multiple lots and square weights, as done at the NTC, sets them up for success.

Another TTP was setting a standard turret load in the hot and warm gun based off of the most recent fire missions. In doing this, the howitzer sections knew exactly which area to restock from and greatly reduced the possibility of errors in ammunition reporting between the FDC and the howitzer sections. This was no easy task, as the multiple ranges possible for fire missions forced us to keep a multitude of propellants in the ammunition holding area.

This alone required a precise count and thorough organization of ammunition. All like ammunition was stored together to streamline the restocking process. Also, to give our forward support company flexibility needed with flat racks, the battery stored ammunition on Air Force 463L pallets, readily available around the FOB.

An overabundance of M795 extended range high explosive (HE) projectiles throughout the latter stages of the tour generated the need to calibrate M795 with all charges. Although this was a new TTP for the unit, calibration proved relatively simple; and we experienced great success in shooting the M795.

Our unit found that getting solid calibration data with the modular artillery charge system M232 was nearly impossible. The propellants were erratic with rounds periodically falling outside the target area. This problem, along with the recently released safety message stating the need for some extreme calculations for muzzle velocity variances due to shortfalls in the Advanced Field Artillery Tactical Data System software, caused some doubt between the FSE and FDC and forced the unit to discontinue usage of the M232, except with Excalibur.

The Excalibur PGM proved somewhat difficult to keep operational. The hardware was cumbersome with cabling and com-

A B/1-10 FA Paladin conducts a terrain-denial fire mission in support of Task Force 1-15 from Combat Outpost Cleary in Salman Pak, Iraq. (Photo courtesy of 1-10 FA)

ponents strewn throughout the Paladin's turret. This allowed less freedom of maneuver in the turret and led to damaged cables while preparing ammunition for firing. There were multiple issues with faulty ruggedized personal data assistant cabling and uncooperative software. Our experiences have shown that the system is prone to issues if it is run continuously.

The field support representatives in country were willing to help us when possible, but the shortage of repair parts in theater produced a lag in our Excalibur firing capability. If at all possible, bring repair parts from Excalibur systems fielded at home station and coordinate with the unit you are replacing to establish communication with field service representatives in theater to prepare for maintenance issues.

Another challenge brought about by Excalibur was the need for a unique transmission encryption key and the erratic monthly key distribution. Often, the communications data needed to run the system was not given to the unit or was missing vital portions.

The Excalibur PGM is a good tool, but the time needed to clear the upper levels of airspace needed to fire, along with the safety restrictions required for the base plate, make the use of the projectile less desirable for a BCT. With a Guided Multiple-Launch Rocket System (GMLRS) battery located on our FOB, the Excalibur system became a secondary option for the BCT, behind the GMLRS or readily available fixed- or rotary-wing aviation assets.

The Air Force's Meteorological (Met) messages are a very useful tool. With correct latitude, longitude and region, 26 lines of accurate Met data can be received. This frees more personnel to conduct COIN operations.

COIN Operations Results. The Artillery piece of COIN operations in AO Hammer provided the intended effect on the local Iraqi citizens' minds. Civil affairs Soldiers attached to the battalion conducted numerous surveys asking the local citizens about their feelings concerning the terrain denial fire they commonly heard. Almost every response was positive, saying it was comforting to know that the US Forces can and are willing to protect the populace.

The Artillery was used in retaliation to attacks from certain areas throughout AO Hammer. If a patrol was ambushed or attacked with an IED in a certain area, it was not uncommon to fire terrain denial missions throughout the night in that area to help "root out" the culprits and to deny them further access to the scene of the attack.

The predeployment COIN training definitely paid great dividends. The TF continues to make substantial improvements along all lines of operations in its AO, providing security through the Sons of Iraq, creating jobs by increasing the operational strength of the Narwhan Brick Factory, providing much needed water for families, medical supplies for the sick, veterinary care for animals and a myriad of other improvements throughout the AO.

Whether, providing cannon fires, conducting detainee operations, patrolling the streets of AO Hammer, or providing vital force protection, these Artillerymen are making great strides in the COIN environment. With the versatility to fulfill its traditional role of shooting artillery while also acting as a maneuver TF headquarters, the battalion has become an integral piece in the overall success of the BCT.

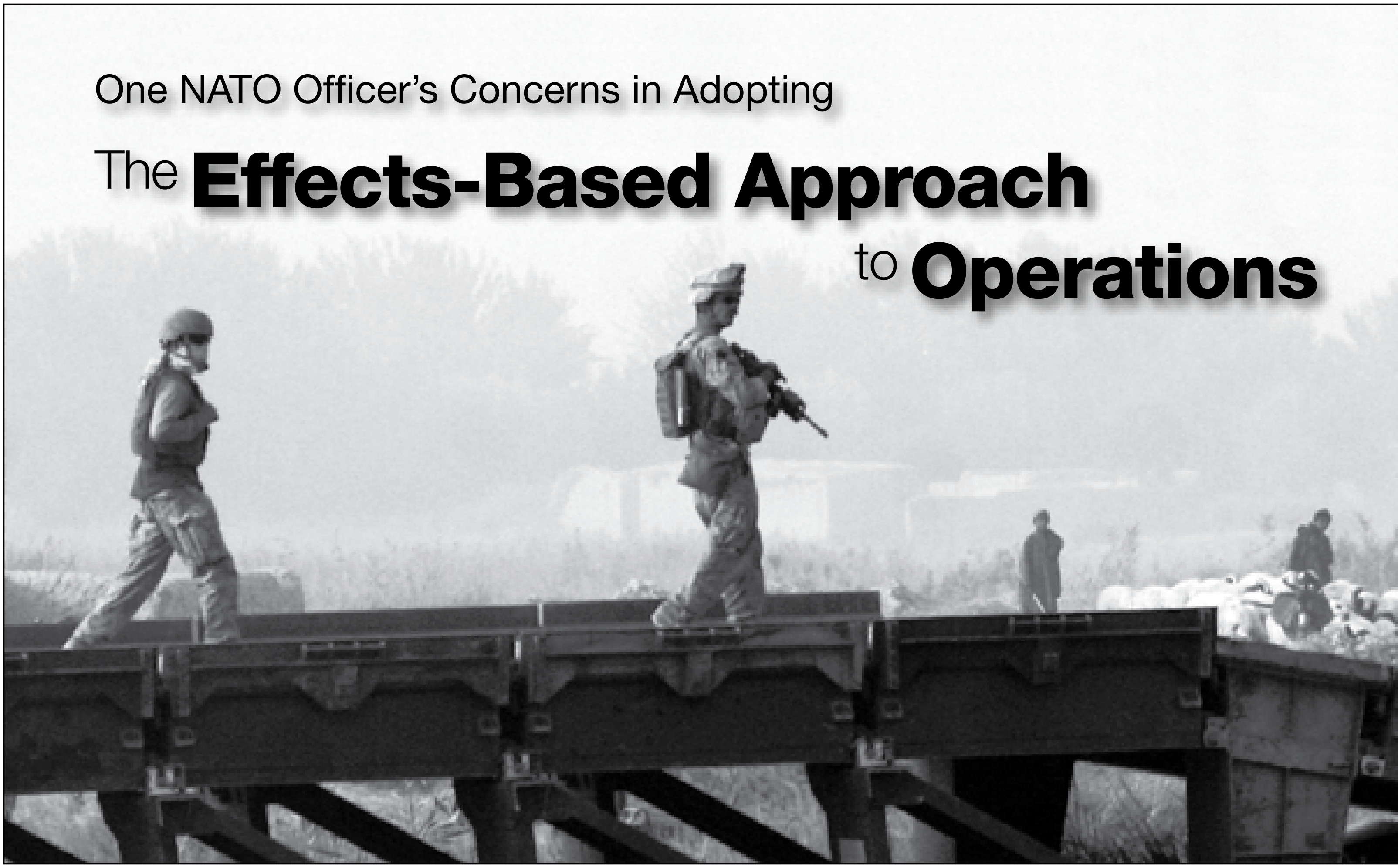
Despite the assigned mission, it is still very important to continue training for our FA mission. As any Artilleryman would agree, the skills used in the delivery of cannon fire, whether in the FDC or in the turret, are perishable. However, with continued battle-focused training on COIN operations, partnered with training on our traditional Artillery tasks, Redlegs will continue to uphold that outstanding reputation that they have earned as versatile Soldiers capable of accomplishing any and all missions.

Captain Christopher R. Vegas, Field Artillery (FA), is on terminal leave. Previously, he served as the Commander of B Battery, 1st Battalion, 10th Field Artillery (B/1-10 FA), serving in support of Operation Iraqi Freedom (OIF) V at Forward Operating Base (FOB) Hammer, Iraq. He has served as a Battalion Rear Detachment Commander, Combat Observation and Lasing Team Platoon Leader, Firing Battery Platoon Leader (deploying in support of OIF I), and Platoon Fire Direction Officer, all in 1-10 FA, Fort Benning, Georgia.

First Sergeant Theodore M. Brock, FA, is the First Sergeant for, C/2-12 FA, 4th Brigade, 2nd Stryker Brigade Combat Team, at Fort Lewis, Washington. Previously, he was the Chief Fire Control NCO and Projects Purchasing Officer for B/1-10 FA, deployed in support of OIF V at FOB Hammer. He has served as a Platoon Sergeant and Battalion Fire Control NCO for 1-15 FA, Camp Casey, Korea; an Observer/Controller and Trainer for 2-78 Training Support Battalion, Fort Drum, New York; Battalion Fire Control NCO for 2-82 FA, at Fort Hood, Texas; and a Fire Control Sergeant in both 1-320 FA, Fort Campbell, Kentucky, and 3-311 FA, at Schofield Barracks, Hawaii.

One NATO Officer's Concerns in Adopting

The Effects-Based Approach to Operations



By CPT W. Todd Longanacre, FA

The acronym "NATO" (North Atlantic Treaty Organization) typically is synonymous with peacekeepers in most circles around the globe. Unfortunately, perhaps due to its inherent responsibility to desire, encourage and maintain peace, some perceive the NATO Alliance to "talk small and carry an even smaller stick." In fact, US Secretary of Defense Robert Gates criticized NATO in a 12 December 2007, Washington Post article for not being aggressive enough in terms of how its commanders deal with the current insurgency and the increase in guerrilla tactics against NATO and Coalition Forces in Afghanistan.

Other critics insinuate that many NATO commanders will go out of their way not to fire lethal munitions of any kind except as a last resort. However, many of these same critics do not realize that NATO has undergone several transformations since its creation that have made it more flexible and adaptive with each new strategy it adopts. This article discusses these former, current and potential future strategies and concepts in an attempt to encourage readers to embrace change—especially positive change—whether engrained in tradition or not.

NATO Strategies. NATO's original philosophy of sustaining peace within its area of operations (AO) included a strategy known as the "Massive Retaliation Strategy," described in the NATO Handbook. In the event it was necessary, this plan empowered NATO to threaten any potential aggressor by disclosing a willingness to use every means necessary, specifically including nuclear weapons, to influence concurrence and/or compliance. In fact, this strategy actually was developed around the idea that fear, intimidation and sometimes even the mere show of force will deter most "would-be aggressor" nations from trying to impose their motives upon any NATO-member country.

In the late 1960s, due to the World's unease surrounding perceived Cold War nuclear and World War III possibilities, NATO changed its strategy. Public sentiment had influenced NATO's decision to formulate a new strategy known as "Flexible Response" (in the NATO Handbook). In this strategy, NATO could ensure the aggressor always would be "off balance and back on its heels" in trying to determine NATO's next move. Now, public opinion calmed somewhat in regards to NATO's earlier apparent zeal for the use of nuclear weapons.

After many nations began to reconfigure their militaries at the end of the Cold War and in conjunction with the Berlin Wall being torn down in the 1980s, NATO adopted its third strategy. This strategy was debated for a few years and at the conclusion of the Gulf War in 1991 (and likely influenced by the US' ability to build a successful coalition necessary for liberating Kuwait; from Iraqi occupation and reestablishing peace in the newly freed Kuwait), the new "Strategic Concept" (described in the NATO Handbook) was born. It encouraged cooperation and even collaboration with former adversaries rather than confrontation. The Strategic Concept strategy put to rest the previous two (Massive Retaliation and Flexible Response) for good; or did it?

Today, several nations around the world continue to fall victim to the many faces of terrorism. What role does/can NATO have in helping the United Nations (or a particular country) combat this enemy? For the most part, terrorism is an enemy without comprehensive borders, uniforms, nationalities or the ability to respond positively to negotiations,

Marines of 1st Platoon, B Company, Battalion Landing Team, 1st Battalion, 6th Marine Regiment, 24th Marine Expeditionary Unit (MEU), NATO International Security Assistance Force (ISAF), cross a bridge while on patrol in Helmand province, Afghanistan, on 30 June. Marines are encouraging local rebuilding efforts and continue patrolling the streets as a show of force in the former Taliban stronghold. (Photo by Cpl. Randall Clinton, 24th MEU Public Affairs)

diplomacy or democracy. So, NATO must look at how to sustain the peace in areas where acts of terrorism continue to dominate daily.

Effects-Based Approach to Operations. Perhaps, a combination of the three prior strategies, all of which had a varying degree of success throughout NATOs relatively short history, can be realized, implemented and executed successfully in this current fight. Though certainly not a new concept in modern warfare, NATO is adopting a new set of strategic methodologies—the "Effects-Based Approach to Operations" concept.

In terms of combat operations, the War on Terrorism continues to manifest itself predominately in two countries—Iraq and Afghanistan. Contrary to popular belief, both countries were characterized by governments that implemented fear, intimidation and even mass graves to impose their wills upon their own citizens. In the author's opinion, this is terrorism.

Since the beginning of the current combat operations in both of these nations, many new methodologies have been conceived and adopted. Subsequently, many tactical-level commanders within the US-led coalition frequently have strayed from traditional doctrine to achieve strategic objectives within their respective AOs.

As NATO apparently is preparing to adopt this new strategy (which is certainly not a new concept as we have considered the effects of our fires for decades) the question of lethal versus nonlethal targeting continues to dominate the fires community; both in planning and targeting. Moreover, as NATO and the International Security Assistance Force (ISAF) units continue to be in the crossfire of the terrorists' bullets, it becomes more important that these decisions are made quickly to both save the lives of our friendly forces and/or terminate the aggressors.

The question then becomes, "Are we to be a peacekeeper or a life taker?" What effects do we want our actions to achieve? Currently nonlethal targeting dominates the priority list in NATO operations and is the default during the decision-making process; perhaps due, in the author's opinion, to a generation of media and politically sensitive commanders who sometimes are perceived to have chosen career sustainment over the Warrior Ethos.

However, the Effects-Based Approach to Operations concept, when adopted, may offer the opportunity to invoke the confusion tactics of the former Flexible Response concept and combine them with the cooperation and collaboration methodologies offered by the current Strategic Concept. Additionally, Effects-Based Approach to Operations should empower individual NATO leaders to invoke the original Massive Retaliation concept, when necessary, to terminate a terrorist who otherwise would never sit down at the "cooperation and collaboration table" with any organization or individual who does not share his radical beliefs.

Command Structure. In preparation for this transformation, most NATO commands continue to experiment with various command structure configurations and concepts. NATO also has made vast improvements in technological developments and has integrated viable combat and combat support units at the tactical level successfully (show of force and massive retaliation capabilities). When NATO officially adopts the Effects-Based Approach to Operations concept within the next two to three years, the only thing left to change is the mindset of its individual soldiers (and commands) from all 26 participating nations—a daunting task.

All other internal and external factors notwithstanding, the human factor may be the "tougher nut to crack." This is due to historical documentation (former doctrine), political correctness indoctrination, public sentiment, level of expertise, an inherent fear of the unknown or even the fear of change. Nevertheless, change will happen. There are some current theories regarding how best to deal with change as we implement this new Effects-Based Approach to Operations concept.

Some headquarters organizations have instituted the joint operations center (JOC) and joint effects coordination center (JECC) structure within their operations center layout, wherein the JOC is located separately from the JECC. A continuous sharing of information between the two separate centers is critical if this configuration is being used. Proactive and aggressive leaders with a good grasp of the English language are required at all levels to implement this option successfully.

Other units (for example some undisclosed, non-NATO brigade-level combat teams in Iraq) have found success by combining key leadership from both their JOCs and JECCs into a cell unofficially referred to as the joint effects branch (JEB). Since the JECC's mission is to synchronize and coordinate all lethal and nonlethal means to shape the AO and to provide synergy for deep operations, it must be associated closely with both G5 plans and G3 current operations.

So, why not a JEB where key leaders within both of those branches work in a separate branch along side the G3 air, fire support coordinator and G2 personnel? This option requires a total restructuring within brigade- and corps-level operations centers. Again, this is not likely to occur without persistent and direct leadership. Even with a strong commander at the top, it's sometimes not an easy task to persuade the North Atlantic Counsel to direct 26 other nations what to do and when to do it, while expecting to receive full compli-

French army soldiers prepare their vehicles for a convoy before departing for the ISAF, Operation Eagle, 18 October, that included American and French military forces, along with the Afghan national army and Afghan national police troops. (Photo by PO1 Michael Wagoner, ISAF Public Affairs)

ance at all levels. NATO struggles with this challenge daily.

Yet another option, if implemented, could achieve the intent behind the new Effects-Based Approach to Operations concept and do so without restructuring the current operations center layout. Once the Effects-Based Approach to Operations concept is adopted officially by NATO, the layout that currently is being used by some NATO headquarters should remain the same if and only if a JEB is formed.

This JEB could have key personnel from each of the currently existing branches, depending on the mission—resources (including lethal fire support assets), the political climate within the AO, commander's intent, public opinion, current enemy situation and other internal and external factors. A fulltime JEB branch is not necessary with this methodology.

At a minimum, the JEB would have officers from any branch that has any influence over the planning, coordinating and integration of any type of lethal or nonlethal weaponry available to the tactical-level forces during a particular mission. The JEB could be chaired by the deputy chief of staff of operations or his agent depending on how a particular headquarters is structured. This strategy ensures that the many assistants chiefs of staff who typically serve as chiefs over each of the different staff branches are not debating over who should chair the JEB.

The deputy chief of staff of operations oversees the JEB and ensures that all assistant chiefs of staff (or their branch representatives) know and understand the mission and intent. The JEB can participate in brain-storming sessions to determine various courses of action—both nonlethal and, if necessary, lethal actions—to propose to the command team for mission planning. Various courses of action then can be prioritized and implemented based on commander's intent after careful consideration of the potential consequences of any chosen action.

If the situation is stable, the JEB is not required to meet. If it appears as though security is diminishing and/or the security situation eventually could become dangerously unstable, the commander can direct that the JEB meet to discuss both lethal and nonlethal potential targeting options.

Ready, Resourced and Not Restricted. There are, perhaps, many other options not listed here, but the three options described in this article are viable. Regardless of how the Effects-Based Approach to Operations concept is implemented, the functional area experts from each branch, who intimately understand the various weapons systems at their disposal, must be part of the decision making process from the beginning and not as an afterthought. Moreover, everyone concerned in the planning process must acknowledge that terrorist organizations historically are not known for diplomacy or negotiating. Therefore, at times, lethal targeting may be the only means to secure the peace and stabilize an AO, rather than to sit idle seemingly in fear of a potential power vacuum.

Within ISAF, there have been times when only nonlethal targeting was authorized at the tactical level without special coordination and/or approval from the senior planning and staff level. Therefore, some critics still argue that the ISAF force is not really a force at all if it is not prepared to engage an opposing military force preemptively and lethally—especially if a terrorist organization knows that it will not be targeted lethally by ISAF except as a last resort. Some argue that there is not much incentive for a terrorist group to comply if the latter is the case. As we know, this entire premise is not always the reality on the ground—the perception exists nonetheless.

Under the Effects-Based Approach to Operations concept it is expected that NATO, more specifically the ISAF units, will have more freedom to execute whatever means necessary to maintain security within their respective AOs. As with NATO's former transformations, especially in terms of its various philosophical concepts that have guided its decision-making process through the years, the Effects-Based Approach to Operations concept is intended to give NATO the edge. This methodology should improve the organization as it strives to achieve and sustain peace during stability operations where it may be deployed.

It is important to note that the author is not advocating mass killings and other alienating tactics be used frequently. Nevertheless, as long as there continues to be noncompliant and non-negotiating armed forces aggressively searching for their next opportunity to strike us with a roadside bomb or a dull sheep knife to the throat of our security force members and/or innocent civilians, NATO must be *ready, resourced and not restricted* when it comes to executing aggressive counterinsurgency operations; to include lethal targeting.

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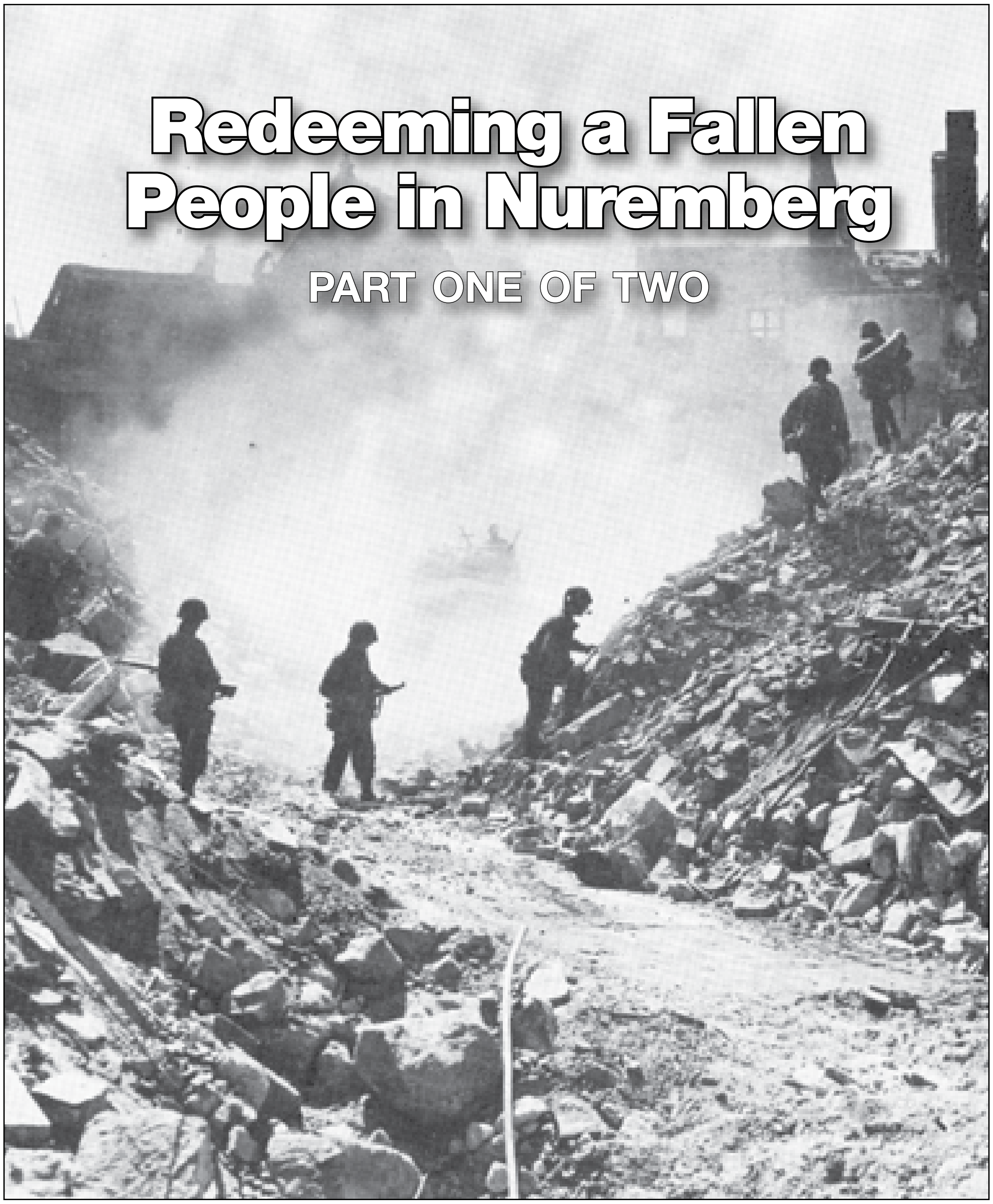
Redeeming a Fallen People in Nuremberg

PART ONE OF TWO



3d Division Soldiers climb through rubble as they clear snipers out of Nuremburg, Germany, April 1945. (Photo courtesy of the Center of Military History, US Army)

Some of the techniques and theories used to denazify Germany in the aftermath of World War II (WWII), reverberate today in the effort to remove insurgents from power in Iraqi and Afghanistan.

This is the first of two parts about the denazification of Germany. This part describes the destruction, human dislocation and misery that faced the American forces in Nuremberg, Germany, after WWII and the initial, faltering steps taken by the Americans and Germans to identify and remove Nazis from power while still trying to rebuild the country. The second part, to be published in the January-February 2009 edition, will describe reeducating the Germans in Nuremberg to convince them of the necessity of abandoning their militaristic and Nazi ways for democratic ways.

By Dr. Boyd L. Dastrup

Watching Nazi Germany conquer and terrorize most of Europe from 1939 to 1941, American leaders established the goal of crushing the Nazi menace and never letting it arise again. Once Nazi Germany had been defeated totally, the Americans planned to denazify, demilitarize, democratize, decentralize, de-industrialize and decartelize the country to destroy its war-making capabilities and inclinations and erect a peaceful country. Nuremberg, a Nazi bastion of the 1930s, would be one focal point of the American crusade to denazify Germany.

Starting from Scratch. On 20 April 1945, the 3rd and 45th Infantry Divisions entered Nuremberg.[1] Observing the effects of the war, the Americans noted that the city was "91 [percent] dead" and was "among the dead cities of the European continent."[2] Before the war, the city had approximately 130,000 dwellings. Afterwards, the Americans estimated that about 67,000 of those were destroyed totally and that the rest were damaged heavily.

The Allied bombings demolished three of the city's five hospitals, severely damaged public utilities and stopped industrial production. Babette Schlegel of Altenburg, a small village southwest of Nuremberg, recalled the devastation. She described the city as nothing more that a giant pile of broken bricks.[3] As William L. Shirer, a noted American foreign correspondent and critic of Nazi Germany, recorded in his diary on 18 November 1945, "It [the Old City of Nuremberg] is gone! The lovely medieval town behind the moat is utterly destroyed. It is a vast heap of rubble, beyond description and beyond hope of rebuilding."[4]

Human misery added to the physical destruction. Out of a prewar population of 450,000, only 160,000 still lived in the city when the Americans got there. Starved people looted food warehouses, while rape and robbery prevailed with the collapse of law and order. The horrors of the war and combat had ended, but their impacts continued.[5]

Removing the Enemy from Power. Against this backdrop, the Americans launched their drive to denazify Nuremberg. Arriving in the city on 21 April 1945, Nuremberg's military government detachment commanded by Lieutenant Colonel Delbert C. Fuller set out to rebuild the city and implement denazification policies written by the Supreme Headquarters Allied Expeditionary Force (SHAEF) late in March 1945, that demanded the mandatory removal or exclusion of former Nazis from positions of influence who joined the party before 30 January 1933 (when Hitler had come to power). Those who had joined afterwards to save a job or were not active members would not be subject to mandatory removal or exclusion. Interestingly, SHAEF left removing or excluding former active Nazis up to Fuller and other local governors.[6]

Criteria Changes. While an estimated 75 percent of the adult population in Germany had been a party member at one time or another in the 1930s and 1940s, an estimated 25 percent of the adults in Nuremberg had been party members. Nuremberg's American military gover-

Downtown Nuremberg, part of "the Old City," this Signal Corps' photo shows some of the destruction the city suffered. (Photo courtesy of the US National Archives)

nors quickly learned about the challenges of discharging SHAEF's removal or exclusion directives. They intensified the chaos and overwhelmed military government with the task of finding politically acceptable people to fill the vacancies and hampered reconstruction.[7]

In view of the desperate situation in Nuremberg and other occupied cities, SHAEF modified its denazification policy. On 11 June 1945, it gave local military governors even more discretion in applying denazification policies to promote reconstruction. Former Nazis who had joined the party after 30 January 1933, would not be removed or excluded. Active members, however, would be excluded or removed. By definition, those who had joined the party before 30 January 1933, were considered to be active members, but Fuller did not have to exclude or remove them. Basically, denazification policy remained confusing; and nothing really changed.

Even with this discretion, Fuller carried out the blanket removal or exclusion policy. He energetically started purging the city of all former Nazis and forcing them to prove that they had been only nominal party members.[8]

Upon replacing SHAEF as the major command over the US Army when its wartime mission ended on 8 May 1945, the European Theater of Operations, US Army (ETOUSA) modified American denazification policy again before Fuller could adjust fully to the new SHAEF policy. Implementing Joint Chiefs of Staff (JCS) Directive 1067, ETOUSA furnished more specific guidance on 29 June 1945, than heretofore.

All party members who had joined the party before 1 May 1937, had held a position in the party or were more than nominal members were subject to mandatory removal or exclusion. Anyone who had joined before that date could not serve as a mayor, police chief or legal official in government; could not work as a teacher or administrator in a school; and could not continue as an executive in a civil, economic or labor organization; a corporation; an industrial, agricultural or financial institution; or in the media.

Even though ETOUSA rescinded SHAEF's blanket removal or exclusion policy of March 1945, and outlined prohibited positions of employment, it still failed to provide a precise definition of what made a person a former active Nazi and simultaneously expanded the number of people to be considered for removal or exclusion. It assumed that anyone who joined the party before 1 May 1937, was an active member and subject to removal or exclusion.

The Americans picked that date because all public employees had been required to join the party after 1 May 1937, or lose their jobs. Thus, the date of joining the party served as a discriminator. Those who had joined after a certain date were nominal members for the most part, while those who had joined before the cutoff date (first 30 January 1933, and later 1 May 1937) were active members by implication. Yet, nothing firmly dictated removing or excluding former active members although the spirit of denazification demanded such action.[9]

Nazis Hold Good Jobs. Designated ETOUSA until mid-July 1945, US Forces European Theater (USFET) further refined denazification procedures. Responding to the growing criticism that former active Nazis still held some of the best jobs in commerce and industry, USFET supplemented JCS 1067 with Law Number Eight on 26 September 1945.[10] Under JCS 1067, military governors had to remove all managers and supervisors from their positions in large companies (250 employees or more or capital of one million marks or more) who were former active party members. Those in smaller companies were safe.

Law Number Eight prohibited employing former active Nazis as anything other than common labor, made the Germans responsible for administering the law and influenced everyone who was employed in work that required a skill or responsibility. Now, all managers and supervisors who were former active members would be subject to denazification. This law therefore expanded denazification's reach to include more people.[11]

Loopholes Exploited. Recognizing that removal or exclusion could be unjust, USFET, meanwhile, adopted an appeals procedure in July 1945. To prevent Nuremberg's military governors from using the appeals process to circumvent strict denazification by using their own discretion too broadly, USFET decreed, "No such person may be appointed or reinstated until this Headquarters has registered its approval in writing."[12] The urgency of denazification precluded this even if reconstruction efforts warranted such action.[13]

Although denazification started in earnest in April 1945, and former active Nazis could appeal their removal or exclusion, Law Number Eight launched a "tidal wave" of denazification. Fuller and his successors required everyone over the age of 18 seeking employment to

complete a *Fragebogen* (questionnaire) that detailed a person's life history. The Americans vetted the *Fragebogen* by checking it against Nazi Party records and even obtained voluntary denunciations from citizens who were willing to accuse a neighbor or acquaintance of party involvement. If this process revealed former active membership, removal or exclusion followed.[14]

Using this basic process, the Americans carried out their purge. During the first year of occupation, they made a wholesale attempt to remove or exclude all former active Nazis from positions of influence. The Industry Investigating Team for Nuremberg boasted in February 1946, about removing or excluding all former active Nazis from supervisory positions in government and industry and leaving them as common laborers.

The Americans also excluded or removed former active Nazis as school administrators, teachers, doctors, dentists, engineers, lawyers and other professionals if they had influence over other people. They also forced plant managers to fire qualified supervisory personnel, causing some employers to play hide and seek with the Americans by rewriting job titles to protect former active Nazis from denazification who were critical to their operations.[15]

Reflecting upon the importance of denazification, one American military government official bragged about "delousing" the city.[16] Although denazification intensified the chaos initiated by the war and became more aggressive in the fall of 1945, with the addition of Law Number Eight, "delousing" the city was a price that had to be paid to eradicate Nazism and move the people toward democracy and peace.[17]

Georg Lämmerman's case of 1945 illustrated American denazification in action. In August 1945, Nuremberg's military governors forced the Chamber of Handicraft for Middle Franconia to release Lämmerman from his job. At his hearing, Lämmerman protested that he had never had "any official position in the party" and had only joined to save a job. Despite the outcry from the chamber about Lämmerman's innocence and Lämmerman's testimony, First Lieutenant J.H. Lennon of Nuremberg's military government wrote on 1 September 1945, that justice had been met upon Lämmerman's removal. A former Nazi, regardless of participation, had lost his job.[18]

Despite the exhaustive effort that caused many Nurembergers to go through an experience similar to Lämmerman's, Fuller and his successor, Colonel Charles H. Andrews, exploited loopholes in denazification policies to "lighten their loads" by employing some who fell into the mandatory removal or exclusion category if they had skills required for reconstruction, such as plumbers, electricians and firemen.[19] For example, Andrews retained former active Nazis Otto Sauer, Georg Geyer and others as fire fighters because they had skills for restoring law and order.

In comparison, Andrews forced the Siemens-Schuckert Company of Nuremberg to release Leonard Oppel from his position in March 1946, even though his supervisor petitioned to keep him employed by claiming "Oppel was a just man ... [and] a nominal Nazi."[20] Oppel lacked requisite skills and was a former active Nazi subject to removal or exclusion based upon joining the party before 1 May 1937. Like Oppel, others without skills to rebuild the city found themselves caught in the maelstrom of denazification and were removed or excluded from employment.[21] The Americans, therefore, often wavered as they sought to balance reconstruction with the harsh demands of denazification because they could not do both effectively.[22]

Some of the techniques and theories used to denazify Germany in the aftermath of World War II (WWII), reverberate today in the effort to remove insurgents from power in Iraqi and Afghanistan.

Appeals Reverse Rulings. In many instances, denazification gave way to expediency. Of the 30,000 former active Nazis removed or excluded from employment in Nuremberg between April 1945, and June 1946, 6,000 of them appealed with more than 4,000 appellants being reinstated. Although the number of removals and exclusions dwarfed the number of those retaining their employment, Nurembergers who appealed their removals or exclusions generally were permitted to retain or return to their former positions.[23]

Fuller, Andrews and many other Americans who were eager to eliminate Nazism learned that denazification hampered reconstruction. To avoid this, they allowed some to keep their jobs.[24] Such subjective actions left many former active Nazis in positions to influence others indirectly.[25]

Justifying retaining former active Nazis, one military government official in Nuremberg sympathetically wrote in February 1946, about their sorrow for associating with the party. Many had joined to save a job or to have peace from the supporters of the party. In this American's eyes, they should not be punished by removal or exclusion, especially if repentant.[26]

As such, two sides of denazification uneasily coexisted in Nuremberg in 1945 to 1946. On one hand, military governors used their discretion to retain former active Nazis if they could justify it. On the other hand, the Americans enforced denazification policies if the person's skills were not required for reconstruction. Of the two, exclusions and removals predominated.[27]

Germans Take Over Denazification. Losing some of their initial ardor, desiring to get out of the denazification campaign and believing that the Germans were better judges at assessing commitment to the party, the Americans turned denazification over to the Germans. In March 1946, the Americans and Germans signed the Law for Liberation from National Socialism and Militarism. When the law became effective in June 1946, the Germans assumed the direct responsibility for denazification under the watchful eye of the Americans.[28]

Initially, the Germans vigorously pursued denazification. They resolutely vetted the *Meldebogen* (formerly called *Fragebogen*) and punished former active Nazis accordingly to demonstrate their ability to handle such a tremendous responsibility and redeem Nuremberg of its Nazi past. The Germans found the task to be daunting, and leniency crept into the process by 1947, with support from the Americans who had begun shifting their emphasis from denazifying to containing communism and the growing Soviet threat. The Americans feared that continuing to denazify would alienate the very people required to form a buttress against communist expansion in Western Europe and would strengthen the growing Communist Party further in Bavaria where Nuremberg was located.[29]

The 1946 to 1947 Hans Greim case reflected German denazification in action. During the investigation to determine his suitability for employment that had arisen after he had applied for a license to operate the Elag Electro Apparate und Gerätebau Company of Nuremberg in January 1946, local American military governors reviewed an existing file which contained a letter from the party indicating that he was a former Nazi but not active.[30]

In that same file, a letter of 20 November 1945 from a local citizen, Richard Grossmueller, to the Americans disagreed. Grossmueller wrote that Greim had worn a party uniform at his place of employment, the Franconian Overland Transport Company, in January 1945, and his open declaration of Nazi beliefs as late as November 1945. Although Greim's actual commitment to the party was ambiguous, the Americans could not error on the side of leniency. They decided that he could not own the Elag Elektro Apparate und Gerätebau Company and found him to be unemployable on 29 September 1946. Association with the party had defiled him, and one accusation sealed his fate.[31]

As permitted, Greim appealed the decision. Once again on 27 November 1946, Grossmueller dutifully came forward. He informed the Americans that an investigation at the Franconia Overland Transport Company had revealed Greim to be "a convinced Nazi who had always been in closest contact with the local Nazi leaders."[32]

Defending himself in an interrogation with the Americans on 5 December 1946, Greim stubbornly swore about his limited involvement. He testified that local German government authorities had granted him permission to operate his business, he had held no rank, he only had acted as a substitute block leader, he only had collected money for the party several times and he never had worn a Nazi Party uniform. He, therefore, did not see himself as a former active Nazi and saw no reason to lose his business.[33]

…military governors tried to balance the imperative of removing or excluding former active Nazis from positions of influence with the necessity of reconstructing the city.

Even without any evidence to substantiate Grossmueller's accusation, Greim's testimony failed to convince the Americans of his innocence. On 17 December 1946, Captain Stanley M. Gould of the Finance Division, Office of Military Government, Bavaria, recommended prosecuting Greim as a former active party member (even though actual party participation was uncertain) and for operating an illegal business.[34]

Following the American recommendation, the German special court (*Spruchkammer*), established to try former active Nazis, indicted Greim in March 1947, for his party connections and illegal business. However, the huge backlog of cases and the German reluctance to try former Nazis, regardless of participation, permitted Greim to go unpunished. The need for experienced personnel to rebuild, the prevailing belief held by many Nurembergers that party membership was not a crime, and the American pressure to bring denazification to a close by 1948 as the Cold War began heating up prompted German judges to impose light sentences or to forgo punishment entirely with American support.

Taken when the Americans entered Nuremberg, this Signal Corps' photo shows some of the destruction the city suffered. (Photo courtesy of the US National Archives)

Nazis Retain Influential Positions. The German denazification tribunal in Nuremberg processed many cases between 1946 and 1949, when American military occupation ended, but rarely excluded or removed former active Nazis from positions of influence or punished them after 1947. Those who would have received harsh sentences in 1945 through 1947, if they would have been tried then, did not suffer such punishment in 1948 through 1949. Also, brought to trial quickly in 1945 through 1947, lesser offenders or "the little people" often endured harsh sentences, while major offenders with complex cases and huge dossiers generally were able to postpone their trials until 1947, and afterwards, and got off lightly after the initial fervor to denazify had died down.[35]

First the Americans and then the Germans exercised denazification policies subjectively. American military governors employed their discretion to determine who should be removed or excluded, and the Germans followed that precedent. What started as a zealous American crusade ended with a modicum of success, as military governors tried to balance the imperative of removing or excluding former active Nazis from positions of influence with the necessity of reconstructing the city. In the end, rebuilding the city and erecting bridges of friendship assumed greater importance than denazification, allowing many former active Nazis to go unpunished.

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