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Field Artillery

A JOIN[illegible]FOR US FIELD ARTILLERYMEN • MAY-JUNE 2006

Military Operations in Urban Terrain

Training at Fort Sill, Oklahoma

Inside:

HQDA PB6-06-3

Field Artillery

A JOURNAL FOR US FIELD ARTILLERYMEN • SINCE 1911

May-June 2006 HQDA PB6-06-3

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Front Cover: Second Lieutenants Daniel W. Griffin and Philip S. Borlin search a building at Liberty City during Basic Officer Leadership Course (BOLC) II at Fort Sill, Oklahoma. The new course is part of the transformation of the officer education system (OES). Fort Sill is one of two posts where BOLC II is taught. The other is Fort Benning, Georgia. (Photo by Fred W. Baker III)

PURPOSE: (as stated in the first **Field Artillery Journal** in 1911): *To publish a journal for disseminating professional knowledge and furnishing information as to the Field Artillery's progress, development and best use in campaign; to cultivate, with the other arms, a common understanding of the power and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond; all of which objects are worthy and contribute to the good of our country.*

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Fires Center of Excellence: The Beginning

On 1 June 2006, the Chief of Air Defense Artillery (ADA) Brigadier General Bob Lennox and I will stand up the "virtual" Fires Center of Excellence (CoE) at Fort Sill, Oklahoma, one of seven such centers being established by the Army. On that date, the Fires CoE will begin many combined operations electronically with the ADA Center that, ultimately, will complete its physical move to Fort Sill in FY11. Once the Fires CoE is physically established, an estimated additional 13,000 students per year will train on Fort Sill.

In May 2005, the Department of the Defense approved the latest round of the Base Realignment and Closures (BRAC) Commission recommendations that facilitate the Army's overall force rebalancing and transformation efforts. As part of these recommendations, the FA and the ADA Centers, the latter at Fort Bliss, Texas, will merge into what will be the Fires CoE at Fort Sill.

The Army has seven focus areas in which it is establishing CoEs to enhance functions and gain efficiencies. These are the Fires CoE (FA and ADA) at Fort Sill; Maneuver CoE (Armor and Infantry) at Fort Benning, Georgia; Aviation CoE at Fort Rucker, Alabama; Maneuver Support CoE (Engineers, Military Police and Chemical) at Fort Leonard Wood, Missouri; Logistics CoE (Transportation, Quartermaster and Ordnance) at Fort Lee, Virginia; Intelligence CoE at Fort Huachuca, Arizona; and Signal CoE at Fort Gordon, Georgia.

The ADA move to the Fires CoE at Fort Sill will consolidate the FA and ADA Centers to gain training and capabilities development enhancements and efficiencies and foster Training and Doctrine Command (TRADOC) standardization. Current plans do not include merging the two branches—although we should not rule that out as a future possibility as the Army moves to develop more versatile, multi-capable "Pentathletes." The FA-ADA consolidation also supports Army transformation efforts that collocate institutional training and other units in large numbers on single installations to promote synergy and force stabilization.

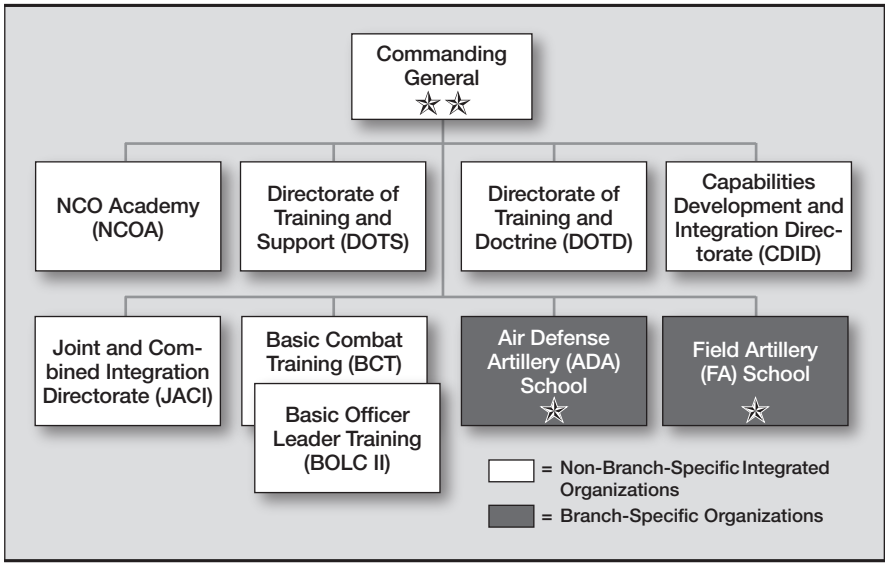


Figure 1: Fires Center of Excellence

Designing the Fires CoE. One of General Lennox's and my biggest challenges is designing the new Fires CoE. It has to be an organization diverse and large enough to represent both the ADA and FA communities. It must integrate the two centers' staffs and directorates that can work both FA and ADA functions.

TRADOC initially produced several organizational models. After several iterations, we developed a Fires CoE model to execute the missions and tasks of both the FA and ADA Centers with increased effectiveness and resource savings—a part of the BRAC directives. (See Figure 1 for our most current CoE model.) We are refining our proposed model while continuing to look for ways to save resources.

This model consists of seven center-level primary organizations capable of executing the combined missions. They are primarily non-branch-specific and include the NCO Academy (NCOA), Directorate of Training and Support (DOTS), Directorate of Training and Doctrine (DOTD), Capabilities Development and Integration Directorate (CDID), Joint and Combined Integration Directorate (JACI), Basic Combat Training (BCT) and Basic Officer Leadership Course II (BOLC II), and the FA and ADA Schools.

NCOA. The FA and ADA NCO Acad-

emies will combine into one organization and continue to execute functional training and leader development through the Warrior Leaders Course (WLC), Basic NCO Course (BNCOC) and the Advanced NCO Courses (ANCOCs) at Fort Sill, including all military occupational specialties (MOS) in Career Management Fields (CMFs) 13 and 14. (See Figure 2 for a list of CMF 14 ADA MOS.)

The two academies will combine personnel under the leadership of one sergeant major commandant and supporting staff.

DOTS. The Directorate of Training and Support is a new organization whose functions previously existed in the FA and ADA Schools' DOTDs. These functions are training support, leader development and functional training. This organization will focus on center-level administrative tasks, such as maintaining academic records, serving as the registrar, scheduling classes, and training and certifying instructors as well as faculty professional development and education.

The DOTS will be responsible for the new Fires CoE Simulation Center. The Simulation Center at Fort Sill, now in the Battle Lab, will be expanded significantly to stimulate/simulate not only individual and collective training for FA and ADA and mobilizing units, but also to link selected Forces Command (FORSCOM) units and TRADOC proponents for real-time simultaneous training. In addition the center will have the external communications linkages to facilitate participation in exercises at the Army and joint levels.

The DOTS also will be responsible for the combined International Student Detachment and the Army Security Assistance Training Program through the Security Assistance Training Field Activity (SATFA) at Fort Sill.

DOTD. The Fires Center's Directorate of Training and Doctrine will focus primarily on ADA and FA doctrine, joint doctrine, training instruction, support materials, collective training and lessons learned. The combined DOTD will plan, coordinate and execute actions for the Fires CoE while the FA and ADA branch schools within the CoE will continue to be the proponents for their respective fires integration.

Some specific functions of the combined DOTD will include serving as the center's and branch schools' staff proponent for operations, individual and collective training and doctrine development, and new equipment training and fielding.

14E	**Patriot Fire Control Enhanced Operator/Maintainer**
14J	**Air Defense Command, Control, Communications, Computers and Intelligence Tactical Operations Center Operator/Maintainer**
14L	**ADA Command and Control System Operator/Maintainer**
14M	**Man-Portable Air Defense System Crewmember***
14R	**Bradley Linebacker Crewmember****
14S	**Air and Missile Defense (AMD) Crewmember**
14T	**Patriot Launching Station Enhanced Operator/Maintainer**
14Z	**ADA Senior Sergeant**

**In ADA Reserves only. **Closed to Women.*

Figure 2: Air Defense Artillery (ADA) Career Management Field (CMF) 14 Military Occupational Specialties (MOS)

The combined DOTD also will be responsible for designing the branches' simulations, simulators and training devices from developing the requirements document through fielding these training tools to units or training facilities. Once fielded, those in the schools become the responsibility of the two school brigades to execute training.

CDID. The new Capabilities Development and Integration Directorate will merge ADA and FA capabilities development functions along with TRADOC capabilities managers (TCMs), formerly called TRADOC systems managers (TSMs). TRADOC has recommended six TCMs for the Fires CoE: Netfires, Cannon Fires, FA Rocket and Missile Fires, Artillery Sensors and TCMs for Upper and Lower Tier for Air and Missile Defense (AMD). Although the number and types of TCMs are still being analyzed, TRADOC has said there will be no increase in the aggregate number of TSM personnel in the two centers. Some TCMs may have responsibilities that cross both branches.

The major functional divisions within CDID will be concepts development, requirements determination and experimentation. For the Fires CoE, we anticipate that experimentation will be done by a combined battle lab that will be designated the Fires Battle Lab.

The CDID also will be responsible for the horizontal integration of all the FA-ADA systems across the doctrine, organization, training, materiel, leadership, and personnel and facilities (DOTMLPF) domains.

JACI. The Joint and Combined Integration Directorate will be the center's link to all aspects of joint fires, including the implementation and execution of all joint-related training for both FA and ADA personnel. JACI will be the proponent for the Joint Fires Observer (JFO) Course, Joint Operational Fires and Effects Course (JOFEC), Joint Theater Missile Defense (JTMD) Course and all battlefield coordination detachment (BCD) issues. We are looking into the possibility of sending FA personnel to Fort Bliss to attend the JTMD Course with the ADA reciprocating by sending ADA officers and NCOs to our JOFEC Course.

BCT and BOLC II. As also shown in Figure 1, this initial entry training for officers and enlisted, regardless of their branches, will be conducted at Fort Sill. The existing FA Training Center (FATC) will morph into a more generic "Army Training Center" (ATC) to conduct BCT and BOLC II training. One-station unit training (OSUT) has been discontinued.

The ATC will conduct BCT for FA and ADA Soldiers; however, all branch-specific training will be the responsibilities of the two branch school brigades.

In the FA School, the 30th FA Regiment will be responsible for FA Advanced Individual Training (AIT), including command and control of the AIT battalions now in the FATC. FA AIT will continue to be conducted in the Army Training Center footprint; the AIT battalions also will be located in the ATC footprint.

Branch Schools. The FA and ADA Schools will be led by their respective branch commandants who each will be responsible for his branch's initial military training (immediately following initial entry training), including AIT and BOLC III (replacing the officer basic course, or OBC); branch-specific functional training; leader development; Captain's Career Course; and Warrant Officer Basic and Advanced Courses (WOBC and WOACs).

The FA School will consist of the 30th Field Artillery Regiment, the FA Proponency Office and the FA branch historian. The ADA Branch School will mirror the FA Branch School and include the 6th Air Defense Artillery Brigade, ADA Proponency Office and

ADA branch historian.

Although the 6th ADA Brigade will conduct initial military and other branch-specific training, unlike the 30th FA Regiment, it will conduct the training with its battalions located in its footprint.

Other Potential Moves. In terms of the Fires CoE garrison staff, only a portion of Fort Bliss' Directorate of Resource Management (DRM) will move to Fort Sill to accommodate the increased ADA workload. The rest of the support staff will remain at Bliss.

Although not BRAC-directed, the small ADA Marine Detachment may move from Fort Bliss to Fort Sill. The decision is pending. The detachment has a cadre of 23 Marines and an annual through-put of 165 students.

Also, the German Air Force's ADA School at Fort Bliss historically has trained with the US ADA Center. Discussions are underway involving Department of Defense and State Department officials to determine if this brigade-sized element will move to Fort Sill.

Integration Process. The process of building the Fires CoE and establishing an excellent working relationship with our ADA counterparts began in June of 2005 with a joint summit between the FA and ADA Centers' leadership at Fort Sam Houston, Texas. This crucial first step set the foundation for what has become a successful and collaborative process.

In November of 2005, we established a temporary combined Fires Integration Division at Fort Sill to work all Fires CoE issues. Consisting of both FA and ADA personnel, the division has developed an exceptional plan for how the Fires CoE will look, function and reside and has begun working with the directorates at both the ADA and FA Centers to "adjust fire" and achieve the ultimate Fires CoE. The Fires Integration Division developed the plan for the two centers to establish the virtual Fires CoE on 1 June, working on issues specifically within the training, doctrine and capabilities development areas.

Last fall, General Lennox and I decided to establish the Fires CoE "sooner rather than later" and to stand up the virtual Fires CoE on 1 June. There are many areas in which FA and ADA can begin collaborating digitally well before the ADA Center closes on Fort Sill. These areas cross DOTD and CDID responsibilities and include vetting and submitting joint responses to Army capstone and joint doctrine, exploring and analyzing common core programs of instruction (POIs) for both the CCCs and NCOAs, developing requirements documents and conducting joint experiments.

Most importantly, the two branches can move toward the consolidated ownership of the program to Counter Rockets, Artillery and Mortars (C-RAM) as a Fires CoE program. C-RAM is the one area in which our combat and training developers and doctrine writers can come together and begin working as one team now. In fact, the FA and ADA Centers have been given a tasking to jointly brief "the way ahead" for C-RAM in an Army capabilities review at the Pentagon in early June. According to the tasker, this briefing will serve as a "reference point for the horizontal integration and synchronization of C-RAM capabilities in the Army's modular force."

As we integrate the schools digitally, we may find other functions that can be part of the virtual Fires CoE.

To implement the virtual Fires CoE, we have established Integration Cells within our current capabilities and training and doctrine development divisions. With players from both branches, these cells are horizontally integrating functions digitally in advance of the physical consolidation of ADA with FA at Fort Sill.

These processes are then surfaced to the Integration Cell Board of Directors (BOD), consisting of the directors from both branch schools, which provides horizontal integration recommendations to General Lennox and me for review before forwarding them to higher headquarters or an outside agency.

An example of this is our combined doctrine review process. Today, as joint and Army capstone doctrine come under review, both the ADA and FA Centers review the doctrine and submit separate comments. With the virtual concept, we envision one entry and exit point into the virtual Fires CoE. From the entry point, the doctrine review requirement will be parsed to branch subject matter experts (SMEs) for review and comment. Once the comments are collected, they then will be forwarded to the appropriate organization as one response by the Fires CoE as opposed to two separate branch responses.

To facilitate the transition to the Fires CoE—both virtual and actual—we began conducting quarterly Fires Summits with our counterparts at the ADA School, starting in January. These summits are designed for action officers to address issues critical to the success of the Fires CoE. To facilitate the transition, the summits are followed by a Home-on-Home in which the FA and ADA Centers' leadership come together to make critical decisions, provide additional guidance and resolve any issues.

Our first Home-on-Home was on 15

Photo by Fred W. Baker III

Basic Officer Leadership Course (BOLC) II lieutenants fire at targets during the dismounted portion of the convoy live-fire exercise. Under the Fires Center of Excellence restructuring, the existing Field Artillery Training Center (FATC) will morph into a more generic "Army Training Center" (ATC) to conduct Basic Combat Training (BCT) and BOLC II training.

February at Fort Bliss. It was a successful and professionally executed event, setting the stage for the two branches' work in the future. We discussed issues, such as the Fires CoE construct, the consolidation of the two center DOTDs, the consolidation of the ADA Combat Development Directorate (DCD) with the FA Futures Development and Integration Center (FDIC) to form CDID, the creation of the new DOTS and our plan to use our award-winning Fires Knowledge Network (FKN) on Army Knowledge Online (AKO) as the primary means to communicate to our customers, both FA and ADA. The latter will be especially helpful during the virtual standup period.

Our next Home-on-Home is scheduled for 16 May at Fort Sill with a lead-in Fires Summit in April. Our topics for these two events include the Fires CoE table of distribution and allowances (TDA), NCOA organization and functions, integrated staff functions and civilian personnel movements.

Moving ADA to Fort Sill. As we execute our virtual Fires CoE, our remaining challenge is the physical move of the ADA Center to Fort Sill and integration of the two centers into one. Part of this challenge is to identify where units from Fort Bliss will be located on Fort Sill. This past November, we assessed the facilities and resources at Fort Sill and determined what new construction is needed to house incoming Air Defense units and personnel.

That portion of the ADA Center moving to Fort Sill that will merge functions with the FA Center will move into existing facilities that we will call the "Fires Campus." This area includes Snow, Knox and McNair Halls and many other existing buildings around the post headquarters area. The intent is to create an environment where students have easy access to all classrooms and training and support facilities, much like a college campus.

Snow Hall will be our classroom facility for BOLC III and the CCCs and house the two branch commandants (two sides of A Wing). Knox Hall, after renovation, will house the combined DOTD and CDID. The "main campus" will be that area in and around Snow Hall with both FA and ADA officers and NCOs using the same training facilities, including for common core courses.

On the Fires Campus, we envision one main campus and two smaller campuses. The two smaller campuses will be those areas where branch-specific training is being conducted (other than BOLC III and the CCCs). Those campuses will correspond, basically, to the 30th FA Regiment and 6th ADA Brigade areas.

Finally, our biggest challenge is going to be establishing timelines and movement plans for the BRAC moves to take place. We are still in the infant stages of the construction process, beginning environmental analysis that we must conduct before we can begin construction. In FY07, construction of new facilities and renovation of existing facilities will be underway with their projected completion date in FY10. This timeline is tentative, but the Fires CoE must be fully operational in FY11.

Although there is a lot to do to make the Fires CoE a reality at Fort Sill, a lot already has been done—including developing a professional relationship between leaders and project officers of the two centers. This allows us to face the tough issues and work through them.

ADA soon will find out what a wonderful place the Lawton-Fort Sill Community is as the third largest city in Oklahoma. No other Army post can boast of the same high level of camaraderie, support, enthusiasm and commitment to our Soldiers, Fort Sill, the Army and our nation as our partner Lawton and Oklahoma state leaders manifest.

Soon, the ADA will be our partner in the Fires Center of Excellence.

Field Artillery Archive Now Has Google Search

As of the end of June, the *Field Artillery* online archive will be searchable using the Google Mini search function. We have redesigned the archive to make it key-word searchable and more user-friendly. The Google Mini search engine works much like the Google search engine.

Using the Google Mini, Soldiers and Marines worldwide will be able to open the archive online and do key-word searches of the entire archive or narrow their searches by year, groups of years or individual magazines. They will be able to download entire magazines or specific articles using less bandwidth.

Over the years, the magazine staff has responded to many requests to research specific topics and provide the names of articles or entire articles to deployed or deploying Soldiers and Marines. With the new search function, this time-consuming process no longer will be necessary. Google Mini now will allow users to conduct their searches and download selected articles rapidly.

In our online archive, we have editions from 1959 through the current edition of the magazine. New editions are added to the online archive as they are published.

Although we've made several changes and improvements to the website, we always welcome suggestions from readers. Our website is http://sill-www.army.mil/famag. It also can be accessed through links on the Fort Sill homepage or the Fires Knowledge Network (FKN) on Army Knowledge Online (AKO).

An average of 500 people per day have visited this website since March.

Magazines Online Back to 1911. We are preparing to let a contract to scan magazines from 1911, the first year of the *Field Artillery Journal*, through 1958 for our online archive. When the contract is completed, all magazines will be available online, creating a comprehensive archive of *Field Artillery*. The editions 1911 through 1958 also will be searchable via Google Mini.

These older magazines will provide a historical information for Soldiers and Marines researching doctrine, equipment, organizations, personnel and tactics, techniques and procedures (TTPs) and make rare magazines available to Soldiers and Marines, magazines that currently are only accessible in the rare books portion of Morris Swett Library at the Field Artillery School, Fort Sill, Oklahoma.

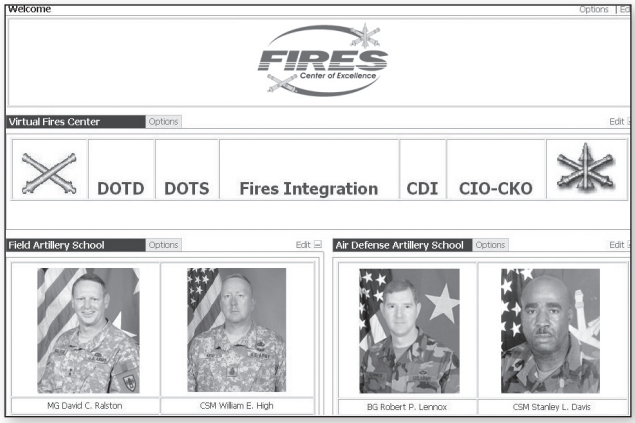
1913 *Field Artillery Journals* Missing—Do You Have One? Unfortunately, the rare books section of the library is missing both copies of its bound 1913 magazines. We need copies of the 1913 magazines to scan to complete the archive.

If anyone has a 1913 *Field Artillery Journal* and would be willing to ship it to us for scanning and return, please call us at (580) 442-5121/6806 or DSN 639-5121/6806 or send an email to famag@sill.army.mil.

Please call or email before sending the magazine, so we don't have duplicate editions sent to us.

Fires CoE Website on FKN 1 June

The Fires Knowledge Network (FKN), accessed through the Army Knowledge Online (AKO), will premiere its Fires Center of Excellence (CoE) website on 1 June in conjunction with the virtual standup of the Fires CoE by the Chiefs of Field Artillery (FA) and Air Defense Artillery (ADA). FKN is consolidating the two centers under the Fires CoE concept before the ADA physically closes on Fort Sill.



Since 2003, FKN has been a robust online knowledge management resource for Field Artilleryman stationed worldwide, and now those same capabilities are expanding to serve Air Defenders. FKN is a collection of technological tools that currently enables the FA Center to connect with Soldiers and units in the field to provide information, solve problems and share lessons learned. The objective is to enable the creation, capture and sharing of knowledge to help our warfighters accomplish their missions.

FKN currently has more than 49,000 unique members and is visited by an average of more than 3,800 members daily.

Fort Sill's Knowledge Management Team already has begun incorporating ADA Center information onto FKN in preparation for the virtual standup of the Fires CoE website. Users will be able to tap into the website from any computer that has internet access at any time from anywhere in the world.

The first of its kind on AKO, FKN is part of the Combined Arms Center's (CAC's) Battle Command Knowledge System (BCKS), Fort Leavenworth, Kansas. BCKS was formed to lead the Army in developing policy and procedures to fully exploit the power of knowledge management in the 21st century. FKN won the 2005 Army-wide award for best knowledge management tool.

FKN Capabilities. Currently, FKN provides Field Artillery Soldiers a single access point to search for information from the FA school, communicate with peers through professional forums and stay abreast of current and future changes, events and initiatives. As of 1 June, Air Defenders will be able to tap into these capabilities as well as others as a partner on the Fires CoE website. The ADA capabilities will be as robust as those of the FA shortly thereafter.

FKN provides a method for Soldiers and leaders to ask FA School subject matter experts (SMEs) and organizations questions or start threaded discussions open to everyone. It allows the user access to all the directorates/departments in the FA School, the FA Proponency Office, Master Gunner, *Field Artillery* magazine with editions back to 1959 searchable by Google-Mini and more than 100 professional forums. FKN maintains an official data repository for FA publications, instructional materials and other documents that pertain to the FA and fire support mission. The repository is linked to professional forum sites within FKN that provide quick access to information for specific military occupational specialty (MOS) and functional areas without having to search the entire database.

Currently there are more than 12,000 FA-related documents, photos and video media in the knowledge repository. To date more than 1.2 million documents have been downloaded by users.

FKN serves as the entrance portal to FA professional forums. A professional forum is a group of users who share common interests, such as all in the same MOS, rank or group of ranks, unit (i.e., 4th Fires Brigade, Stryker, light), job (i.e., company fire support officers, fire supporters in all ranks and jobs), etc.

FKN also gives leaders the ability to reach the FA community via email groups consisting of all FA members, just one MOS, unit of assignment, ranks and many other attributes. This allows the right message to reach the right group without having to "spam" uninterested audiences.

A leader can upload a document on FKN and send an AKO email to specific audiences. It is not unusual for a command group document to be downloaded in excess of 2,000 times within 24 hours of its posting and email notification.

Setting Up a Forum. Each professional forum is populated and administered by a professional forum administrator. Most administrators can set up their forums after an eight-hour training session. Forum administrators can update their sites from any computer anywhere as long as they can access AKO through the Internet. They do not have to depend on "webmasters" to post information. If a forum administrator has a problem or question, the Fort Sill Knowledge Management Team is only a phone call away.

Administrators and leaders also can track the number of documents downloaded by users or the number of times their forum has been entered and provide that information to the command.

ADA Coming Online in FKN. The Fort Sill Knowledge Management Team will provide the ADA Center briefings and background materials on FKN capabilities and the new Fires CoE website as well as train forum administrators. The team will be able to share its many lessons learned while helping to create more than 100 professional forums using the FKN template.

If readers have questions or want to schedule FKN briefings or discuss training opportunities, they can contact a POC. At the ADA School, the POC is Angel Quezada, Digital Training Access Center, at DSN 978-6775; commercial (915) 568-6775; or email quezadaa@us.army.mil. At the FA Center, the POC is Mike Gradoz, Chief Information Operations (CIO)/G6, at DSN 639-8322/8353; commercial (580) 442-8322/8353; or email john.gradoz@us.army.mil.

FKN will not change for Field Artillerymen—rather it will become a more robust and multifunctional knowledge management tool as it welcomes the Air Defense Artillery into its database as part of the Fires Center of Excellence website.

SFC(R) J. Michael Gradoz
FKN Sr. Community Administrator
CIO/G6, FA Center
Fort Sill, OK

Lieutenant General James J. Lovelace, Jr.
Deputy Chief of Staff of the Army, G3

Today's Army in Change—

An *Exciting* Place to Be

Interview by Patrecia Slayden Hollis

Q *Is the Army spread too thin?*

A That is probably the most asked question of the Army and of me. There is not a simple answer. Is the Army stretched too thin? The answer is, "No." Is the Army challenged at this time? Yes—it is. Is the Army under stress? Yes.

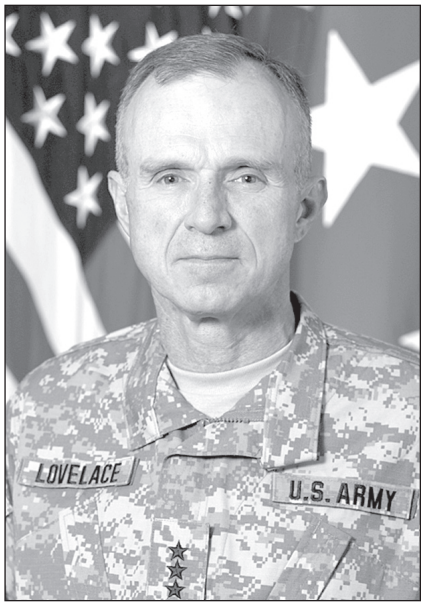
The Army is at war, we're growing and transforming, we're rebalancing repositioning forces from overseas, and we're affecting BRAC [Base Realignment and Closures]—that's a lot to be doing. Right now, there is tremendous churning in our Army, especially as we deliver the most capable, best trained, best led Soldiers in the world—and they are.

So, are there challenges? Yes. But the AC [Active Component] has made enlistment goals for the past nine months. And the Guard and Reserves are on track for their sixth and seventh months' enlistment goals. We met last year's reenlistment goals and are continuing to meet this year's goals. What that shows is young men and women want to come into the Army and once in, they want to stay. That's because they see value in the Army's pride, the call to duty, and they like being on the "Superbowl Team," called the United States Army. The Army's a wonderful environment in which to live, work and play—stressed or not.

Q *As the G3, how do you manage all that change?*

A First, we are growing the combat capability and rebalancing the force. Essentially, we're increasing the operating force from 315,000 in the AC to 355,000. That's 40,000 spaces and faces of greater combat capability.

We're also rebalancing the force across all the components. Now, this is not something we started "yesterday." Several years ago, we had a Cold War force structure that, essentially, was one



of containment. Now we are rebalancing into a CONUS- [continental US]-based force that can project the right kind of capabilities and capacity to implement the National Military Strategy. That means we must have the depth of force at the right points in time, requiring us to rebalance the high-demand, low-density kinds of MOS [military occupational specialties] and units to make our Army much more efficient and effective. Over time, it's only going to get better with rebalancing.

As an Army, we have been very good at high-intensity conflict. It's not that we've ignored our doctrine—we've had light infantry units in the force—it's just that we tended to focus on tasks at the higher end of the spectrum.

Today we're a full-spectrum force that can address high-end operations and, equally adeptly, counterinsurgency operations. So in this transformation process, we are building an Army not only for today, but also for the future combat system [FCS] force. It really is *exciting*.

The last piece of force management, ARFORGEN [Army Force Generation], really is the key, once we rebalance and transform. That means, in a predictable manner, generating 18 to 20 brigades with all their combat support, combat service support and enablers and then, right behind it, generating another package of 20 brigades with their combat support, combat service support and enablers.

We are doing that now to address and sustain the war in Iraq and Afghanistan but also to address homeland defense, a national disaster or any future combat operation.

So are there risks in all this? Yes. Do we have priorities that allow us to focus our energies and help minimize those risks? Yes. And the way ahead is equally clear.

Q *Is the Army moving toward ARFORGEN quickly and effectively enough?*

A Yes it is. Army Force Generation, which is projected to have its initial operating capability in FY08, includes not only the ability to generate a force, but also the ability to field the equipment and systems our units need. And that calls for agility.

The Army as an institution is very agile—people often don't realize just how agile we've become. For example, the Army used to change its doctrine about once every 10 years. Now, essentially, we take tactics, techniques and procedures being learned in theater and push them back into TRADOC [Training and Doctrine Command] and home-station training in a short period of time. Something that happens in theater rapidly manifests itself at the combat training centers.

Another example is that we fielded our first Stryker unit from concept to employment to deployment in just four years. That's a *powerful* statement of agility.

Army Force Generation (ARFORGEN)—A strategy to provide a continuous flow of Army trained and ready forces for full-spectrum operations. Active Component (AC) and Reserve Component (RC) modular units move sequentially through three force pools. *1. Reset/Train Force Pool*—units coming out of deployments or with manning, organization or equipment challenges meet those challenges and conduct individual and battalion-level collective training. *2. Ready Force Pool*—units conduct mission preparation and higher level collective training with other operational headquarters. Units are task-organized into two force packages: a Deployment Expeditionary Force (DEF) preparing to execute known or planned operational requirements or a Ready Expeditionary Force (REF) with each unit under a higher headquarters and conducting full-spectrum training. *3. Available Force Pool*—units that are capable of deploying with little or minimal pre-mission training. A unit package is either a DEF or a Contingency Expeditionary Force (CEF). DEF units in the Available Force Pool are either deploying or deployed and include units conducting homeland defense and support. The remaining CEF units are capable of rapid deployment but have not been alerted yet. When a unit is alerted for deployment, it transitions from a CEF to DEF. After redeploying, the unit begins its training and readiness transition to a DEF again in the Reset/Train Force Pool.

The same is true of our agility in terms of incorporating technologies. When you look at how many UAVs [unmanned aerial vehicles] the force had when they executed 1003V (the war plan for Iraq), the number was small. Today, we have hundreds of UAVs inside Iraq alone. The same thing goes for types of weapons, up-armored HMMWVs [high-mobility multipurpose wheeled vehicles], body armor—and I can go on and on giving examples.

Everyone now understands that you measure success by the "tip of the spear," by how affective the force is on the ground, and we all contribute to "the spear." Before, you could stay very singularly in your lane. You can't do that anymore. So we're having to change the method by which we measure the effectiveness of our organizations. Everybody is learning that.

Q *What is the status of the decision to increase the number of brigade combat teams (BCTs)?*

A What is coming out of the Quadrennial Defense Review [QDR] is that we're going to build the capacity inside the AC from 33 to 42 BCTs and the capacity inside the National Guard from 15 enhanced separate brigades to 28 BCTs to give us 70 BCTs. [QDR is the President's assessment of the Department of Defense every four years with the change of the administration; the last one was in 2001.]

Many seem to think we are cutting BCTs. That's not the case. About two years ago, the Chief [of Staff of the Army] said that the Army was going to build potentially to 48 BCTs inside the AC, and the National Guard, potentially to 34 BCTs as a "stretch" goal for the Guard.

So now, informed by four years at war, we are not "cutting" the force, just stopping the growth of the BCTs at 42 and 28 BCTs, respectively. There are not going to be force structure cuts in the National Guard, and we aren't changing the Congressionally mandated end strength—the National Guard end strength is 350,000 and the USAR end strength is 205,000.

Q *Will the Army field the NLOS-C [non-line-of-sight cannon]? What about the NLOS-LS [NLOS launch system]?*

A First let me say that there is a clear recognition of the importance of indirect fires to the Army—it is a core capability we are not backing away from. You can see its importance by the intentions of legislation and the support of Congress.

As we move toward the modernized, FCS Army, the *Soldier* is the centerpiece. We call it "One Plus 18"—the Soldier with a network of 18 FCS.

One of those critical systems is the NLOS-C, replacing the M109A6 Paladin with its 1960's chassis. NLOS-C will have eight pre-production prototypes available by the end of calendar year 2008 with actual prototypes delivered, along with the seven other FCS manned ground vehicles, in late FY10 through early FY11.

With its advanced technologies, NLOS-LS also is a big part of the movement toward the future. NLOS-LS will be incorporated into FCS Spin Out 1 in FY08 when it is delivered to the evaluation BCT, called an EBCT, at Fort Bliss, Texas. After successful testing and evaluation by the EBCT, Spin Out 1 will begin fielding to current force heavy BCTs (HBCTs) in FY10. [As part of the ARFORGEN process, the Army plans four incremental spin out fieldings of FCS technologies to the force as the technologies mature and the EBCT tests and evaluates them.]

The NLOS-C and NLOS-LS are important and on track.

Q *Because so many FA lieutenant colonels and colonels have served successfully in combat as infantry task force/BCT commanders and because, as fire supporters, they have to understand schemes of maneuver at all levels to plan, coordinate, synchronize and execute fires and effects in support of them, should Field Artillerymen be eligible for DA selection to command BCTs?*

A I think the time has come for senior leaders to have discussions about that possibility—time to make a decision.

The Army must have an environment in which we develop leaders, all leaders, and take advantage of their capabilities and potential. It must be an environment of opportunities, one that leverages experiences and talents that is not constrained by a narrowness of MOS or branch designation.

We've had Div Arty [division artillery] commanders who have served, essentially, as maneuver commanders with their command sergeants major successfully in both Afghanistan and Iraq. The same for many FA battalion commanders serving as maneuver task force commanders. We've also had young leaders, majors and lieutenant colonels, serve in some very critical jobs inside of maneuver formations.

The Chief and the Secretary [of the Army] want to maximize the experience and leadership talent that we're gaining. They want Soldiers and leaders to see themselves as "Pentathletes" who are unbounded by more traditional constraints. So the time has come for just such a discussion.

In high-intensity conflict, the solution is more branch-centric at the lower command and leadership levels—the company level. But even in high-intensity conflict, as you move to the higher levels of command and leadership, the Army can tap a broader definition of commanders and leaders to command task forces or BCTs, regardless of branch—with at least some specificity of training and experience.

In low-intensity counterinsurgency operations, we employ forces differently, so leadership/command can be more broadly applied.

To build an Army of Pentathletes, the Chief and Secretary are looking for the appropriate balance and mark for leadership and command development, including for task force and BCT commands.

Q *What benefits do you see in the BRAC Commission-directed move of the Air Defense Artillery (ADA) to Fort Sill, Oklahoma?*

A The Army has been able to take advantage of the efforts and energy that went into BRAC to help rebalance the force. Basically, BRAC efforts dovetail with the Army's efforts to reposition the force globally and enhance the overall utility of the force—for example, bring forces out of Europe and Korea, leaving behind much smaller "footprints."

ADA's coming to Fort Sill to help establish the Fires Center of Excellence leverages BRAC. At the same time that we are collocating two capabilities with a lot of similarities at Fort Sill, we are bringing the 1st Armored Division out of Germany to Fort Bliss [Texas].

Q *With the Chief of Staff's promoting Soldiers and leaders as Pentathletes, do you foresee branches merging?*

A Right now, the most important thing is to build Soldiers who see themselves as Warriors—able to do whatever is asked in their call to duty.

Do I see branches merging? OPMS-3 [Officer Personnel Management System, Version 3] that we are transitioning to now moves the Army in that direction by focusing more on core capabilities that support the tip of the spear; it will help us grow officer Pentathletes with multiple career paths, less prescriptive requirements and increased flexibility in position coding. It will leverage what we've learned in operations and personnel management.

I think that, sometime in the future, the Army will merge branches.

For the ADA and FA, the questions are…How do we leverage the core competencies of the two branches so we have Pentathletes with both skill sets? How do we take those same skill sets, maintain combat arms intensity and use them for what the Army requires?

The two branches were one and then separated in the late sixties. We have opportunities here. We should not be afraid of them.

Q *How important are artillery-fired precision-guided munitions (PGMs), such as GMLRS unitary and Excalibur unitary, to Army operations?*

A Today's military operations call for precision-guided munitions as well as accurate area fires. GMLRS already has had an impact on the battlefield in Iraq as an all-weather precision capability and will continue to have an impact on future operations. The ability of both GMLRS and Excalibur to deliver within meters is a *huge* advantage that has gained notoriety among maneuver commanders, both senior and emerging.

Precision fires are very important, and organic, surface-to-surface all-weather PGMs add significantly to ground force commanders' options.

Q *What message would you like to send Army and Marine Field Artillerymen stationed around the world?*

A The Artillery is a proud branch with a rich history of serving the Army and our nation and will continue to serve in the future. As our Army goes through all the changes I have talked about, the Field Artillery has opportunities to expand its identity and contributions.

Artillerymen are a very versatile, adaptable group of Soldiers and leaders who do whatever the Army asks, including providing a precision-guided munitions with incredible accuracy or area fire effects with precision, or serving as MPs [military policemen], motorized infantrymen or as transporters in truck companies. We have young men and women who are trained to be Field Artillerymen who see themselves as Warriors—they know it is not about who they are but what they can do for the tip of the spear. That's inherent goodness for the Army.

To be honest, our young Soldiers and leaders understand that…it's we senior leaders who seemed to be so concerned about branch identity and combat missions.

Lieutenant General James J. Lovelace, Jr., is the Deputy Chief of Staff of the Army, G3, at the Pentagon. Before his current assignment, he served as the Director of the Army Staff and Assistant Deputy Chief of Staff of the Army, also at the Pentagon. He was Commander of Army Forces Alaska, Fort Richardson, Alaska; Director of Training in the Office of the Deputy Chief of Staff for Operations and Plans at the Pentagon; Commanding General of Joint Task Force (JTF) 6 at Fort Bliss, Texas; and Assistant Division Commander (Support) for the 2nd Infantry Division, Eighth Army, at Camp Casey, Korea. Also in Korea, he was the Chief of Staff of the 2nd Division and Chief for the Commander-in-Chief's Initiative Group, United Nations Command/Combined Forces Command/US Forces Korea. He holds three master's degrees, including one in National Security and Strategic Studies from the Naval War College, Newport, Rhode Island.

Excalibur Unitary—All-weather, fire-and-forget, 155-mm round that has a near-vertical terminal trajectory and 10-meter or less circular error probable (CEP) at all ranges and is precisely lethal while minimizing collateral damage, all of which optimize its employment in urban operations, complex terrain and close to friendly troops, even when fired from 40 kilometers away. It is projected for fielding in Central Command (CENTCOM), First Quarter, FY07.

Guided Multiple-Launch Rocket System (GMLRS) Unitary—All-weather, high-explosive (HE) unitary warhead rocket eliminates submunition duds, is equipped with global positioning system-aided inertial guidance, can impact safely within 200 meters of friendly forces (or less, situation dependent) when fired from 70 kilometers and has a scalable footprint optimized for urban and complex terrain. GMLRS unitary was fielded in CENTCOM last year and has proven incredibly accurate.

Responses to: "Is It Time for the ADA and FA to Merge?"

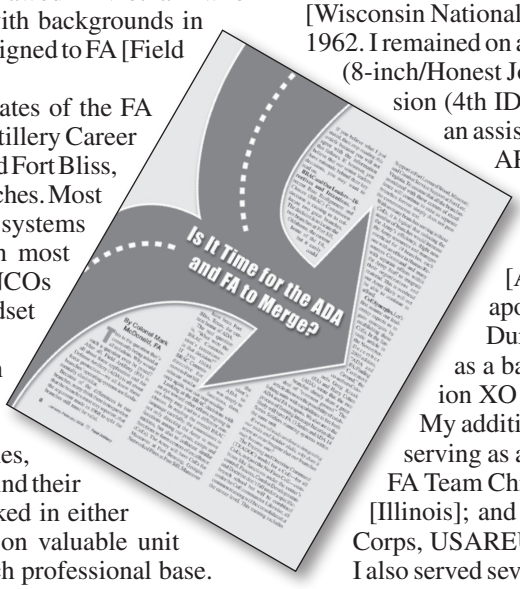
In addition to the responses to Colonel Mark McDonald's article printed in our January-February edition, the two printed here and the article "Operation Red Net—A Dynamic Plan for a Fires Branch" by Major L. Cristine Gibney, Air Defense Artillery (ADA) in this edition, Air Defense Artillery *magazine has received several responses: "Air Defenders Must Retain Separate Identities" by Sergeant Major Dennis M. Burch, 35th ADA Brigade, Korea; "Thought Provoking Points" by Lieutenant Colonel Matt Michaelson, Air and Missile Defense/Air Defense Airspace Management Cell Senior Trainer, National Training Center, Fort Irwin, California; "Common Ground—The Antiaircraft and Field Artillery Merger of 1950" by John Hamilton, ADA Historian, ADA School, Fort Bliss, Texas; and "Managing Fires: The Army Needs to Look Beyond Merging Air Defense Artillery and Field Artillery to a New Organizational Structure for the Application of Firepower" by Lieutenant Colonel Elliott Bales, Commander of the 1st Battalion, 44th Air Defense Artillery (Patriot and Avenger), Fort Bliss. These pieces appear in the April-June edition of* Air Defense Artillery *and are available online at airdefense.bliss.army.mil/adamag.*

Ed.

Branches Will Lose By Becoming One

The article by Colonel (Promotable) Mark McDonald in the January-February 2006 edition is similar to the arguments that were advocated in the 1950s by well intentioned personnel planners. Those arguments proved flawed in Vietnam when Field Artillery officers and NCOs with backgrounds in ADA [Air Defense Artillery] were assigned to FA [Field Artillery] units.

Many of these officers were graduates of the FA OBC [Officer's Basic Course] and Artillery Career Courses when Fort Sill, Oklahoma, and Fort Bliss, Texas, conducted training in both branches. Most of the ADA NCOs had never seen FA systems in action. The ADA background, in most cases, failed to provide officers and NCOs with the experience and tactical mindset for competence in FA skills.



Similarly, FA officers who trained in ADA missile systems struggled to survive in ADA units. When these officers returned to their original branches, either ADA or FA, they had fallen behind their peers who had remained single-tracked in either ADA or FA—they had missed out on valuable unit experience that expanded their branch professional base.

Serving in both FA and ADA assignments did little or nothing to help me in combat as a battery commander, assistant S3 and battalion S3. I was fortunate to have had superb FA battery commanders who taught me branch skills as a lieutenant and outstanding FA battalion commanders who polished my FA skills, enabling me to become a successful battalion S3 in combat as a captain and, later, a cannon battalion commander.

It wasn't long ago that some were concerned about achieving branch proficiency in both cannons and missiles. There were others who worried that all missile battalions (Pershing and Lance) would eventually be commanded by women because they could not serve in cannon units; therefore, they would remain missile-tracked and would then become the true experts in our missile systems and their employment.

I believe that Colonel Al Pace, USMC, has hit the nail on the head in his response to the article [January-February edition, Page 3] when he suggests that we carefully examine the rationale for the branch split in 1968. I'm sure there still are some "gray beards" around who could shed light on the basis for the decision to create two separate branches. I suspect that both branches benefited from the split.

I agree that some efficiencies can be achieved by combining the two branch schools at a single location. Much of the professional training has a common thread. But the missions of the two branches remain distinctly different, as does the branch specialty training. FA remains an offensive force multiplier. ADA is primarily defensive. It is my opinion that both branches will lose by becoming one again.

COL(R) John A. Seitz III, FA
Alexandria, Virginia

Merge the Branches

I served 28 years in the Army from 1961 to 1989 with eight years in the Artillery and four years as an ADA officer.

I served as an Artillery officer in the 2nd Battalion, 126th Artillery (1-126 Artillery), 32nd Infantry Division, WIARNG [Wisconsin National Guard], during the Berlin Crisis of 1961-1962. I remained on active duty and served in the 1-20 Artillery (8-inch/Honest John) and 2-77 Artillery, 4th Infantry Division (4th ID). During my first tour in Vietnam, I was an assistant battalion advisor to the 51st and 52nd ARVN [Army of the Republic of Vietnam] Artillery, 5th ARVN Division.

I served as an ADA officer in the 50th ADA Group and 3-68 ADA, ARADCOM [Army Air Defense Command] in Minneapolis-St Paul, Minnesota.

During my second tour in Vietnam, I served as a battalion S3 and, subsequently, as a battalion XO [executive officer] in the 5-4 FA, 5th ID.

My additional Field Artillery assignments included serving as an instructor at the Field Artillery School; FA Team Chief of the Readiness Group, Fort Sheridan [Illinois]; and Assistant Fire Support Coordinator, VII Corps, USAREUR [US Army Europe].

I also served several years in intelligence assignments and as an Inspector General [IG].

The unique aspect of my assignments in the Field Artillery and Air Defense Artillery is that I served as the battery XO of B Battery, 2-77 Artillery with a battery commander whose

previous experience was only in Air Defense. I commanded A Battery, 3-68 ADA. This was my first battery-level experience with Air Defense, although I had spent six months as an operations officer at a SAGE [semi-automatic ground envisionment] BUIC [backup intercept control] site. These two assignments gave me some significant insights into the combined branch concept.

Over my entire career, as influenced by the combined branch experiences, I found my Air Defense knowledge valuable. For example, when serving as a member of the Army Training Study (ARTS), I was the ARTS representative for the Redeye Gunner Training Proficiency testing we conducted as the study group did not have an ADA officer assigned. Later in my career, I also found my knowledge valuable during a field exercise conducted in Europe using Nike Hercules as a surface-to-surface weapons system.

Finally, my ADA background was useful when, as the IG of the 59th Ordnance Brigade, I was the responsible IG for the 5th Air Defense Group in the brigade.

My initial concerns with the combined branch concept are that branch officers need to provide expertise in areas outside of fires, such as in intelligence, general staff and inspector general assignments. The combination of the time devoted to a combined branch and other assignments limits the time officers have to spend in their primary branch developing a real mastery of their duties. During my 28 years of service, I thought that I was frequently placed in positions where I had to learn new jobs by OJT [on-the-job training]. While this was challenging, it is not the way to go to war.

In summary, my first impression is that I was able to perform both ADA and FA missions. When pressed into service outside the branch, I gained the required skills without a major loss of mission efficiency. If merging the branches is a move toward a Fires Branch, then there may be some significant advantages.

LTC(R) Peter T. Zielenski, FA
New Braunfels, Texas

The Military Family

By Kathleen McCauley, Military Spouse

We plant trees and gardens
We may never see grown,
Empty rooms and boxes
We turn into a home.
New Friends, new faces
Become quite routine
As we move coast-to-coast
And sometimes in between.
We are used to goodbyes
As our Soldiers depart,
Though physically gone,
They are close in our hearts.
We keep up our spirits
As time travels on,
Knowing each day that passes
Gets them closer to home.
We can be sentimental,
Our freedom, we prize.
A patriotic song can draw tears from our eyes.
The sounding of Taps, the lives that were lost,
We know better than most
What freedom can cost.
We have love for our country,
Great pride in this land
The love for our Soldiers
Gives us strength to withstand
All the heartache, the loneliness,
The trials and the tears
The wrenching goodbyes, the sadness and fears.
Though there be hardships
Sadness is not all we know.
After goodbyes come welcomes
And heroes' hellos.
We are proud of our Soldiers
And we always will be.
Where they go—we go
The Military Family.

Photo by Steven Williams, *the Cannoneer*

Soldiers from B Company, 2nd Battalion, 69th Armor (B/2-69 AR), Task Force 1-10, guard a suspected insurgent's house in the Baqubah Province 5 March 2005.

Photo by SPC J'mil Watts, 55th Signal Company (Combat Camera)

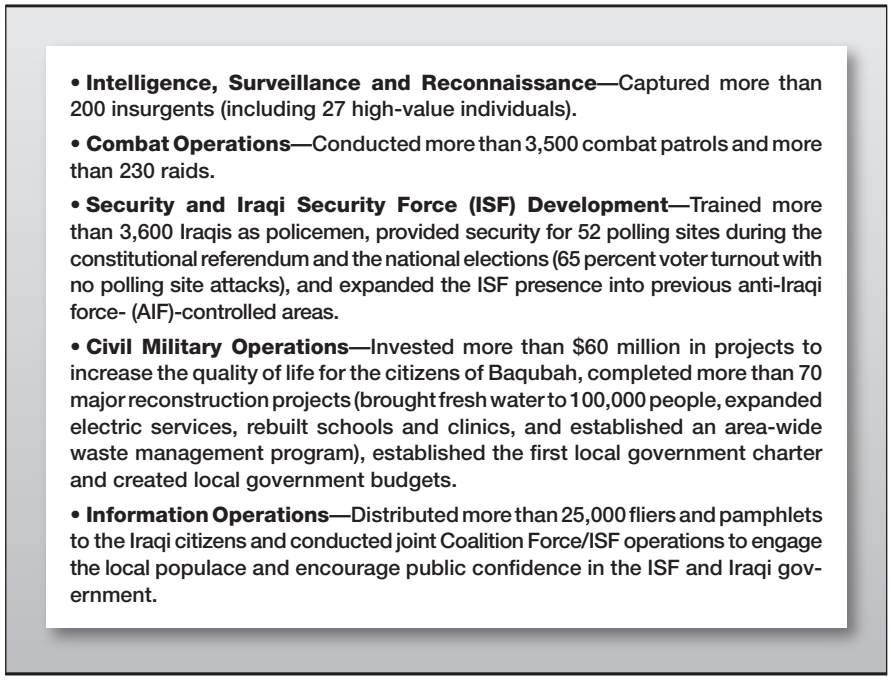
3rd ID: 1-10 FA as a Maneuver and Fires Task Force in OIF III

By Lieutenant Colonel Robert H. Risberg, Major Carter L. Rogers and Captains Ryan A. Latham, Patrick C. Moffett, Neil A. Orechiwsky and Jason R. Staraitis

In April 2005, Task Force 1st Battalion, 10th Field Artillery (TF 1-10), *The Rock's Support*, 3rd Brigade Combat Team (BCT), 3rd Infantry Division (3rd ID), raided multiple houses and then cleared a palm grove in detail in a rural area just south of the city of Baqubah, Iraq, on the edge of the Diyala River. B Company, 2nd Battalion, 69th Armor (B/2-69 AR), *Bayonet*, was the task force's main effort with A/1-10 FA, *Automatic Steel*, and B/1-30 IN, *Bull*, in support. The multi-house raid went off "without a hitch," and we detained 30 personnel, including three mid-level Al Qaeda members who were using the area as a safe haven.

But once *Bayonet* began clearing the palm grove, things got more exciting. As the company moved toward the riverbank, it came under mortar attack. *Bull* moved into the palm grove on the other side of the river to begin to search for the mortar team and quickly came under small-arms and rocket-propelled grenade (RPG) fire. The company fire support officer (FSO) initiated a danger-close call for fire (CFF) for the troops-in-contact. Immediately after that CFF, *Bayonet* and the TF tactical command post (TAC) called for danger-close fires on their side of the river. 2nd Platoon, B/1-10 (*Big Guns*) fired 12 rounds of 155-mm high explosive (HE) in support of *Bull* and *Bayonet*. Immediately after the impact, attack aviation and close air support (CAS) arrived to support the TF. The enemy was killed, and the TF suffered no casualties.

During this mission, TF 1-10 commanded and employed two infantry companies, an FA battery serving as a motorized infantry company, a cannon firing platoon, attack aviation and CAS in a successful offensive combat operation. Complex operations such as this



Task Force 1-10 Lines of Operations Achievements in Operation Iraqi Freedom (OIF) III

one epitomized TF 1-10's experience as a maneuver and fires task force during Operation Iraqi Freedom (OIF) III.

From January 2005 to January 2006, TF 1-10's mission was challenging, requiring a unique reconfiguration. 1-10 FA, a 155-mm Paladin battalion, added a mechanized infantry company, a tank platoon and an engineer company from the 3rd BCT to maximize its ability to engage the enemy in full-spectrum operations. Charged with operating as a maneuver unit conducting full-spectrum operations, TF 1-10 also served as the direct support (DS) artillery battalion for the 3rd BCT in and around Baqubah employing one cannon firing platoon and the organic Q-37 radar. This unique combination of maneuver and fires units under the command of an artillery battalion proved successful in one of the "hot spots" of Iraq.

Demographics of Area of Operations (AO) *Rock*. AO *Rock* was about 80 square miles, centered on the city of Baqubah. The population of Baqubah is about 400,000 people. Buhriz, the city just to its south, has nearly 50,000. Located about 40 miles north of Baghdad on the eastern edge of the Sunni Triangle, Baqubah and Buhriz are ethnically diverse, creating both opportunities and challenges.

The suburbs to the north of Baqubah, known as Huwaydir, are almost 100 percent Shiite. Buhriz is about 90 percent Sunni. Throughout the major districts of Baqubah, Sunni and Shiite each comprise about 40 percent with Kurd and other ethnic groups comprising the other 20 percent. Each sect has mosques throughout the city, often in areas where the surrounding populace is of another sect.

There is minimal tribal influence in the urban areas but more tribal influence in the surrounding countryside and rural areas with less governmental control.

Lines of Operations (LOOs). To accomplish its mission, the task force organized along LOOs: intelligence, surveillance and reconnaissance (ISR); combat operations; security and Iraqi security forces (ISF) development; civil-military operations (CMO); and information operations (IO). Each LOO was critical to TF 1-10's success.

One of the greatest challenges in Iraq was the continual transition from combat operations to IO to developing ISF and the government. These full-spectrum operations required the task force to transition quickly from combat to noncombat operations. Rapid transitions in full-spectrum operations are critical to succeed in the current fight for Iraq.

During TF 1-10's OIF III deployment, combat operations were shaping operations. The decisive operations were those that developed the Iraqi government and helped it protect the people of Iraq. Success came through carefully synchronized progress in *all* LOOs.

The TF conducted combat operations to reduce the number of insurgents in the AO and allow the ISF to train and build combat power. The stronger and more capable ISF ensured the government could develop and become secure, leading to an increase in the quality of life in the area through the increased ability to manage reconstruction projects. IO supported all of these efforts.

Focusing on the right tasks at the right times makes the LOO cycle effective. This is part of the tactical defeat mechanism of *disintegrating* anti-Iraqi force (AIF) capabilities, *eroding* AIF resources and *dislocating* the AIF from its supporters that the 3rd BCT used throughout OIF III to great success.

To track the LOOs, we held a weekly targeting and effects meeting and used a modified effects-based operations (EBO) model from the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana. For each LOO, we identified the goals and tasks to achieve those goals. During the meeting, we reviewed the status of the tasks and adjusted plans and operations to achieve goals in each LOO. See the figure for TF 1-10's achievement by LOOs.

ISR. The first step in developing an ISR plan that met the commander's intent was to identify the internal and external collection assets available to the TF. Internally, TF 1-10 had roughly 650 Soldiers (every Soldier is a collector), six Raven unmanned aerial vehicles (UAVs), local contacts who came to the forward operating base (FOB), interpreters, local national workers, many key local leaders or spheres of influence (SOIs) and, for the first six months of the deployment, a tactical human intelligence (HUMINT) team of two Soldiers. The civil affairs (CA) and psychological operations (PSYOP) teams also worked internally as passive collectors. Externally, the TF received daily Shadow UAV coverage from the BCT and several higher level, sensitive collection assets.

Because of the small, but highly populated area of responsibility (AOR), the TF covered most named areas of interest (NAIs) and targeted areas of interest (TAIs) daily but covered some NAIs only weekly. NAIs were based on key terrain and enemy activity in an area. The TF's TAIs targeted improvised explosive device (IED) emplacers and indirect fire teams based on areas in which the enemy had good distant aiming points (DAPs) for indirect fire attacks and access to heavily trafficked routes for conducting IED attacks.

To prioritize assets to cover the NAIs and TAIs, the TF conducted an extensive

pattern analysis. This analysis affected our patrol schedule; terrain denial fires; use of aerial surveillance platforms, such as the Ravens and Shadows; and requests for fixed- and rotary-wing air support. Continuously adjusting the patrol schedule made us more unpredictable and allowed us to interdict many attacks.

Aggressively using as many assets as possible greatly reduced the enemy's ability to attack. The more assets in sector covering NAIs and TAIs, the harder it was for the enemy to operate.

We integrated the ISR plan into combat operations during the weekly targeting and effects meeting.

The TF S2 gave commanders the most likely locations for enemy activities weekly, based on the pattern analysis, historical information and HUMINT data. He developed graphs showing the location, type of attack, time of day, day of the week or month, lunar data, sunrise and sunset times, key events and historical data from previous units operating in the area. The TF maintained a daily record of every significant event in a story-board format.

Combat Operations. For any unit in Iraq, combat operations are high-risk. Because of the lack of initial training and our senior NCOs' limited maneuver experience, we emphasized rehearsals, pre-combat checks (PCCs), pre-combat inspections (PCIs) and refresher training. Combat operations included raids, cordon and searches, flash traffic checkpoints, sniper operations, terrain denial (using indirect fires and patrols), and daily route clearance and (or) countermortar patrols.

Using 155-mm fires for terrain denial and psychological operations were major parts of our offensive operations. We used schedules of fire to proactively deny the enemy the use of likely IED sites and indirect fire launch sites. During one 16-day period in June-July 2005, we fired 155-mm HE rounds into the palm groves on the western edge of the town of Buhriz every 15 minutes from 2300 to 0600 hours to deny terrain to the AIF. This also had the effect of disrupting the Buhriz locals and encouraging them not to support or tolerate the AIF.

The TF conducted most of its combat operations jointly with the ISF, often with both the Iraqi police and army. These operations posed many challenges and, in large part, succeeded because of constant coordination and rehearsals.

At first, the ISF played a supporting role during these joint combat operations, but by the time the TF redeployed, ISF leaders planned and executed most missions. The near incident-free constitutional referendum in October, the peaceful and successful national elections in December and many successful Iraqi-led combat operations demonstrated the ISF's credible capability to take responsibility for security in and around Baqubah.

Security and ISF Development. TF 1-10 formed partnerships with the two Iraqi army companies and four Iraqi police units in AO *Rock*. This partnership included training and logistics support, joint operations and coordination of all security matters.

The key to success in partnering with and developing the ISF units was the strong personal relationships each TF leader established with the Iraqi leaders. Daily interaction on formal and informal levels was critical.

In February 2005, TF 1-10 received the task of training and developing the Iraqi police force in the Diyala Province with its headquarters in Baqubah. Led by the TF S3, a small team of officers

Lessons Learned by TF 1-10

The following lessons learned and recommendations are based on Task Force 1st Battalion, 10th Field Artillery's (TF 1-10's) experiences during Operation Iraqi Freedom (OIF) III while serving as a maneuver and fires task force in Baqubah, Iraq.

Conduct refresher training. Often platoons had little time to prepare for missions as they received orders to raid buildings over the radio, allowing no time for planning or rehearsals. Conducting weekly training on this type of operation reduced the risks caused by the inability to conduct formal rehearsals before missions. Although a platoon may not have rehearsed on the day of the mission, it had rehearsed the basics within the past week and was ready to complete the mission.

Establish reliable contacts. Reliable contacts were hard to come by, so surveillance was poor at the beginning of the deployment. However, toward the end, the relationships with local spheres of influence (SOIs) and contacts had grown, and the task force had a better understanding of what was going on in the city. It was important to establish a contact in every part of the city.

In many cases our contacts gave us early warnings of enemy activities via cell phones. It seemed like everyone had a cell phone in Iraq, and many were camera phones.

Establish habitual relationships with Iraqi security forces (ISF) for combat operations. Planning and executing missions with the ISF posed several challenges, much the same as those faced when US joint forces work together. At first, the ISF brought fewer soldiers and policemen than expected. The personnel often were from different platoons or even different companies. The lack of unit integrity degraded the ability to train a platoon to competence on a task. To combat this challenge, the TF initiated a partnership between US and Iraqi platoon leaders or police officers, creating a habitual relationship between the organizations.

Train vehicle-mounted gunnery. Not all the Soldiers in TF 1-10 took part in convoy live fires in pre-deployment training because of resource constraints. However, each Soldier rode in a convoy at some time during the tour in Iraq.

Leaders should ensure that critical training events emphasize vehicle-mounted gunnery in motorized infantry units before deployment. This will prepare Soldiers to fire crew-served weapons mounted on the top of their vehicles.

Change the FA battalion MTOEs. Based on our experiences during OIF, 1-10 FA recommends more robust S2 and S5 sections—add one military intelligence captain and one intelligence analyst to the S2 and one captain, one lieutenant, one sergeant first class and two enlisted men to the S5. Also, every battery needs a battery executive officer.

Adding these to the modified table of organization and equipment (MTOE) would make the S2 and S5 sections more functional in the FA battalion and provide batteries an additional officer needed for maneuver operations. It would preclude our having to move officers, senior NCOs and Soldiers (all in critical jobs within the battalion) into positions they are untrained for.

Photo by SPC J'mil Watts, 55th Signal Company (Combat Camera)

Soldiers from A/1-10 FA raid the house of a suspected insurgent in the Baqubah Province on 15 March 2005.

and NCOs went to the Diyala Provincial Police Station to live and work with the Iraqis. The goal was to enhance the skills of the Iraqi police along major LOOs: training, intelligence, law enforcement, communications, personnel, contracting and logistics. This team was designated TF Five-O and became the BCT's lead agent to develop the Iraqi police service in the Diyala Province. The operations of TF Five-O were truly a collaborative effort as the TF was augmented with US subject matter experts (SMEs) in the primary fields of emphasis. The SMEs came from the 42nd Infantry Division (New York Army National Guard), to which the 3rd BCT was attached, and the 411th Civil Affairs Battalion (in support of the 42nd ID).

The Diyala Provincial Police Station is in a habitually troublesome part of Baqubah, and an engineer company attached to TF 1-10 manned it fulltime to provide force protection and life support to US personnel in the facility. An attached US military police (MP) squad also was located at the police station permanently. It helped with and improved the Iraqi Criminal Investigation Division (CID) procedures and policies in the investigation and processing of inmates.

The 24-hour mission of TF Five-O included the development of special weapons and tactics (SWAT) training, detainee handling and processing, investigations training, contracting support, provincial jail oversight, administration support, training academy oversight, joint coordination center (JCC) operations and logistics oversight. Each subject area had a captain and a senior NCO in charge who interacted daily with the Iraqi police officers to move their systems along and give them the tools to become self-reliant.

CMO. In the Diyala Province, specifically in Baqubah and Buhriz, CMO presented unique challenges. The demographics of the region are potentially explosive: 40 percent Sunni, 40 percent Shiite and 20 percent Kurd and other assorted ethnic groups. Baqubah and its surrounding area were largely unaffected by major combat operations during the US-led invasion in 2003; however, the insurgency and years of neglect under the previous regime left the region lacking nearly all remnants of a stable society.

Although great progress had been made during 2004 in improving the security situation and setting the conditions for the first national elections (January 2005), at the beginning of 2005, it was clear that the lack of a basic infrastructure and absence of a functional local government impeded the advance of US campaign objectives. The first priority was to understand the scope of the problems in the region and what was possible to accomplish in the span of the one-year deployment. It was critical to measure conditions in the area to devise a plan for progress.

One stepping stone in the process was simple, but effective. The sewage, water, electricity, academics, trash, medical and security (SWEAT-MS) model was a way not only to understand conditions in and around Baqubah, but also to track completed, ongoing and planned reconstruction projects and focus full-spectrum operations. By graphically representing each of these factors using satellite imagery, PowerPoint and a simple color scheme depicting projects, their statuses and affected areas, the TF formed a picture of the AO that had not existed in the past. This picture would not have been possible without first having developed strong relationships with the local Iraqi leaders.

The Mayor of Baqubah emerged as a strong, effective leader who was willing to work with Coalition Forces to improve the conditions of his city and his people as well as advance his political ambitions. Working with the mayor and regional councils, the TF brought in local ministry directors from the Iraqi government to lend their insights and analyze the conditions in the area, locate key facilities and identify the most neglected areas. In doing so, it became apparent how the TF would prioritize reconstruction funding and which projects would have the most impact in the AOR.

The SWEAT-MS model also came to include other categories, such as roads and bridges, sports and recreation, government and emergency (fire and police) facilities and polling-site conditions. The result was more than 70 major reconstruction projects completed in excess of $60 million that physically transformed the city in less than nine months. Projects funded with Coalition resources made roads safer by paving and lighting them, reopened schools and clinics, supplied the city with water from newly built fresh-water treatment plants, completed sewage systems, built checkpoints for the ISF, installed electrical networks and brought pride to the populace through a city-wide sanitation program.

As progress became more coordinated and effectively planned, it was easier to focus on conditions that could have a positive impact on future operations in the region rather than just infrastructure emergencies.

Further "sub-LOOs" included political, economic and democracy development. From these broad initiatives, objectives evolved that required sub-goals and tasks.

Political development included a weekly "battle rhythm" meeting with the Mayors of Baqubah and Buhriz, the city and *qadah* (equivalent to an American county) councils and key officials of

the various government ministries. The agenda covered what the TF sought to accomplish by the end of the one-year deployment as well as long-term goals. Every week, this group revisited the items discussed and addressed recent major events. This resulted in establishing city councils in both Baqubah and Buhriz, creating a *qadah* council that seated representatives of the surrounding *nahias* (rural neighborhoods) and writing the first charter for the Baqubah Qadah and submitting it to the province for legislative and judicial review in advance of a local referendum.

Economic development sought to revive an area that had a strong agricultural and industrial base and establish basic and transparent financial practices at local banks and in local government. All managers of major banks in Baqubah agreed to apply practices that would lower interest rates on loans, encourage individual savings accounts, use electronic banking procedures and accept checks for reconstruction projects in Iraqi *dinars* rather than US dollars.

Through extensive work with the mayors, councils and representatives of the various ministries, the first-ever municipal operating budget for Baqubah was drafted and submitted to the provincial and national Ministry of Finance.

Democracy development focused on the success of both the Iraqi constitutional referendum and the national elections in October and December, respectively, and improving the poor voter turnout experienced in January 2005. The TF engaged and mentored officials from the Independent Electoral Commission of Iraq (IECI), the group responsible for conducting the elections, and merged their planning considerations with those of the ISF with the assistance of local officials. The result was a 600-percent decrease in elections-related violence, 200-percent increase in voter registration and 300-percent increase in voter turnout with 100 percent of the polling sites opened and no major insurgent attacks during both the referendum and the national elections.

The key to achieving successful CMO objectives in OIF III was identifying and assessing conditions, setting realistic goals across a definable range of critical LOOs and integrating those goals with combat and overall campaign objectives. Internally resourcing the TF S5 section with senior leaders and coordinating the use of attached CA teams and PSYOP and IO assets under the S5 set the groundwork to create a nonlethal effects-based staff that had the mission and skills to achieve the Army's goals in Iraq.

Working closely with the State Department, US Army Corps of Engineers, non-governmental organizations and local Iraqi leaders brought to bear a broad range of capabilities and means for measurable CMO progress in Baqubah and Buhriz.

IO. While conducting full-spectrum operations in AO *Rock* during OIF III, TF 1-10 used IO as an integral part of operations against the AIF. At the TF level, IO focused on building public support for the ISF and Iraqi government while dislocating the AIF from the people. Company/battery FSOs were the IO representatives at the company/battery level.

For continuity purposes, the TF FSO/IO officer was part of the S5 section. His main mission during OIF III was to help coordinate media events, including those related to local stories and those that involved US Armed Forces. It was important to the leadership to publicize how well the ISF conducted operations.

The TF FSO/IO officer sent daily news releases and stories to the BCT IO section. He coordinated the distribution of fliers depicting the successes of the ISF and Iraqi government during Coalition and Iraqi operations. Fliers and posters also informed the citizens of Baqubah about the constitutional referendum in October and the national elections in December and encouraged them to participate in the political process. Baqubah had more than 65 percent of the voters take part in the October referendum and the December national election.

When special events occurred, such as the opening of a new or refurbished water plant, the IO officer and the S5 section arranged for media coverage at the event. The highest ranking Iraqi civilian authority available also was present. We used every opportunity to give the Iraqis credit where credit was due, supporting the development of effective local leaders.

The TF also conducted specific IO missions aimed at educating the Iraqi people. These missions, always conducted with the ISF and eventually led by the ISF, ranged from handing out fliers in neighborhoods to holding town hall-type meetings in communities to broadcasting messages through loudspeaker trucks and over the commercial radio. These missions proved effective at helping the local people see their government and security forces no longer as instruments of oppression, but as institutions of public good.

Building on the progress of the great units that preceded it, TF 1-10 was able to synchronize and execute multiple complex operations in the Baqubah area by LOOs. Each element of the TF's collective skill sets (artillerymen, infantrymen, tankers, engineers and a host of supporting military occupational specialties) combined to ensure that we accomplished the mission and Soldiers returned home safely. The TF 1-10 leadership adapted the LOOs to suit the specific needs of the mission and, again, proved that the American Artillery is still the *King of Battle*. *Rock Support!*

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Captain Ryan A. Latham currently is the Battalion Training Officer for 1-10 FA. During OIF III, he served in TF Five-O, helping the Iraqi Police Service in Diyala create a functioning logistics system.

Captain Patrick C. Moffett was the Assistant Operations Officer for all predeployment training and deployed in support of OIF III as the Battalion Planner for TF 1-10. He took command of A Battery, *Automatic Steel*, in July 2005, and commanded the battery for the remainder of the deployment.

Captain Neil A. Orechiwsky was the TF S5 Civil-Military Operations (CMO) Officer during OIF III and was the primary architect of the TF 1-10's CMO.

Captain Jason R. Staraitis was the TF 1-10 S2 during OIF III and remains in that position in 1-10 FA. He led the TF's effects-based targeting process.

FA PGMs

Revolutionizing Fires for the Ground Force Commander

By Colonels Gary S. Kinne, John A. Tanzi and Jeffrey W. Yaeger

For the first time in the history of any military, the US warfighting ground force commander has *organic*, surface-to-surface, all-weather fires options for rapidly and *precisely* taking out a wide array of targets in a variety of terrains, some targets ranged from as far away as 270 kilometers.

Two of the newest of these FA precision-guided munitions (PGMs)—the guided multiple-launch rocket system (GMLRS) unitary and 155-mm Excalibur unitary—are *scalable*, optimizing them for employment in restricted, urban or complex terrain and (or) in close support of troops at ranges from 7,200 meters up to 70 kilometers with a circular error probable (CEP) of much less than 10 meters—ideal for kinetic operations in the Global War on Terrorism.

GMLRS unitary has been in the Central Command (CENTCOM) theater since June 2005, demonstrating its precision in combat operations. Based on Excalibur unitary's performance during developmental testing, it soon will set the same accuracy standard when it's fielded in the fires battalion in the CENTCOM theater in early 2007.

Additional FA precision programs are under development to make cannon area fire conventional munitions more precise and enhance rocket and missile effects for the ground commander by filling warfighting gaps. Two of the developmental PGMs will be organic to the brigade combat team (BCT) and capable of attacking moving targets—one of which will be in the inventory starting as early as 2008.

Because these new and developmental FA precision-strike capabilities are producing a wide range of effects on all terrain at extended ranges and are all-weather, scalable and available to the ground commander organically, they are revolutionizing the way the commander thinks about warfighting.

These new and developmental FA PGMs complement the air-delivered joint direct attack munition (JDAM), the Air Force's PGM most frequently

Soldiers look over the results of a test of the guided multiple-launch rocket system (GMLRS) unitary on a building in Iraq in June 2005.

employed in support of ground forces at the tactical and operational levels of warfare. JDAM comes with a 500-, 1,000- or 2,000-pound warhead. Less frequently employed in support of tactical and operational ground forces, the Air Force has two laser-guided bombs: Guided Bomb Unit (GBU)-12 (500-pound warhead) and GBU-10 (2,000-pound warhead).

These joint PGMs (JPGMs) give the ground force commander a range of options from blowing up entire complexes precisely with JDAM or GBU to blowing up a mortar crew precisely with FA PGMs—and options in between.

This article describes recently and soon-to-be fielded FA rocket, missile and cannon PGMs, ways in which FA precision munitions can be employed plus a quick look at future FA precision programs. In addition, the article discusses how the forward observer (FO) on the front lines now can rapidly provide the targeting data required for a precision strike that, until recently, could be provided only at the theater level.

Advantages of the New PGMs. The new PGMs bring a number of advantages to the ground force, including increased combat effectiveness, improved flexibility and a reduced logistical burden.

Increased Combat Effectiveness. PGMs are simply more accurate than ballistic or free-flight munitions. While one round fire-for-effect missions are possible using conventional munitions, in most cases volume is used to compensate for the inherent inaccuracies of a given indirect fire weapons system.

Additionally, effectiveness decreases as timelines for the munitions' impact increase because targets have time to move or assume more survivable postures. PGMs increase effectiveness by delivering effects precisely on target before the enemy knows they are coming—either because the JDAMs or GBUs are dropped from high altitudes or the FA PGMs in the fires battalions organic to the BCTs or in the fires brigades can be fired rapidly at the direction of the ground commander needing the effects.

Improved Flexibility. It is a tactical and operational fact that the rules of engagement (ROE) and collateral damage estimates (CDEs) drive the targeting decision-making process. Targets within "urban canyons" pose a particular set of challenges and, until recently, were almost the exclusive fires domain of the Air Force or Army helicopters.

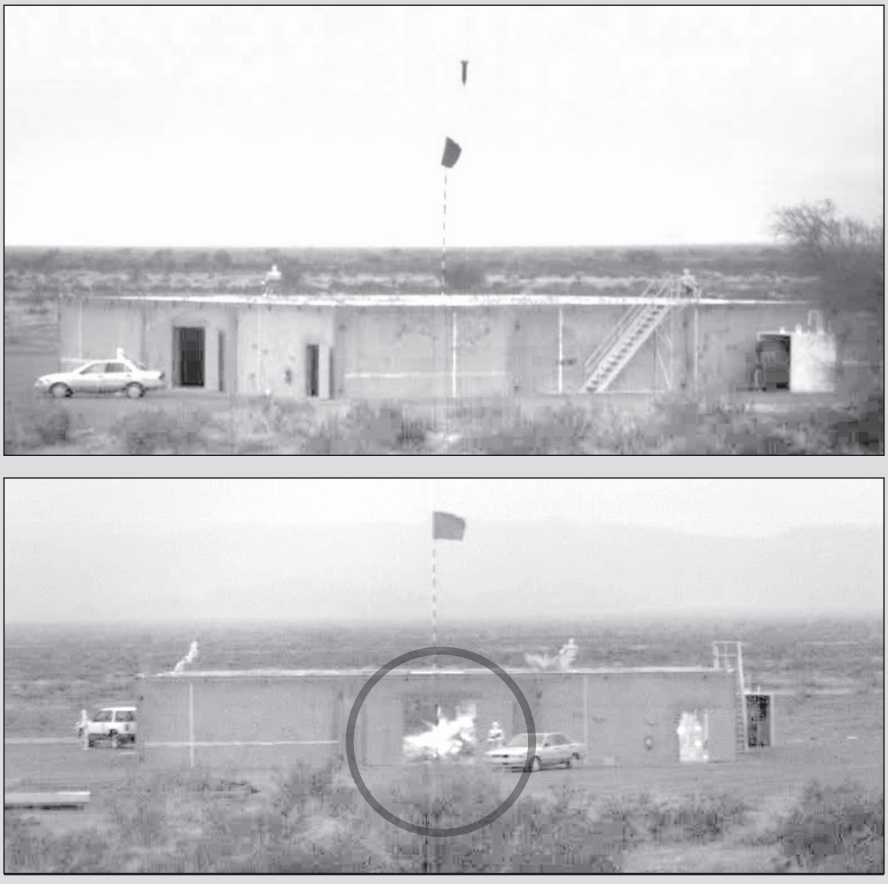
The advent of surface-to-surface PGMs with focused warheads, such as the Army tactical missile system (ATACMS) Block IA quick-reaction unitary (QRU) missile (the FA's first "fire-and-forget" precision unitary warhead munition), GMLRS unitary and Excalibur unitary give commanders at all levels additional options with which to attack a target rapidly. It no longer will be necessary to wait for an aircraft or nominate targets in the air tasking order (ATO) process to employ precision effects. Depending on the ROE, the FA PGM employed and the designated coordinating altitude (fixed-wing "stay-above" altitude), an FA PGM may be employed immediately after the ground commander clears the fires—the same commander who requested the precision strike and owns the battlespace. For example, if the enemy fires a rocket-propelled grenade (RPG) at Coalition Forces, a GMLRS unitary or Excalibur unitary could be cleared to fire very rapidly and eliminate the RPG insurgents while "the neighbors" across the street remain safe.

Surgical strikes by surface-fired PGMs will become common in operations spanning the full spectrum of operations.

Reduced Logistical Burden. On a per-target basis, precision engagements will reduce ammunition logistics tails drastically when compared to the logistics tails of traditional ballistic or free-flight munitions. Battery massed missions and entire launcher/cannon loads fired at single targets will be replaced by single rocket/missile/round missions, in some cases.

The number of missions per platform will increase as firing platforms achieve the desired effects without expending their entire ammunition loads. Launchers (M270A1 and the high-mobility artillery rocket system, or HIMARS) and cannons loaded with PGMs will spend less time reloading with more time left "operationally ready" for the mission.

Rocket and Missile PGMs. Large bursting radii and several variants of munitions dispensing an extensive volume of submunitions generally characterized the FA arsenal of rockets and missiles during the Cold War era. In fact, the enemy in Operation Desert Storm (ODS) called MLRS "Steel Rain" because of its volume, distribution and



Still frame images taken from video footage show an incoming 155-mm Excalibur unitary round close to the dead-center of its target in a near-vertical descent after being fired on a structure from 22 kilometers away. The bottom image shows the round, functioning in the delay mode, detonating after penetrating a four-inch concrete roof.

Photo by SSG James H. Christopher III, 55th Signal Company (Combat Camera)

2nd Battalion, 20th Field Artillery, 4th Fires Brigade, fires a GMLRS rocket in Iraq from Forward Operating Base Q-West, Qayyarah, on 5 January. The unit fired a terrain denial mission on an area where insurgents were known to position mortars and rocket launchers.

effects on them. The enemy was describing MLRS dual-purpose improved conventional munition (DPICM) submunitions dispensed by the hundreds across large areas of the desert by the M26 rocket launched from the M270 MLRS launcher in ODS.

What Saddam Hussein's soldiers could not have known in 1991 was that 14 years later, the new M270A1 MLRS launcher would fire GMLRS unitary rockets against insurgents inside Iraq. But this time, there would be no Steel Rain—only a sudden explosion and flash of light as the rocket destroys, say an improvised explosive device (IED) lab, leaving the building next door virtually undamaged.

XM31 GMLRS Unitary. In October 2004, the Commanding General of the MultiNational Corps Iraq (MNC-I) signed an urgent needs statement (UNS) asking for a longer range, indirect fire weapon that could be fired precisely into an urban environment with a low probability of collateral damage and, at the same time, leave no unexploded ordnance. In January 2005, Headquarters, Department of the Army directed a response to the UNS, resulting in a limited quantity of GMLRS unitary rockets' being sent to Iraq in June 2005. Although full-rate production of the GMLRS unitary is not anticipated until 2009, the PGM joined the fight in the CENTCOM theater last summer.

GMLRS unitary rocket can engage targets at ranges from 15 to 70 kilometers with two fuzing options: point detonating (PD) and delay. In the future, a proximity fuze mode will be added.

The target sets for GMLRS unitary consist of stationary targets including structures (buildings, bridges, reinforced bunkers, etc.), lightly armored vehicle arrays and personnel.

In an actual firing in the CENTCOM theater, a GMLRS unitary rocket delivered a single 200-pound class warhead that exploded a few milliseconds after it penetrated the roof of an Al Qaeda safe house. The M270A1 launcher that fired the single rocket was more than 60 kilometers away.

Although rockets traditionally have not been used in the close support role, the precision effects demonstrated by GMLRS unitary rockets is causing commanders and planners to re-think attack matrices. The range, limited collateral damage and accuracy of GMLRS unitary rockets lend themselves not only to shaping and counterstrike roles, but also to close support. GMLRS unitary can impact safely within 200 meters of friendly forces—sometimes even closer, depending on the circumstances.

Today, GMLRS unitary is the Army's only surface-fired, precision, longer range indirect fire munition available to troops in contact in an urban environment.

In September 2005, the 3rd Battalion, 13th Field Artillery (3-13 FA), 214th Field Artillery Brigade, in support of the MNC-I, fired GMLRS unitary rockets for the first time in combat operations. 3-13 FA fired them during Operation Restoring Rights at Tal Afar and Operation Sayaid in the Al Anbar Province in western Iraq. During Operation Restoring Rights, eight GMLRS unitary rockets were fired, destroying two insurgent strongholds and killing 48 insurgents from a distance of 50 kilometers away. One day later during Operation Sayaid, 3-13 FA fired six rockets and destroyed the Mish'al Bridge, preventing insurgents in the Al Anbar Province from using it.

M48 ATACMS Block IA QRU. In the inventory for approximately four years, the fire-and-forget ATACMS Block IA QRU is a PGM that offers a "big brother" alternative to the precision focused effects of GMLRS unitary. The ATACMS QRU's 270-kilometer range and 500-pound unitary warhead increase the commander's reach and blast effects with its PD fuze without sacrificing pinpoint accuracy.

During the initial phase of Operation Iraqi Freedom (OIF), 13 ATACMS QRUs were fired at command and control (C^2) nodes and achieved tremendous success. The target sets for ATACMS QRU consist of stationary targets, including structures (buildings, bridges, C^2 nodes, bunkers, etc.), lightly armored vehicle arrays, logistical sites and personnel. Like GMLRS unitary, ATACMS QRU's unitary warhead eliminates the possibility of unexploded ordnance (submunitions).

The range and precision of ATACM QRU make them ideal for shaping and counterstrike missions. Although certainly capable of being employed against targets in urban terrain, commanders and staffs must plan for the larger collateral damage radius associated with ATACMS QRU's 500-pound warhead as compared to GMLRS unitary's 200-pound warhead.

M30 GMLRS. This PGM is the next generation of DPICM rocket and has a range of 70 kilometers. It is guided by a global positioning system- (GPS)-aided inertial measuring unit (IMU) to create an accuracy of less than one mil at all ranges.

The M30 GMLRS leaves significantly fewer duds on the battlefield as compared to the M26 DPICM rocket employed in major combat operations in OIF. The GMLRS submunition dud rate has been reduced to two percent at most ranges. In addition, the rocket carries one-third fewer submunitions (404 as compared to the M26's 644 submunitions). The number of duds on the battlefield also is reduced significantly by the GMLRS' decreased volume of fire as a PGM. So, fewer PGM rockets will be fired to get

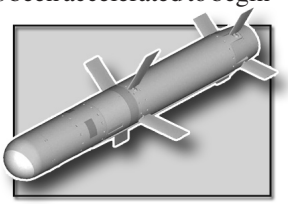
the desired effects on target, and each rocket will have fewer submunitions with a reduced dud rate.

As an area munition, GMLRS fills a warfighting gap by providing precision effects on targets not suitable for unitary munitions. It gives commanders precise destructive or protective/suppressive fires against target arrays or expanded target areas too large for unitary warheads. It also can be employed to mitigate less than optimal sensor target location errors (TLEs). Whereas unitary warheads need "tight" target location accuracy, GMLRS can accept a slightly larger error and still provide effects on the target.

M270A1 and HIMARS can fire GMLRS, which currently is in full-rate production and being stocked in the inventory.

Future Rocket and Missile Precision Programs. Two additional munition variants are scheduled for inclusion in the FA's rocket and missile PGM inventory: the precision attack missile (PAM) and loiter attack missile (LAM). They are part of the non-line-of-sight launch system (NLOS-LS). These two future PGMs address warfighting capabilities gaps and are designed for specific target sets, giving ground commanders expanded options for precisely attacking point targets. Of note, PAM and LAM will be able to attack moving targets through responsive networked fires and will be organic to the BCT.

• PAM is one of only three future combat system (FCS) weapon systems whose development has been accelerated to begin fielding to the evaluation BCT (EBCT) at Fort Bliss, Texas, in FY08.



It is a solid-propellant precision-guided missile that will be fired remotely from container launch units (CLUs). Each CLU will contain 15 PAMs and a command, control and communications capability. PAM will receive fire missions from the advanced FA tactical data system (AFATDS) (modular force) or battle command network (FCS force). The CLUs will be transportable by truck or sling loadable under helicopters.

The missile will have various flight profiles enabling it to be employed against a wide array of targets, including moving targets, to a range of 40 kilometers (threshold) with the objective of 60 kilometers. Each missile will receive target location and description data before launching and use GPS guidance (with inertial backup) to fly to the target location. The missile will search the target area during the terminal portion of the flight and make corrections to hit the target (using its uncooled imaging infrared seeker with a semi-active laser) or fly directly to the target guided by a laser designator from an external observation platform. The missile will be able to receive a target location update while in flight, allowing it to engage moving targets.

PAM will be effective against both heavy and soft targets. Commanders will be able to employ it in a number of different scenarios across the spectrum of operations from stability and reconstruction operations (S&RO) to major combat operations. The fires battalion in a modular BCT will have PAM, giving the BCT commander organic PGMs effective against moving targets—long the "Achilles heel" of the Field Artillery.

• LAM also will be fired from CLUs, much like PAM. It will be able to attack stationary, moving and fleeting high-payoff targets (HPTs) at extended ranges, defeating lightly armored and soft targets with precision using GPS guidance. It also will be able to provide surveillance and targeting images to support battle damage assessment (BDA) and serve as an airborne radio retransmission platform. LAM's threshold range and loiter time will be 70 kilometers with a 30-minute search time up to the objective range of 100 kilometers with a 45-minute loiter time.

The commander will have the option of employing LAM in the fire-and-forget or man-in-the-loop mode. Using its primary seeker (laser radar, or LADAR) and automatic target recognition templates, the missile will be able to locate and recognize targets, transmit target images and attack targets. Fire mission instructions, including image collection options, attack criteria and search patterns, will be programmed in LAM before it is launched, but the operator will be able to update the data while LAM is in flight.

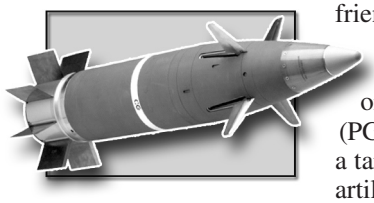
As with PAM, LAM will be organic to the BCT.

For more information on these rocket and missile precision-strike programs, see the Training and Doctrine Command (TRADOC) Systems Manager for Rocket and Missile Systems (TSM RAMS) link on Fires Knowledge Network (FKN) on Army Knowledge Online (AKO) or email tsm.rams@us.army mil.

Cannon PGMs. The FA soon will field the Excalibur unitary PGM and has several cannon precision programs under development.

Soldiers train to download container launch units (CLUs). The CLUs can carry the precision attack missile (PAM), the loiter attack missile (LAM) or a mixture both.

XM982 Excalibur Unitary. In August 2004, the Commanding General of III Corps in Iraq submitted a UNS requesting a precision cannon round that is effective in urban operations—Excalibur unitary is the response. It will be fielded in the CENTCOM theater not later than the Second Quarter of FY07. The Excalibur unitary development program was accelerated by two years to meet the UNS deadline.



Excalibur unitary is an extended-range 155-mm high-explosive (HE) PGM capable of engaging HPTs in all weather and terrain while minimizing collateral damage through concentrated lethality and increased precision. The Paladin self-propelled howitzer, M777A1 lightweight 155 or the NLOS cannon will be able to fire Excalibur unitary.

Using a non-ballistic flight path, Excalibur unitary is achieving a range of 24 kilometers in testing with the objective range of 40 kilometers with base-bleed integrated. Its guidance system is GPS, eliminating the need for laser designation and making it the Army's first cannon-delivered fire-and-forget munition.

PD, delay or proximity fuze settings allow Excalibur unitary to attack multiple target types (soft and medium targets) and reinforced point targets. Its required TLE is 30 meters for enemy personnel or light materiel and 10 meters for structures requiring a direct hit.

With its non-ballistic trajectory, near-vertical terminal dive and 50-pound warhead that can penetrate four inches of steel reinforced concrete, Excalibur unitary produces a highly concentrated and predictable fragmentation pattern, optimizing it for employment in urban operations and allowing targeting staffs to determine the potential for collateral damage during operational planning.

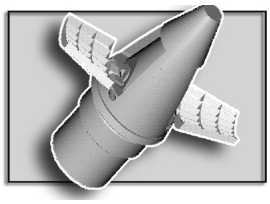
The round will be employed for close support, particularly in urban operations. Although we have not determined Excalibur unitary's risk estimate distance (RED) yet, testing indicates that we will be able to fire Excalibur unitary safely at distances considerably less than 600 meters from friendly forces, the current restriction for danger-close fires.

The ground commander will use Excalibur unitary when collateral damage is an issue; targets are in, on top of or adjacent to a structure (urban environment); weather conditions or response times makes other precision attack assets infeasible; the commander needs to destroy targets in close proximity to friendly troops, civilians or protected targets; precision is needed but beyond-line-of-sight (BLOS) systems or precision-guided mortar munitions (PGMMs) can't range the target; or when a target is out of range of conventional artillery munitions.

Recent tests at Yuma Proving Ground, Arizona, have demonstrated Excalibur unitary's multiple-fuze settings and precision capabilities. Consistently in live-fire tests, Excalibur has impacted within five meters of its targets' aim points when fired from ranges of eight to 23 kilometers.

Future Cannon Precision Programs. Several precision programs are underway for cannon munitions.

• The precision guidance kit (PGK) for both 155-mm and 105-mm conventional cannon munitions, such as HE or DPICM, will make these munitions' area fires more precise. These systems are GPS-guided with some also inertial navigation system- (INS)-aided; the rounds will impact within a 50-meter CEP at all ranges for the initial increment of the PGK and with the objective PGK's CEP reduced to 10 meters.



Although recent operations reinforce the necessity for more precision, the Army continues to need the capability to saturate large areas with fires in high-intensity conflict. With PGK, the ground warfighting commander will be able to fire more precise suppression effects while retaining the traditional option of massing dumb, but deadly rounds for area effects—giving him a robust kit bag of fires effects.

Conventional munitions enhanced with PGKs are projected to start coming into the inventory in FY09.

• To develop 105-mm PGMs, the FA will leverage Excalibur unitary's technology. While still in the early stages of definition, the 105-mm PGM is envisioned to enhance the conventional 105-mm round's precision, extend its range and increase its lethality. PKG enhancements to current 105-mm rounds will bridge the gap until the new 105-mm PGM is fielded.

For more information about the cannon precision munitions programs, see the TSM Cannon link on FKN on AKO or email tsm.cannon@us.army mil.

Providing Precise Coordinates for PGMs. PGMs need precise target coordinates—or these precision munitions will miss their targets "precisely." Today's technology allows the FO at the tactical level to rapidly and easily determine PGM coordinates when previously they only could be determined at the theater level.

Historical Perspective. In the past, determining these coordinates was time-consuming and required target mensuration. The latter is the application of mathematical principles to a two-dimensional surface to determine the most accurate location of a target on all three planes of a Cartesian surface (XYZ). Mensuration greatly reduces TLE using a process to correlate the expected target location to highly refined coordinates. Simply stated, mensuration gives an accurate aim point.

One of the most familiar ways of mensurating target coordinates uses the digital point position database (DPPDB). The DPPDB is a stereo image-based software developed by the National Imagery and Mapping Agency (NIMA), now known as the National Geospatial-Intelligence Agency (NGA), which was introduced in the mid-1990s. The military and intelligence services routinely use DPPDB to derive precise coordinates to support targeting and mission-planning requirements.

The database consists of several dependent components, including rectified aerial imagery and the support data needed to exploit that imagery. Progressive applications, such as Dewdrop, Raindrop and Rainstorm, use the DPPDB for mensuration; their respective accuracies can be found on the NGA secure website.

Until recently, the ability to provide targeting data for a precision strike only was available through mensuration at the theater level. The Air Force initiated efforts to place a mensuration capability at the air support operations center (ASOC) to cut down on the reach-back required. The process still was time-consuming and viewed as not responsive to the immediate needs of commanders on the ground, especially to engage time-sensitive targeting.

Technology for the FO's PGM Coordinates. The precision-strike suite special operations force (PSS-SOF) software allows the observer on the front lines to determine precise coordinates for

PGMs. PSS-SOF verifies the location to be targeted by associating the grid to the DPPDB. This process is a direct transfer from the known points in the DPPDB.

Because true mensuration is performed by highly trained experts at the theater or national level, PSS-SOF has been referred to as "near-mensuration." It is more accurately a three-dimensional determination of coordinates that are precise enough to employ today's PGMs at the tactical level, PGMs such as Excalibur unitary, GMLRS unitary and JDAM.

Using the PSS-SOF, ground-based observers with eyes on the target can determine, refine and transmit precise coordinates to strike assets for precision strike munitions more quickly and easily.

The figure details information on the software. Specific problems, such as a gap in digital interfaces, drove the software's development.

Of note, the NGA has validated the software for PGMs. Units operating in theater now use it. It is part of the US Air Force's tactical air control party (TACP) modernization program and an extension of the Army's FO system under the automated fire support system.

PSS-SOF has been incorporated into Forward Observer Software (FOS), Version 7.0.13, to be fielded in the Fourth Quarter of FY06. It currently is trained at Fort Sill, Oklahoma, in the Joint Fires Observer (JFO) Course and in some of the joint terminal attack controller- (JTAC)-producing schools in other services.

Coordinates Determination Process. PSS-SOF is just one part of the process. The observer determines his own position from his GPS and a range and bearing to the target from his laser rangefinder. The information is digitally transmitted, no "fat fingering." Then the observer pushes this new information to his mission planning software. He must review his mission planning environment where he also is receiving Blue Force updates. On various map displays, such as FalconView, the observer sees his location and target.

Here is where PSS-SOF is involved. The observer digitally passes the data from his mission planner to the PSS-SOF application on the same computer. PSS-SOF automatically pulls up the appropriate images, a stereo pair of two different images of the same target area. The operator locates the intended feature on both images, and PSS-SOF calculates and returns precision coordinates and elevation. The application also presents the coordinates' TLE, which is very important in ROE considerations.

Precision Strike Suite for Special Operations Forces (PSS-SOF)

The observer then digitally transmits the precise coordinates to the system delivering the PGMs. The entire process takes minutes.

The joint services have taken a historical process that required target coordinate refinement from the highest levels and pushed it down to the ground observer to determine precision strike data at his location and have greatly improved the timeline for doing so. This improves joint warfighting and the application of precision strike capabilities.

The Army has entered an era of longer range tactical PGMs, including fire-and-forget PGMs. Although the Army still requires the ability to mass fires with ballistic munitions, recent technological applications and the desire to avoid collateral damage have driven the use of precision munitions.

The Field Artillery continues to evolve and develop new capabilities designed to meet the ever-changing challenges of current and future battlefields.

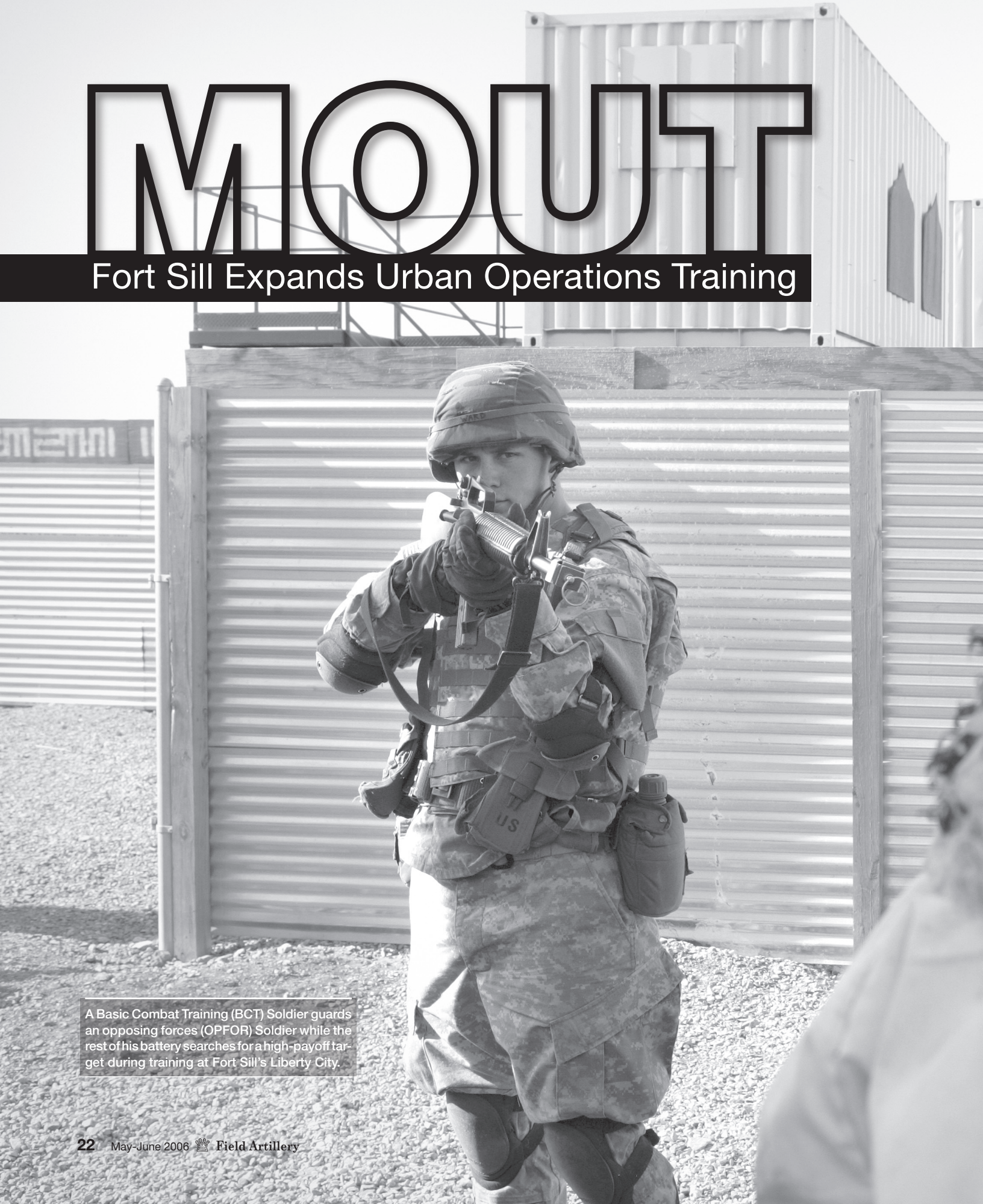
Colonel Gary S. Kinne is the Training and Doctrine Command (TRADOC) Systems Manager for Rocket and Missile Systems (TSM-RAMS) at Fort Sill, Oklahoma. Also at Fort Sill, he was the Director of the Joint and Combined Integration Directorate (JACI) in the Field Artillery School. He commanded the 2d Battalion, 17th Field Artillery (2-17 FA), 2nd Infantry Division, in Korea.

Colonel John A. Tanzi is the TSM Cannon at Fort Sill. Previously, he was the Director of Support Operations in the Center for Strategic Leadership at Carlisle Barracks, Pennsylvania. He commanded 3-82 FA, 1st Cavalry Division, Fort Hood, Texas.

Colonel Jeffrey W. Yaeger is the Director of JACI. In his previous assignment, he commanded the 3rd Battlefield Coordination Detachment (BCD) in Korea. He also commanded the Special Troops Battalion, a multi-functional unit dual-stationed at Forts Wainwright and Richardson, Alaska.

MOUT

Fort Sill Expands Urban Operations Training



A Basic Combat Training (BCT) Soldier guards an opposing forces (OPFOR) Soldier while the rest of his battery searches for a high-payoff target during training at Fort Sill's Liberty City.

Army operations in the Global War on Terrorism (GWOT) emphasize military operations in urban terrain (MOUT), and schoolhouses and home station should do the same, in terms of discussions, training and resource allocations. To prepare Soldiers for GWOT, Fort Sill, Oklahoma, has transformed and expanded its MOUT training and facilities.

This year at Fort Sill, Initial Entry Training (IET), Basic Officer's Leader Course II (BOLC II) and mobilization preparation training all modified their support plans to better prepare leaders and Soldiers for MOUT challenges.

By Captain Sean D. O'Berry
Photos by Fred W. Baker III

Commensurate with this training focus, Fort Sill built robust new training facilities. Some of these facilities are now in use, such as the recent BOLC II expansion of Liberty City, a modularly constructed building-clearing MOUT site. Others, such as the new Urban Assault Course north of Kerr Hill, will open this summer.

Liberty City. The 30th Field Artillery Regiment (FAR) designed and built a large expansion of Liberty City for BOLC II. Construction began in November 2005, and the city opened for operations in February 2006. The expansion involved input from the entire cadre, from company commanders to platoon mentors.

The plan laid out a bold three-story, $500,000 facility. Construction centered around eight 40-foot military vans (MILVANs) built in sections off site and brought in on flatbeds. The most recent additions are a town mosque with minaret and safety railings on the highest points of the buildings.

BCT Soldiers work through a downed-pilot scenario at Fort Sill's Freedom Town.

The new complex features a labyrinth of buildings and staircases to make navigation through the city a greater training challenge. Some parts of rooms are accessible only through tunnels hidden behind furniture. Other buildings outside the walls simulate a street or market place and are well suited for conducting presence patrols.

In Week Five of BOLC II training, the officers practice room-clearing techniques as part of a three-day exercise. The central courtyard is perfect for four-man teams to rehearse entering and clearing rooms through both corner and center doors.

On Day One, officers rotate between breaching practice, moving within a building and entering/clearing a room. On Day Two, platoons rotate through multiple room clearings, presence patrols and advanced rifle marksmanship (ARM). Then the platoons attack to secure a building, engage in advanced-firing, quick-fire techniques and target discrimination on Day Three. The officers also conduct a force-on-force exercise that includes fighting against an eight-man well trained opposing force (OPFOR) while simultaneously practicing hallway, stairwell and staircase clearing plus seizing a priority human target from the city.

By the summer of 2006, the site will train 50 percent of all new officers entering the Army. Five companies of 220 officers will train in urban operations at this Fort Sill site, starting in June 2006.

IET Soldiers also train at Liberty City. Each battery selects Soldiers well into IET to demonstrate the urban operations situational-training exercise (STX) lane to Day-One recruits. After new recruits have completed their urban operations training in IET, the best are handpicked to demonstrate the urban operations lane to a class of new recruits.

The initial entry Soldier is on the cutting edge in terms of modern equipment. He wears the new Army combat uniform (ACU) and is equipped with the Interceptor body armor system (IBAS). To prepare for current operating environment (COE) operations, all Soldiers now undergo both day and night ARM training using M16A4 rifles equipped with the M68 close combat optic (CCO). Each Soldier fires live wearing PVS-7 night-vision goggles (NVGs) and weapons equipped with AN/PAC-4 lasers.

Arranged in a U-shape with a central gravel roadway, Liberty City consists of five clusters of MILVANs stacked and arranged as one- and two-story buildings. Walls adorned with Arabic writing surround the buildings. The city includes 100 doors and windows that open at all angles with corridors and internal and external staircases scattered throughout the facility. The insides of the buildings contain furniture to create a complex and realistic environment. Destroyed hulks and cement barriers lay outside the city to provide cover.

The Field Artillery Training Center (FATC), Fort Sill, built and opened Liberty City in 2005. The site can accommodate up to platoon-sized elements of IET Soldiers in a rotation of up to 256 Soldiers per day.

Freedom Town. In June 2005, IET Soldiers began conducting convoy and patrol missions to this wooded village. Soldiers identify suspected enemy weapons and ammunition caches and react to improvised explosive devices (IEDs) throughout the town. Squads also receive missions to deliver humanitarian rations and conduct presence patrols. Soldiers receive evaluations on the tasks

of manning a checkpoint, reacting to news media, conducting vehicle searches and providing first aid. In July 2005, the school placed a crashed helicopter near the south gate of the town for Soldiers to train on rescuing a downed pilot.

The FATC continues to improve and modify the town's facilities and layout to enhance IET training.

Camp Eagle. The NCO Academy's Warrior Leader Course (WLC), Basic NCO Course (BNCOC) and Advanced NCO Course (ANCOC) each conduct a 96-hour STX during Week Three at Camp Eagle. The STX focuses on the COE.

A major part of the STX is the student-conducted MOUT training. The students rotate through squad leader and team leader positions and conduct several dry-fire rehearsal missions before training with blank ammunition. The students plan, coordinate and conduct all aspects of their missions.

Students learn how to approach a building, avoid cross-linear danger areas and react to possible IED scenarios. Once the students reach a building, they configure into a four-man room clearing "stack," check for booby traps and maintain constant security. Students then move from room to room clearing closets, cubby holes and attic spaces. The small group leaders coach and critique them, and the students conduct an after-action review (AAR) for each run-through.

Once the students have trained properly, they conduct the mission with blanks in their rifles, running through all the tasks again. This time, the OPFOR is involved, and as the students clear each room, they must deal with force-on-force and possibly civilians on the battlefield. During all blank missions, small group leaders use smoke grenades and artillery simulators to increase the realism but always focus on the students' safety.

The benefit of the STX is that it allows those students who have already experienced combat to share their lessons learned with students who eventually will lead young Soldiers into harm's way. After all the training is finished, the students get a feel for real-world combat with the missions combined into a single mission.

Live- and Blank-Fire "Shoot Houses." The 4th Brigade, 75th Division (Training Support) conducts post-mobilization training of Army Reserve and National Guard Soldiers and active duty Air Force Airmen preparing to deploy to Iraq and Afghanistan through Fort Sill. These units come to train at Fort Sill from

Basic Officer Leadership Course (BOLC) II students work their way through the maze of rooms at Fort Sill's Liberty City. The building has posters dispersed throughout representing civilians and enemy soldiers. OPFOR soldiers lay in wait behind doors, stairs and under tables.

BOLC II students defend their forward operation base (FOB) perimeter against the OPFOR. A permanent, multimillion-dollar FOB is planned north of Fort Sill's Liberty City.

across the continental United States. As part of the prescribed training for these units, the brigade provides short-range marksmanship and close-quarters combat training, led primarily by the brigade's 1-289 Training Support Battalion out of Houston, Texas, known as *Task Force Liberty*.

The training takes place on a facility on the East Range where the Soldiers and Airmen learn techniques for target discrimination and reflexive fire under day and night conditions and also train on techniques for day and night building clearance. This training uses a number of structures designed to enable the progressive training of the techniques to increasing levels of complexity.

The capstone event is a *live-fire* building clearance exercise using a "shoot house" structure designed specifically and safely for this purpose. The Soldiers and Airmen also practice these building-clearance techniques with blanks in low-light conditions using night-vision devices.

Other urban operations training for mobilizing units incorporates the Liberty City complex into scenarios for advanced convoy mission exercises. Future training for these units will also incorporate the Urban Assault Course.

A Warrior Leader Course (WLC) student provides perimeter defense for some buildings recently secured by his squad during urban operations training at Fort Sill's Camp Eagle.

Urban Assault Course. The Army Corps of Engineers has built a new Urban Assault Course on West Range, north of Kerr and McKenzie Hills. The course is an installation range and soon will open to all units. Mobilizing units will have first priority for training on the Urban Assault Course; courses, such as WLC, will have second priority; and then Fort Sill and outside units' training will have third priority.

Work began on this project in February 2005 after six months of planning. The Corps of Engineers completed the Urban Assault Course in February. The main construction of the course cost 2.7 million dollars.

The course trains individual Soldiers, squads and platoons on tasks required to operate within urban areas. It has five stations with fully automated targets. Specific target scenarios are computer event-driven and scored from the Range Operations Center.

At Station 1, the individual and team trainers contain adjoining rooms with interior precision targetry and doors designed to be kicked in and replaced. The squad and platoon trainer at Station 2 is a U-shape along the lines of Liberty City.

Station 3 is a grenadier gunnery trainer

with damaged hulks and four bunkers arranged at varying distances. A two-story building with targets is at the end of the station. At Station 3, Soldiers fire M203 rounds at targets arranged in the trainer.

Station 4 is an urban offense/defense building, a large two-story mansion with roof access. Trainees will practice multiple-room clearing and platoon-sized operations at this station. The basement is accessed through a trap door. Station 5 is underground next to Station 4. Station 5's underground clearance facility leads directly to the basement of the urban offense/defense building.

In the future, Liberty City will feature Beamhit, the laser marksmanship training system (LMTS), or similar technologies. BOLC II Soldiers will train at a multi-million dollar FOB north of Liberty City. Mobilizing Soldiers will train at FOB Moway and train for urban operations at the new Urban Assault Course.

Fort Sill is on azimuth to expand training venues for urban operations. We are transforming our facilities to immerse the Soldier in the training he needs to become expert in the tasks he will have to conduct in the COE. Whatever the requirement to train the Soldier, Fort Sill will rise to the occasion.

Captain Sean D. O'Berry Commands D Battery, 1st Battalion, 79th Field Artillery Brigade (D/1-79 FA) (Initial Entry Training) at the Field Artillery Training Center, Fort Sill, Oklahoma. In his previous assignment, he deployed from March 2003 through March 2004 with the 41st FA Brigade Tactical Operations Center (TOC) during Operation Enduring Freedom (OEF) as a Night Operations Officer coordinating the suppression of enemy air defense (SEAD) targets, targets of opportunity and destruction of enemy air defense (DEAD) targets. During Operation Iraqi Freedom (OIF) I and II, Captain O'Berry was the 41st FA Brigade Liaison Officer (LNO) orchestrating the consolidation of enemy ammunition operations from Ar Ramadi/Al Fallujah from September to March 2004 with the 82nd Airborne Division Artillery and in Baghdad from June to September 2003 with the 1st Armored Division.

This building is part of the Urban Assault Course and where Soldiers train to clear multiple rooms.

A squad of eighth-week BCT Soldiers works its way through an urban assault during a demonstration for new BCT arrivals.

A Basic Officer Leadership Course (BOLC) II lieutenant begins a room search at Fort Sill, Oklahoma's Liberty City. Posters of insurgents, civilians and children are positioned within the multi-story buildings as well as opposing forces (OPFOR).

New BOLC II at Fort Sill

By Major M. Shayne Mullins
Photos by Fred W. Baker III

The new Basic Officer Leader Course (BOLC) II, part of the transformation of the officer education system (OES), is being taught at Fort Sill, Oklahoma, one of only two posts in the Army where it is being taught. The other post is Fort Benning, Georgia.

BOLC, the transformed initial and military entry training for second lieutenants, comes in three phases. The phases emphasize warrior training and leadership development to meet the Army's needs in the Global War on Terrorism (GWOT) and for the future combat system (FCS) force.

BOLC I is a pre-commissioning phase. It standardizes cadet and junior officer development across the Army, regardless of the commissioning sources.

BOLC II is a six-week warrior leader course for all lieutenants, regardless of branch. It has integrated, problem-based training that incorporates lessons learned in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) and multi-cultural awareness and focuses on developing adaptive leaders. BOLC II is about 90 percent field and tactical training and is designed to produce officer warriors who can lead Soldiers in the complex, ambiguous, rapidly changing contemporary operating environment (COE).

Fort Sill and Fort Benning conducted an initial course for BOLC II in January 2006 to be followed by the full implementation of BOLC II at Fort Sill and Fort Benning, starting 4 June 2006.

More than 4,500 new BOLC II lieutenants will train at Fort Sill in 2006 with an estimated 5,000 in 2007 and more than 6,000 BOLC II students at Fort Sill in FY09.

BOLC III is replacing the branch officer basic courses (OBCs). The FA BOLC III teaches technical branch-specific skills in a tactical field environment, emphasizing leadership and digitization training. All OBCs are now referred to as BOLC III.

BOLC II Organization and Training. Each of the four BOLC II companies at Fort Sill is commanded by a major and task organized into five platoons with a captain and sergeant first class as platoon mentors. Each platoon is comprised of four squads with a staff sergeant mentor in charge of each squad. The cadre-to-second lieutenant ratio will be a remarkable 1:10.

During the *first week*, the lieutenants assume leadership responsibilities of in-processing a new "unit" through a mass reorganizing, staging and integration for their entire company in five days. The cadre issues the lieutenants an operations

order (OPORD) that requires them to draw new equipment, participate in medical screening and physicals, update their finances and medical records, complete pre-combat inspections and counseling, and close with student-led after-action reviews. This "Road to War" transitions them to week two.

In the *second week*, the students go through troop-leading procedures and basic marksmanship rifle training. Some marksmanship tasks are mechanical zeroing, grouping, zeroing and field fire. Other tasks help the students identify their internal weaknesses in the fundamentals of marksmanship and how to use field-expedient methods to overcome them, methods such as peer coaching, sighting devices, aiming cards and dominant-eye training aids.

In the *third week*, trainees learn about US small arms weapons and other equipment and become proficient at firing the M2 Browning .50-caliber heavy machine gun or M240B crew-served machine gun, M249 squad automatic weapon and the AT4 rocket launcher.

The students also become familiar with the Army's newest equipment in case they will use it in their first assignments. The equipment includes close combat optics, the AN/PAQ-4 laser and the AN/PVS-14 night-vision device.

Week four is scenario-driven. The lieutenants receive additional combat orders while living in a realistic forward operating base (FOB). In this environment, the lieutenants experience decentralized operations by platoons or squads and learn to protect the force during tactical movements. This includes conducting convoys in realistic, complicated situations. The orders are modified periodically so the lieutenants must use dismounted land navigation to link-up points to find their next transportation or pick-up point.

In week four, the lieutenants also face personal challenges as they begin training in Combatives Level 1.

In *week five* during the urban operations exercise, the lieutenants may have some hand-to-hand combat. Understanding that the mission might be to deny insurgent forces the use of a facility or an entire city, they lead several platoon attacks to complete key tasks: secure a building, clear a room, exercise the rules of engagement (ROE) or seize a critical resource or person.

The urban operations scenario produces casualties and induces stress. It factors in religion, ethnicity, history, government, demographics, leadership and other personalities that could increase the commander's risks if his actions have unintended effects. All these factors complicate decision making.

BOLC II lieutenants aggress the OPFOR during an attack on the forward operating base (FOB).

Urban areas like the one just built at Fort Sill, commonly called "Liberty City," provide a casualty-producing and stress-inducing environment ideally suited for BOLC II training. The Field Artillery Training Center officially completed Liberty City in December 2005. The site was designed to handle multiple squads and platoon-sized elements up to 256 Soldiers per day. With five clusters of military vans (MILVANS) stacked and arranged as one-, two- and three-story buildings with hundreds of doors, windows and external staircases throughout the facility, it is a complex and realistic environment that is perfect for adaptive leaders to train in.

In *week six*, the lieutenants transition to 24-hour operations in the COE. This week culminates with the entire company using a training FOB to conduct missions, such as quick-reaction force (QRF), logistical resupply, search and attack, FOB security and more.

BOLC II is designed to produce self-aware, adaptable leaders trained in warrior tasks and warrior battle drills who live the Warrior Ethos and Army values.

BOLC II Future. Beginning in FY09,

BOLC II lieutenants learn hand-to-hand combat during combatives training.

A BOLC II lieutenant fires from behind a concrete barrier after dismounting during the convoy live-fire exercise.

the warrant officer education system (WOES) will be integrated into BOLC II, bringing an additional 1,000 students per year to Fort Sill. Thus, all newly appointed warrant officers will attend BOLC II.

With the increase in BOLC II students, the FA School's 30th Field Artillery Regiment (30th FAR) will grow by an additional company. For BOLC II, Fort Sill is adding more barracks, opening more dining facilities and constructing a four-lane highway at the entrance to the post to facilitate the new infrastructure.

More than $430,000 was invested to build Liberty City for BOLC II urban operations training.

Fort Sill is constructing a $4.1 million FOB to support BOLC II training, which is projected for completion in July 2006. Currently, Fort Sill is using the FOB that was built for mobilizing units deploying to support OIF. The FOB is realistic and represents a tactically accurate battlespace in the COE.

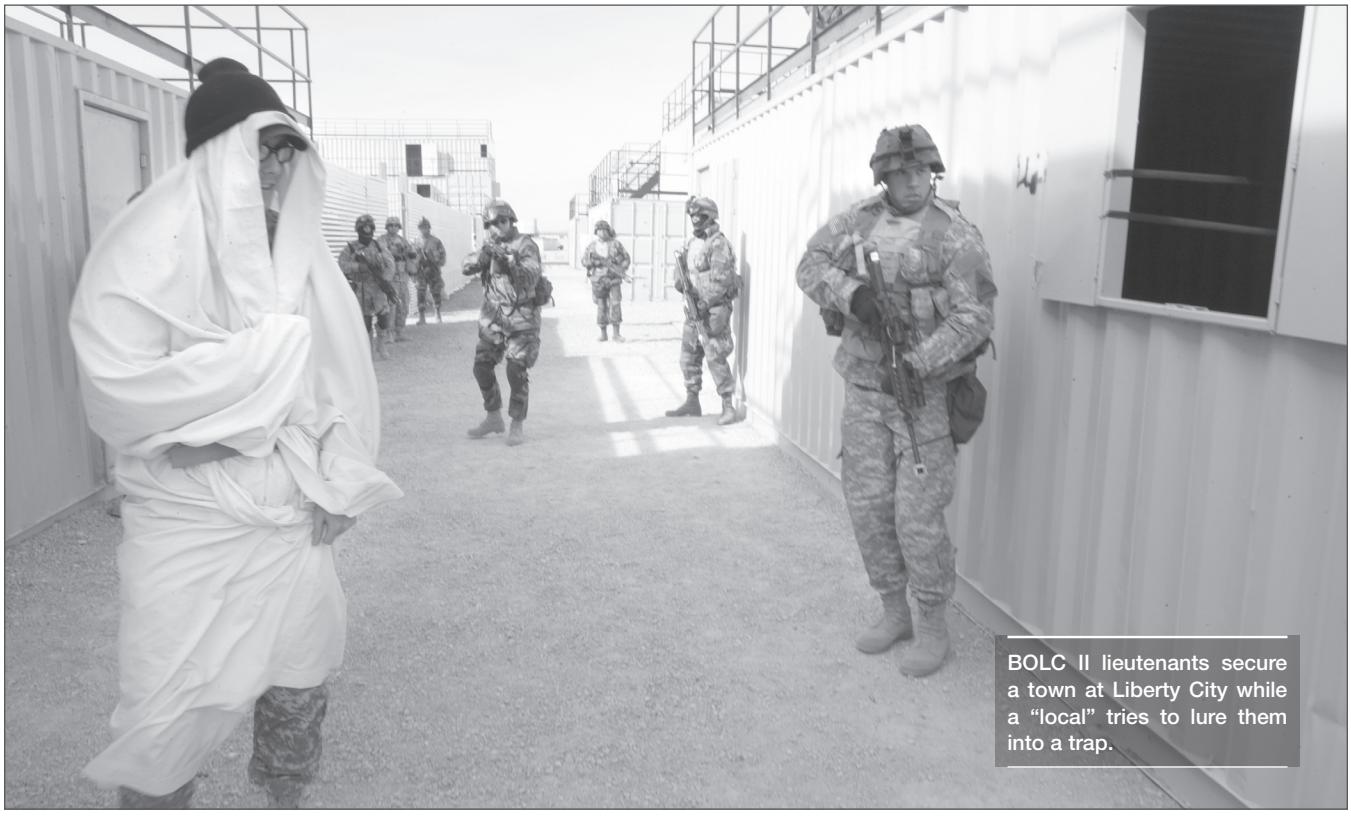
By the year 2010, Fort Sill will finish another multi-million dollar FOB designed to support the concurrent training of five BOLC companies. It will have solid structures, permanent showers and latrines, and, possibly, a gym.

If readers are interested in learning more about BOLC II, they can visit Fort Sill's BOLC II website at http://sill-www.army.mil/bolc2. Since the website was established in January 2006 more than 16,800 people have accessed the site.

In the past, the Army culture has been task-centric and we have excelled at "task-centric training." We knew who the enemy was and where the fight was going to take place. Not so in GWOT.

Military operations in the COE today and in the future call for more capable officers earlier. BOLC II is part of the OES transformation to produce those more capable officers for today and the FCS force of tomorrow.

Major M. Shayne Mullins is the Commander of the new Basic Officer Leadership Course (BOLC) II, Company B, 1st Battalion, 30th Field Artillery Regiment (B/1-30 FAR), Fort Sill, Oklahoma. Previously, he was a Small Group Instructor for the Field Artillery Captain's Career Course at the FA School, also at Fort Sill. In other assignments, he commanded B/2-15 FAR and served as the Assistant S3 for 2-15 FAR in the 10th Mountain Division, Fort Drum, New York. While in the 10th Division, he deployed to Operation Anaconda in Afghanistan as the Aide de Camp to the Division Commander. He is a graduate of the Basic NCO Course at Fort Bragg, North Carolina, the Officer Candidate School at Fort Benning, Georgia, and the Command and General Staff College at Fort Leavenworth, Kansas. He is airborne-, air assault- and ranger-qualified.



BOLC II lieutenants secure a town at Liberty City while a "local" tries to lure them into a trap.

Making the Transition from FA Battalion Staff to Maneuver Task Force Staff

By Major Jeffrey T. O'Neal

Field Artillery (FA) battalions throughout the Army have performed maneuver task force (TF) missions in Iraq and Afghanistan. They have reorganized their batteries and platoons and retrained their Redlegs to accomplish tasks normally associated with the infantry. Brigade combat teams (BCTs) also have attached traditional maneuver units to FA battalions to increase their combat power, units such as infantry, armor and engineer platoons or companies. FA battalions acting as maneuver TFs have defeated insurgencies in their areas of operation (AOs) and routinely have conducted raids, cordon and searches, combat patrols and security missions. Redlegs also have trained Iraqi Army and Afghan National Army troops as well as police and other security forces.

Strong NCO leadership, attention to detail and rigorous adherence to standards—traits historically associated with Field Artillerymen—have paid huge dividends in the FA transition to maneuver at the battery and platoon levels. Young, aggressive Soldiers teamed with assertive, steady NCOs and junior officers have shown that Field Artillerymen thrive in the role of motorized infantrymen. To enable FA batteries and platoons to make the move to motorized infantry, the FA battalion staff must make an important transition. It must reorganize and train as a maneuver TF staff to go from providing fires to a BCT to defeating insurgents in a TF AO. Many FA battalions have achieved this transition. However, upon redeployment, these FA battalion staffs once again will focus on their fire support mission yet might have to deploy again as a maneuver TF within a year. Given troop-to-task deficiencies and the constrained use of artillery in a counterinsurgency fight, FA battalions serving as maneuver TFs will continue to be viable options for BCT commanders.

Manning and equipment authorizations under traditional FA modified tables of organization and equipment (MTOEs) have challenged FA battalions serving as maneuver TFs, and the new MTOEs for fires battalions in the heavy, infantry and Stryker BCTs do not resource their fighting as maneuver TFs.

This article discusses how to reorganize an FA battalion staff to transition to a maneuver TF. It outlines what an FA staff needs in that process, such as specific personnel and equipment.

Maneuver TF Staff. When operating as a motorized infantry TF in a stability and reconstruction operations (S&RO) environment, an FA battalion's actions differ from the traditional direct support (DS) FA battalion's actions while operating in a mid- to high-intensity conflict. In this conflict, the battalion acts as a brigade support unit. It conducts parallel planning with the brigade staff, derives essential FA tasks (EFATs) from brigade essential fire support tasks (EFSTs) and conducts the "artillerized" version of the military decision-making process (MDMP). This results in the FA support plan (FASP). The FA battalion commander, acting as the brigade's fire support coordinator (FSCOORD), plays a major role in brigade planning and advises the brigade commander on fire support.

As an FA battalion transitions to the maneuver TF role, it must adjust its planning process. The battalion commander becomes a tactical commander responsible for his AO. The battalion must conduct a thorough intelligence preparation of the battlefield (IPB) of its AO, conduct an independent MDMP and produce TF operations orders (OPORDs). As operations continue in a lengthy deployment, the battalion staff must develop its own intelligence and conduct lethal and nonle-

2nd Battalion, 15th Field Artillery (2-15 FA), a maneuver task force in the 10th Mountain Division, on patrol in Iraq.

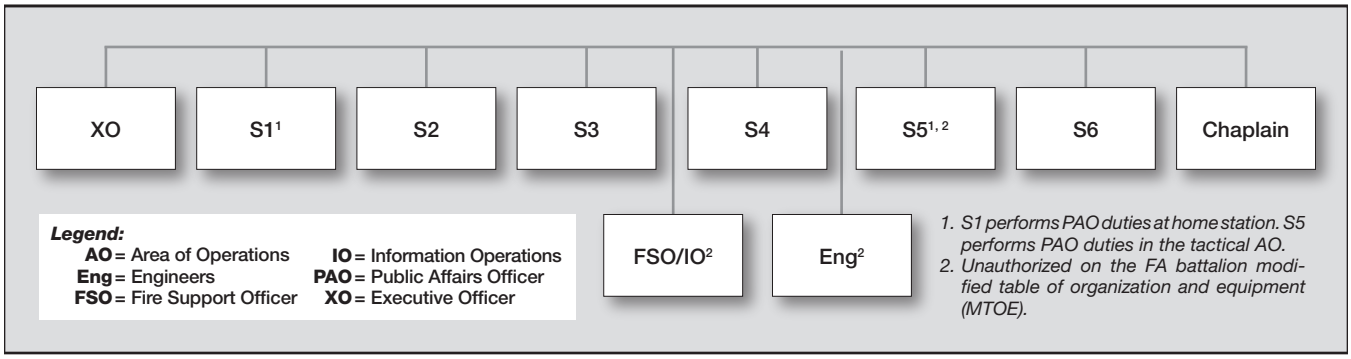


Figure 1: FA Battalion Staff Transformed into a Task Force (TF) Staff

Duty Position	MOS	Rank	Quantity	Remarks
S2	35D00	CPT	1	MI officer is unauthorized.
Tactical Intel Officer*	35D00	1LT	1	Unauthorized. FA officer fills it, if an MI officer is unavailable.
Intel Sergeant	13Z50	MSG	1	
Intel Sergeant*	96B30	SSG	1	Unauthorized. FA NCO fills it if a 96B30 is unavailable.
Intel Analyst	96B20	SGT	1	
Intel Analyst	96B10	SPC	4*	Only 1 x 96B10 is authorized. 3 x FA series if additional 96B10s are unavailable.

**Unauthorized in most FA battalion MTOEs.*

Military Occupational Speciality (MOS) Designations
13Z = Field Artillery E8 **35D** = Military Intelligence (MI) Officer **96B** = Intelligence Analyst

Figure 2: S2 Section for Maneuver TF Operations

thal targeting to drive TF operations.

The maneuver TF must plan and coordinate information operations (IO), lethal fire support and civil-military projects in the full spectrum of operations. New staff positions must be created, current staff positions strengthened and traditional roles altered to enable successful TF operations in a counterinsurgency fight. (See Figure 1.)

Battalion Executive Officer (XO). The FA battalion XO's role is the first to change. As a maneuver TF XO, he must embrace the roles of the second-in-command, chief of staff, leader of the MDMP, director of the targeting process and the tactical operations center (TOC) officer-in-charge (OIC). These critical duties go beyond the FA battalion XO's traditional role as the battalion's logistics and maintenance manager. The XO must know and direct the MDMP and be familiar with the targeting process and heavily involved in battalion operations.

While the XO does not supplant the S3 in his duties to direct units in the AO, he must be the TOC OIC to manage the battalion's resources properly and coordinate with higher headquarters. This contrasts with the FA battalion XO's image of staying in the administrative logistics operations center (ALOC) while the S3 runs the battle from the TOC. In S&ROs' steady state, the logistical burden of Class III and V is not as demanding as in a high-intensity conflict. The S4 can do many of the logistical duties that once required the XO's direct action.

Intel Section. The FA battalion must have a robust S2 section with ample personnel and military intelligence- (MI)-trained officers. Intelligence drives operations in a counterinsurgency, and the S2 section is the key to the success of the TF's reliance on human intelligence.

Most FA battalion MTOEs have no Fort Huachuca-trained MI officers in the S2 section and only two intelligence analysts. This is in stark contrast to infantry battalions that often have one MI captain as the S2, one MI lieutenant as the tactical intelligence officer, one sergeant first class (SFC) intelligence sergeant, and one sergeant and four enlisted intelligence analysts.

Again and again, FA officers have proven themselves as S2s, focused on the enemy's counterfire capabilities and their positioning of Firefinder radars. However, MI officers are best suited and trained for the counterinsurgency fight, given the demands of bottom-up intelligence analysis. The TF S2 section has an intense workload.

Because Soldiers on patrol usually unearth the best intelligence, the S2 must establish systems to ensure that priority intelligence requirements (PIR) are disseminated, tracked, analyzed and refined. The S2 must ensure that patrols receive thorough patrol pre-briefings and debriefings and that the information Soldiers provide after patrols is analyzed.

The S2 section must ensure that targeting products always are available, relevant and timely. It must glean intelligence from higher headquarters, submit reports and process detainees and evidence. The S2 requests and plans intelligence, surveillance and reconnaissance (ISR) assets, such as unmanned aerial vehicles (UAVs). It also screens and manages interpreters.

Manned in accordance with the FA battalion MTOE, the S2 cannot accomplish these tasks while simultaneously maintaining a 24-hour presence in the TOC.

In a best-case scenario, the FA maneuver task force S2 section would have the personnel listed in Figure 2. This manning would allow the section to plan, analyze, update reports, process detainees and evidence, and conduct 24-hour operations with a senior lieutenant or master sergeant (MSG) in charge while the S2 is in meetings or conducting operations. This manning also promotes continuity in the S2 section when personnel are on environmental leave from theater.

In reality, getting all of the additional MI personnel is not likely. The FA battalion, at least, should provide the S2 an above-average senior lieutenant as the tactical intelligence officer, one smart 13 Series staff sergeant (SSG) and three talented 13 Series Soldiers.

TF S3. The FA battalion S3 must become

an expert in conducting combined arms operations; operating units as maneuver; and integrating infantry, armor, aviation and engineers into TF operations, often in urban or complex terrain. He must plan and synchronize operations with Special Operations Forces (SOF) in the AO. He also must be aware of other elements operating in the TF AO, such as military police, local police, Iraqi or Afghan Army forces, local security forces and civilian contractors.

Based on unpredictable intelligence, the S3 must plan operations quickly and accomplish those missions the same as other maneuver TFs but without the same assets, such as snipers, scouts and mortars. (See Figure 3 listing the personnel required for the S3 section of a maneuver task force.)

The operations section must be manned and organized so it can plan for future operations, fight the current operation in the TOC and maintain 24-hour operations simultaneously. FA Battalion MTOEs do not resource these requirements. The S3 must have a plans officer, an operations officer and many strong NCOs to run daily operations. Current MTOEs authorize FA battalions one FA captain operations officer, one MSG operations NCO, one SFC master gunner/operations NCO, one chemical officer and a nuclear-biological-chemical (NBC) NCO.

The FA battalion must assign a captain to serve as the plans officer. This officer could come from within, or the TF could request an infantry captain from the BCT headquarters. An infantry captain would provide experience as an infantry platoon leader or company XO when planning maneuver operations.

The TF also must assign more senior NCOs to help the operations sergeant work from the TOC and manage troop-to-task requirements. At a minimum, another SFC and two SSGs are needed to supervise radio-telephone operators (RTOs), track and monitor patrols in the AO, ensure that actions and reports are logged, submit required reports and manage taskings.

Because of fewer fire missions, the fire direction center (FDC) can provide NCOs for leadership in the TOC and Soldiers for RTO duties. The battalion's survey and meteorological (Met) section also can provide NCOs and Soldiers for these duties.

TF Engineer. He helps the staff plan and execute operations that require increased force protection, such as securing polling sites during elections and establishing new forward operating bases (FOBs). He must be an experienced captain, senior lieutenant or NCO who has expertise in construction, barrier and obstacle emplacement and quality control. He also helps the S5 manage and inspect civil construction projects.

The TF should request an engineer from the BCT headquarters or directly from the nearest engineer unit.

TF Fire Support Element (FSE). The TF must establish a battalion FSE to coordinate lethal and nonlethal fires and effects. The battalion fire direction officer (FDO) is a logical choice to be the fire support officer (FSO). He has the equipment and radios to enable planning and coordination. The FDO/FSO implements the TF's IO campaign, takes charge of consequence management for the TF and is an integral part of the TF's targeting process.

If not being used for specific duties in the TOC, the FDC personnel provide a cohesive FSE team led by senior NCOs who are familiar with delivering cannon fires, battle tracking and communications. If possible, assigning a 13F SFC to the FSE greatly enhances the FSE's experience and knowledge of all fire support systems. (See Figure 4 on Page 34.)

S5 Section. The battalion must establish an S5 section for civil-military operations (CMO). The S5 is potentially the most influential staff member in the TF AO. He must be an aggressive, experienced captain with troop-leading experience at the battery or platoon level, and he must have an experienced senior NCO as his assistant.

Often, the TF will have a civil affairs team-Alpha (CAT-A) attached during operations. The S5 supervises the CAT-A to ensure the TF commander's intent for CMO is met. He works in conjunction with the CAT-A to develop civil projects, coordinate funds and interact with local political and religious leaders and often acts as the TF representative.

Due to his daily interaction in the AO, the S5 also must have dedicated combat power for his patrols to ensure that he is not "hitching rides" with other patrols that have their own priorities.

The TF must assign public affairs officer (PAO) duties to inform both the people in the TF's AO and the public about TF activities, including family members at home station. Units traditionally assign PAO duties to the S1; however, for public affairs in the TF's AO, the S5 is a better choice. The S5 is more familiar with the TF AO, including civil projects and local leaders, and has connections with the local media.

Duty Position	MOS	Rank	Quantity	Remarks
S3	13A00	MAJ	1	
Ops Officer	13A00	CPT	1	
Plans Officer*	11A00	CPT	1	Unauthorized.
Chemical Officer	74A00	1LT	1	
Ops SGT	13Z50	MSG	1	
Ops SGT/Master Gunner	13B40	SFC	1	
Assistant Ops SGT*	13B40	SFC	1	Unauthorized. Can place 13F/D30 in the position.
Assistant Ops SGT*	13B30	SSG	2	Unauthorized. Can place 13F/D30 in the position.
Chemical NCO	74B30	SSG	1	
Chief of Survey	13S30	SSG	1	
FA Tactical Data Systems (FATDS) Specialist	13D10	SPC/ PFC	6*	Total # unauthorized. Need 6 for 24-hour radio telephone operator (RTO) coverage/other duties. Can use personnel from the battalion fire direction center (FDC).

**Unauthorized in most FA battalion MTOEs.*

MOS Designations
11A = Infantry Officer
13A = Field Artillery Officer
13B = Cannon Crewmember
13D = FATDS Specialist
13F = Fire Support Specialist
13S = FA Surveyor
74A = Chemical Officer
74B = Chemical NCO

Figure 3: Operations (Ops) Section for Maneuver TF Operations

Duty Position	MOS	Rank	Quantity	Remarks
TF FSO/IO	13A00	CPT	1	Battalion Fire Direction Officer (FDO)
TF Fire Support NCO (FSNCO)*	13F40	SFC	1	A 13F40, if available.
Assistant TF FSNCO	13D40	SFC	1	Chief of Fire Control SGT
Assistant TF FSNCO	13D30	SSG	1	Fire Control SGT. Can help Ops Section with tactical operations center (TOC) duties.
TF Fire Support SGT	13D20	SGT	1	Fire Control SGT. Can help Ops Section with tactical operations center (TOC) duties.
FATDS Specialist	13D10	SPC/ PFC	5	Can help Ops Section w/RTO or driver duties.

**Not organic to the battalion FDC.*

Figure 4: Battalion FDC Transition to a TF Fire Support Element (FSE)

The S5 can develop relationships with the local media and better organize media events around civil projects. With his own patrol, the S5 can respond to media events in the TF AO and escort the international media. The S1, however, should provide news to the families back home in the form of family readiness group newsletters and postings to the TF's website.

Other Staff Sections. The S1, S4 and S6 do not necessarily change their organization or duties to transition from FA operations to maneuver operations, but each must change its focus. The S4 must acquire equipment not normally authorized for FA units but essential for maneuver operations. This equipment includes sniper rifles, shotguns, weapons optics, night-vision devices, breaching tools and other infantry equipment. The S6 must focus on dismounted radio systems for repairs and parts as well as improving FM communications in urban terrain.

Providing they have capable NCOs in their sections, the S1, S4 and S6 can help the TOC with duties as night battle captain. By rotating the night battle captain weekly, the TOC conserves manpower by not having one officer dedicated solely to night duties and has an experienced staff officer who can provide TOC leadership if the XO or S3 is not available.

With the change to modularity, most FA battalions now have an improved medical capability with more personnel and evacuation vehicles. The addition of a medical platoon leader is included in these improvements.

The medical platoon leader's duties include medical planning for the task force. He must be incorporated in all of the task force's planning to include the MDMP and targeting process. He provides recommendations for the task force's evacuation plan, using external and internal assets, and coordinates for the use of the external assets. The medical platoon leader also recommends the positioning of medical personnel and ambulances throughout the task force AO and provides feedback on the supportability of courses of action (COAs) from the medical coverage standpoint.

Integrating the medical platoon leader into task force planning allows the physician's assistant (PA) to focus on treatment. If FA battalions do not have a medical platoon leader, the PA must be trained in the planning process and be an active participant in task force planning.

These recommendations for reorganizing the FA battalion staff for maneuver TF operations are gleaned from observing units that have successfully made this transition and from personal experience. Requirements will differ, based on specific mission and geographical assignment, but the additional staff positions and required personnel is a baseline for units' preparing to deploy as a maneuver TF. Ideally, these personnel will be available; if not, the commander's priorities will drive the decisions for manning.

Maneuver TF Operations. The FA battalion staff must become familiar with its maneuver TF staff duties through home-station training and daily operations before deployment. All staff members should participate regularly in MDMP exercises emphasizing maneuver TF operations in S&RO. This training must include those staffers in unauthorized duty positions, such as FDO/FSO and S5.

In Iraq and Afghanistan, TFs are using the decide, detect, deliver and assess (D^3A) targeting methodology to plan and synchronize weekly operations. The staff should establish its targeting meeting structure for lethal and nonlethal operations while at home station and use that meeting to synchronize garrison and field training weekly with all staff members. As much as possible, the S3, S2 and other staff sections should run daily garrison operations just as they would from a TOC during deployment.

All staff members must become familiar with infantry operations by studying the applicable field manuals (FMs) and observing infantry training. The XO and S3 should visit infantry TOCs and discuss staff procedures, TOC structure, TOC battle drills and standing operating procedures (SOPs) with their infantry counterparts.

In Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF), FA battalions have demonstrated that they can perform as maneuver TFs very effectively. The FA battalion staff's familiarity with detailed systems and the D^3A targeting process gives it an advantage over the traditional maneuver TF in conducting S&RO.

FA battalions must accept that they will be called upon to act as maneuver TFs in Iraq, Afghanistan and future conflicts in the Global War on Terrorism, even while conducting fire support missions. They must be able to deliver not only timely, accurate and devastating fires, but also prepare their staffs and units to conduct successful maneuver TF operations.

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Operation Red Net: A Dynamic Plan for a Fires Branch

D/3-43 ADA, Al Udeid Air Base, Qatar. US Air Force photo by MSgt Terry L. Blevins

Change has a considerable psychological impact on the human mind. To the fearful, it is threatening because it means that things may get worse. To the hopeful, it is encouraging because things may get better. To the confident, it is inspiring because the challenge exists to make things better.

King Whitney Jr.
Wall Street Journal, 7 June 1967

By Major L. Cristine Gibney, ADA

In his article, "Is It Time for Air Defense Artillery and Field Artillery to Merge?" which appeared in both *Air Defense Artillery* (January-March) and *Field Artillery* (January-February), Colonel Mark McDonald, the Assistant Commandant of the Field Artillery School, challenged both Air Defenders and Field Artillerymen to open the debate regarding a branch merger.[1] This article is in response to that challenge. It is time to take an active role to ensure that we "worshipers of Saint Barbara" serve the Army as well in the future as we have in the past.

End of a Great Organization or a New Beginning? Great organizations recognize a changing environment and make adjustments to survive. February 2006 marked the end of the Western Union telegram, an American institution for 154 years. Why is this relevant to a branch merger? Because Western Union changed to survive; it is now a financial services company instead of a communications company.[2]

The company spokesman commented, "[T]he decision was a hard decision because we are fully aware of our heritage."[3] Western Union traded its historical identity for progress. That is a little sad but also inspiring because the company keeps its heritage as it moves toward future successes.

Field Artillery and Air Defense Artillery can learn from Western Union. We can keep our rich heritage while we create a new, dynamic future.

Like Western Union, the first step is to eliminate our visceral response to the concept of a branch merger. We must be honest about the arguments we make against a merger—how many are analytical arguments and how many are based on feelings?

- An HBCT has _____ infantry battalions.
- An armored reconnaissance squadron has _____ M1 Abrams tanks.
- A fires battalion has _____ M7 Bradley fire support team vehicles (BFISTs).

Figure 1: Transformation Quiz—Heavy Brigade Combat Team (HBCT) Force Structure

There are so many changes in the Army right now that it is difficult to digest them. We are involved in a long war and must be prepared to do what is best for the Army and the nation.

In the case of Western Union, given email and cell phones, can you think of any reason why anyone might send a telegram? We must avoid the temptation to insist the Army keep "telegrams" and, instead, base our capabilities on the transformed Army's requirements.

The Army is in the middle of transformation and already has made significant changes outside of the ADA and FA worlds. We are moving rapidly out of the "Black-Boot Army" to an Army that wears tan boots and whose combat uniform includes no branch insignia.[4]

And just how much do you know about that transformation? Test your knowledge of the organization of the new heavy brigade combat team (HBCT) by taking the Transformation Quiz in Figure 1. Bear in mind that the HBCT is the centerpiece of the transformed force—along with the infantry BCT (IBCT) and Stryker BCT (SBCT).

The answer to all questions in Figure 1 is "zero." HBCTs have two *combined arms* battalions (CABs) that include two armor companies; two infantry companies; one engineer company; one

headquarters and headquarters company (HHC) with sniper, scout and mortar platoons and a fire support element (FSE); and one forward support company (FSC). The HBCT's armored reconnaissance squadron (ARS) is equipped with M3 Bradleys and M1114 up-armored high-mobility multipurpose wheeled vehicles (HMMWVs) but *no* M1 Abrams tanks. Finally, the HBCT has 11 Bradley fire support team vehicles (BFISTs)—but these BFISTs are assigned to the CABs and ARS. The HBCT's fires battalion has two Paladin self-propelled howitzer batteries and radars but *no* BFISTs.

New Organization, New Paradigms. Why are the nuances of the HBCT modified table of organization and equipment (MTOE) relevant to an article about the future of ADA and FA? It helps put transformation into context. Radical changes are happening all around us.

In accordance with the Base Realignment and Closures (BRAC) Commission recommendations, which have passed into law, the Armor School is moving from Fort Knox, Kentucky, to Fort Benning, Georgia, where it will be collocated with the Infantry School to form the Maneuver Center of Excellence (CoE). This consolidation, which parallels the BRAC collocation of the Air Defense Artillery School and Field Artillery School to form the Fires CoE at Fort Sill, Oklahoma, is just getting underway and will take years to complete.

However, our infantry and armor brothers already are assigned together in the same battalions. The CAB commander's vehicle is an M1A2 system enhancement package (SEP) Abrams tank. Why is that significant? A battalion commander wearing infantry brass is now a member of a tank crew.

If we can put an infantryman in a tank, it is time to consider putting an Air Defender in a BFIST.

Do the Branches Have Enough in Common? In their article, "ADA and FA: Finding Common Ground" that also appeared in both branch magazines, Colonel Gregory C. Kraak, Director of the Future Force Integration and Concepts Division at the Field Artillery School, and Colonel Harry L. Cohen, Director of Combat Developments in the Air Defense Artillery School, discuss common synergies between the branches.[5] I could make arguments that Air Defense should fall under the Fires CoE or the Maneuver Support CoE—but all arguments are academic.

The bottom line is that both artilleries operate in airspace, use radars and complex cuing systems and must develop their courses of action to support maneuver operations.[6]

As a newly transformed HBCT, the brigade I am assigned to, 2nd BCT, 1st Cavalry Division (1st Cav), at Fort Hood, Texas, is working through roles and responsibilities within the staff. The current relationship between the fires and effects cell (FEC) [now called the fire support cell, or FSC] and the air defense airspace management (ADAM) cell is a source of friction.

Field Manual (Interim) 3-90.6 Heavy Brigade Combat Team states that the fire support coordinator (FSCOORD) is responsible for all planning, coordination and execution of lethal and nonlethal effects.[7] However, the ADAM and brigade aviation element (BAE) cells are part of the maneuver and maneuver support section in the HBCT main command post (see Figure 2). The ADAM and BAE cells together comprise the HBCT's Army airspace command and control (A^2C^2) capability. With this configuration, we have doctrinally established a system that functionally separates the air liaison officer (ALO) in the FEC (called the "Fires and Effects Section" in Figure 2) from the aviators and Air Defenders

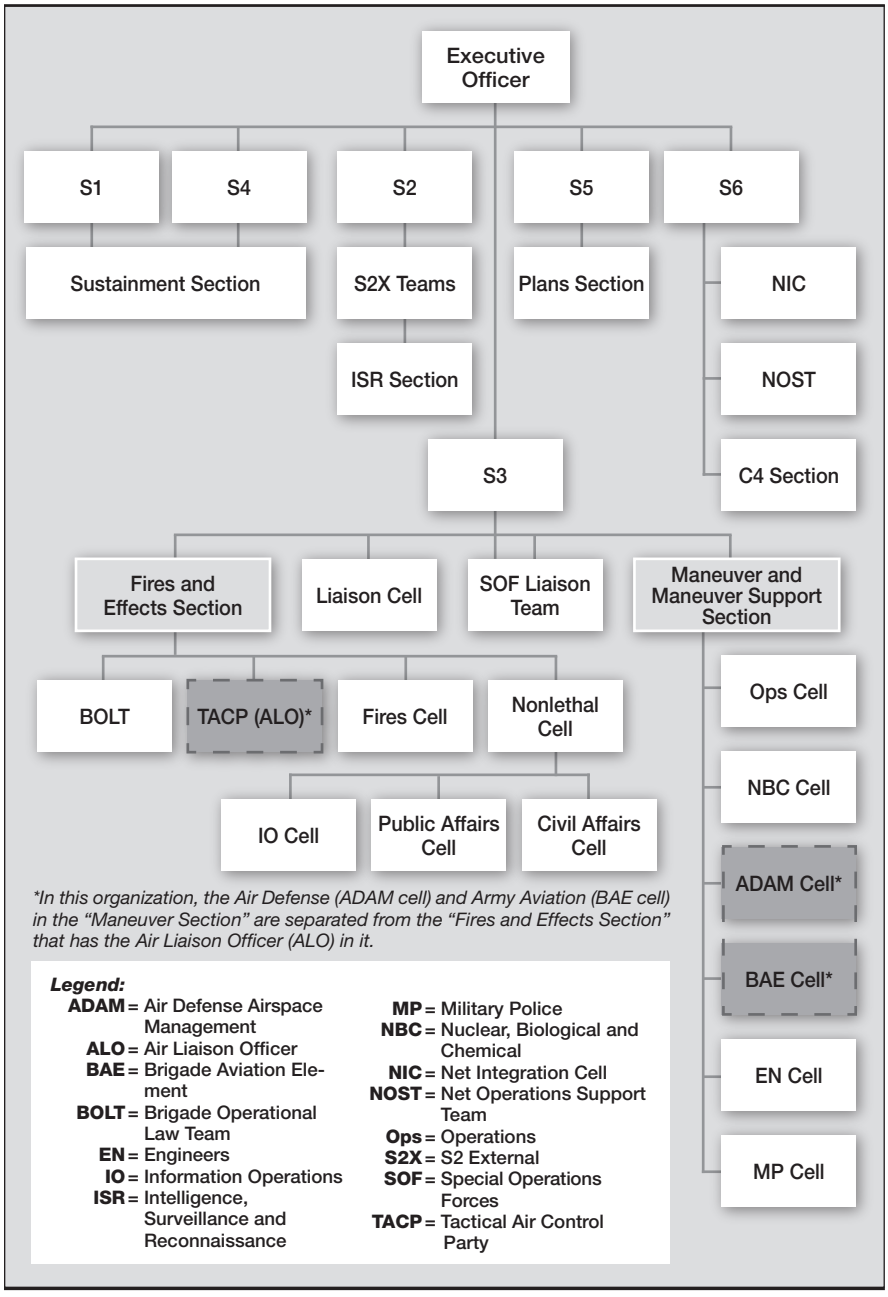

Figure 2: Heavy Brigade Combat Team (HBCT) Main Command Post (Main). This figure was taken from *Field Manual (Interim) 3-90.6 Heavy Brigade Combat Team*, B-5.

in the maneuver support section on the staff.[8]

There might be a reason to separate the main players physically but it is not clear why we've organized this way as we struggle functionally to make the main command post work. I suggest we fuse the ADAM and BAE cells with the FEC, based on the dysfunctional arrangement of the current HBCT organization.

Can we make it work without fusing the ADAM and BAE cells with the FEC? Absolutely. But we have designed a less than optimal construct. Why did we do that? From the point of view of someone trying to execute this doctrine, the dysfunctional organization appears to be more a result of parochial concerns than of a commitment to optimize functions.

ADA and FA Have Adaptive Soldiers—A Characteristic Facilitating Change. If you look at the current operating environment, both branches are filled with adaptive Soldiers. This common trait was evident in Operation Iraqi Freedom (OIF). During OIF II, the ADA battalion attached to MultiNational Division-Baghdad (MND-B) under the 1st Cav operated as a heavy/motorized infantry battalion. The 4th Battalion, 5th Air Defense Artillery (4-5 ADA) was responsible for Route Irish, the (in)famous Airport Road that links Camp Victory to the International Zone. The battalion's M6 Bradley Linebackers operated as M2 Bradleys. D/4-5 ADA, the Avenger battery, served with the 1st Cav Division Support Command (DISCOM) and performed convoy security missions.

Field Artillery has bragging rights as well. The 1st Cav's Division Artillery (Div Arty), also known as *Red Team*, became the division's fifth organic maneuver brigade. *Red Team* not only commanded and controlled an armor battalion and the ground companies from the division's cavalry squadron, but also exercised command and control (C^2) over a Marine battalion as well as Iraqi National Guard and Intervention Force battalions.

These examples demonstrate how Air Defense Artillery and Field Artillery Soldiers have a tradition of adaptive behavior. Both branches rose to the occasion when the 1st Cav asked them to operate in combat outside of their normal skill sets. This trait will help merge both forces in future endeavors.

Operation Red Net—A Plan for Change. So, how do we integrate the branches? *How the Army Runs: A Senior Leader Reference Book* published by the Army War College asserts that "[C]hanging large organizations with well developed cultures embedded in established hierarchical bureaucracies is incredibly difficult. The mere existence of functioning complex organizational systems and processes tends to thwart change."[9] We must devise a systematic plan that will facilitate change.

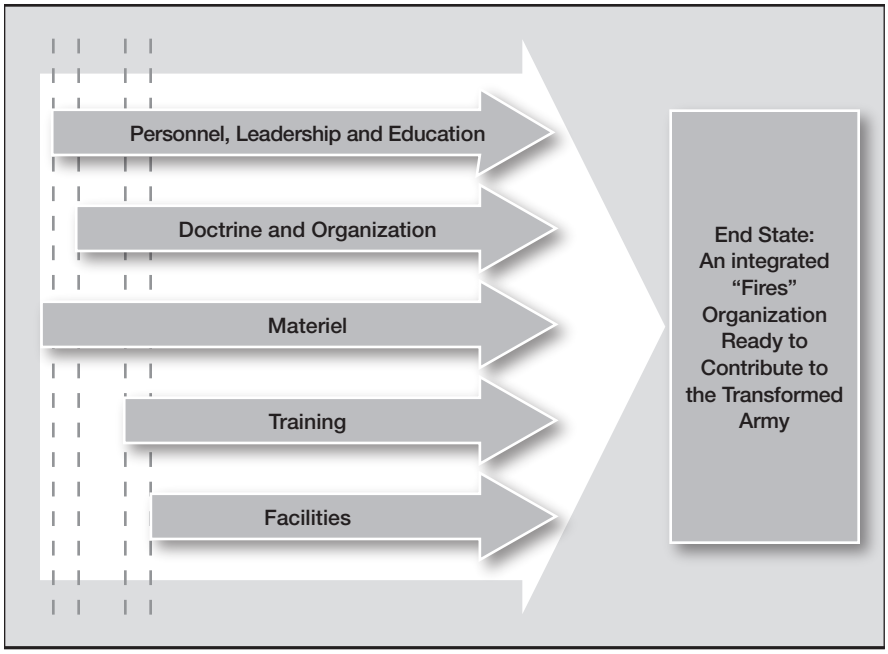

Figure 3: Operation Red Net—the Lines of Operations (LOOs) to Transform Air Defense Artillery (ADA) and Field Artillery (FA) into a Fires Branch

Figure 3 is a model for a campaign plan to establish a transformed "Fires Branch"—you will recognize it, basically, as a variation of the Army's transformation model. There are five simultaneous but staggered lines of operations (LOOs) to accomplish this transformation in the model.

Personnel, Leadership and Education. These must be the main effort. The attitude of Soldiers and leaders in each branch is decisive and will determine the success of this plan.

Why lay the groundwork for this line before beginning the doctrine and organization line? Legacy branch leaders must establish security and a positive sense of the future before real discussions can begin on the doctrine or organization of a Fires Branch. We must make 13- and 14-Series personnel confident in their futures so they look for options to make the Army better instead of options to protect their "turfs."

Both branches must focus on what the Army *needs*, not what constituencies of Soldiers *want* a branch to look like.

Addressing personnel issues first will help quell some of the emotion surrounding a new identity. The Firefinder and Sentinel radars will make it through organizational change just fine; it is the radars' Soldiers who will need to perceive the changes as positive. We may need to develop commander's critical information requirements (CCIRs) that include determining perceived deprivation in any one group or parochial behavior in units or other organizations. Both ADA and FA Soldiers must believe they will have a future as one organization and be value-added in this new organization.

As the Army highlights personnel issues, every Soldier must understand that he or she, personally, must be adaptive to change. Soldiers should see the Army's attempt to put them first during transition as a *contract*. Everyone must be ready to adapt and develop new skills and knowledge.

The merger's greatest impact will be on the officer corps, but it supports the Army's vision for officers. I attended a Human Resources Command briefing a few months ago in which briefers discussed developing "Pentathletes," a reference to athletes in the modern Olympic pentathlon. The pentathlon has five events emphasizing different skill sets in one grueling day. Developing Pentathletes for the transformed Army is the Chief of Staff's and Secretary of the Army's intent.

We must make our officers Pentathletes—multi-capable Fires Branch officers. Eventually, there might be a

way to merge some warrant officer or enlisted military occupation specialties (MOS), but this will not occur until there are materiel changes that require adjustments.

This cross-fertilization may not be as difficult as initially thought. Within the ADA community, the high- to medium-altitude (HIMAD)/short-range air defense (SHORAD) divide was larger than some of the ADA/FA divides are. In the 1st Cav, my ADA planner was a SHORAD lieutenant whose last assignment had been as part of the opposing force (OPFOR) at the National Training Center (NTC), Fort Irwin, California. I believe he would have an easier transition into an HBCT *fires battalion* than he would into a *Patriot battalion*.

The gap between Patriot and Paladin may be great, but how great is the gap between a BCT FSE and the ADAM cell?

As we broaden skills sets, we will need more deliberate personnel management. How do we broaden the officer corps' view without jeopardizing the skills cultivated in a smaller branch? One way may be to make officers "generalists," or Pentathletes, and increase the roles of warrant officers and (or) senior NCOs to ensure stability in units. The personnel system will need to be more deliberate in both managing individuals and synchronizing experiences in units.

These issues should be addressed as we begin a transition to free the attitudes of the "people at the table" during doctrinal and organizational discussions. This LOO will continue to develop as doctrine, training, etc., solidify the direction of the Fires CoE merger.

Doctrine and Organization. The initial focus on personnel, leadership and education systems will set the conditions for doctrine and organizational changes. A developed way-ahead for personnel will enable open and productive discussions based on Army requirements.

As the doctrine and organization LOO becomes clearer, we may need to adjust the personnel and leader development LOO. This is why LOOs start staggered but mature through simultaneous operations once each enters the construct.

A decisive point along the doctrine and organization line would be force structure within fires battalions/Patriot battalions, all the way up to the corps-, Army air and missile defense- (AMD) command- and theater-level fires and missile defense cells. Another decisive point could be the publication of an FM for Fires Branch doctrine.

US Air Force photo by MSgt Terry L. Blevins

Delta Battery, 3rd Battalion, 43rd Air Defense Artillery (ADA), Al Udeid Air Base, Qatar.

Materiel. Due to the acquisition process, the materiel LOO initially must use currently programmed systems. As other lines mature, materiel requirements must transition to systems identified by operational requirements. The overall structure of the Army must drive these requirements.

Training. The training LOO will build on the doctrine and leader development issues developed in the other lines. Personnel and doctrinal concepts will shape the future and develop training requirements.

Facilities. This line has the final sequential starting point of the staggered campaign plan. As we identify the training and organizational requirements, we can organize facilities *before* the Air Defense Artillery School moves to Fort Sill. This will eliminate a large-scale "duffle bag drag" as we set up a new "heart of the Fires Branch."

Transform or *Be* Transformed. Both branches must avoid the instinct to "bend over backwards to avoid moving forward." The BRAC ruling to move the ADA School to Fort Sill is law. This merger will occur. Do we want to take an active role in making the merger a success, or do we want the merger to happen *to* us?

We must be like Western Union and find a way to celebrate our rich history while identifying our place in the future. We must support the Army's emerging doctrine and transformation. Much has changed already, but there is still much to change using the current momentum. We have the opportunity to contribute.

I recommend that we put our smart ADA and FA minds together, become Pentathletes and make the Army a stronger organization ready to dominate all future land warfare—perhaps as a Fires Branch.

End Notes

1. Colonel Mark McDonald, "Is It Time for Air Defense Artillery and Field Artillery to Merge?" *Field Artillery* (January-February 2006), 8. The article is online at sill-www.army.mil/famag.
2. Associated Press, "Western Union Ends Telegram Service After 154 Years," *The Killeen Daily Herald*, Killeen, Texas, (5 February 2006), F3.
3. Ibid.
4. "Black-Boot Army" is a term that references "non-transformed forces" or Soldiers and leaders who adhere to outdated thoughts or ways of doing things that was coined by Major Christopher Wilbeck after receiving rapid fielding initiative (RFI) boots for the new Army combat uniform (ACU). Major Wilbeck is the S3 of the 2nd Brigade Combat Team, 1st Cavalry Division, Fort Hood, Texas.
5. The article "ADA and FA: Finding Common Ground" by Colonels Gregory C. Kraak, FA, and Colonel Harry L. Cohen, ADA, appeared in the November-December 2005 edition of *Field Artillery* and the January-March edition of *Air Defense Artillery*. The article is online at sill-www.army.mil/famag.
6. Colonel Kraak, 9.
7. Department of the Army, *Field Manual (Interim) 3-90.6 Heavy Brigade Combat Team* (Washington, DC: Headquarters, Department of the Army, March 2005), B-8.
8. Ibid., B-5.
9. Colonel Edward J. Filiberti, *How the Army Runs: A Senior Leader Reference Book* (Chapter 1), (Carlisle, PA: Army War College, 2003), 1.

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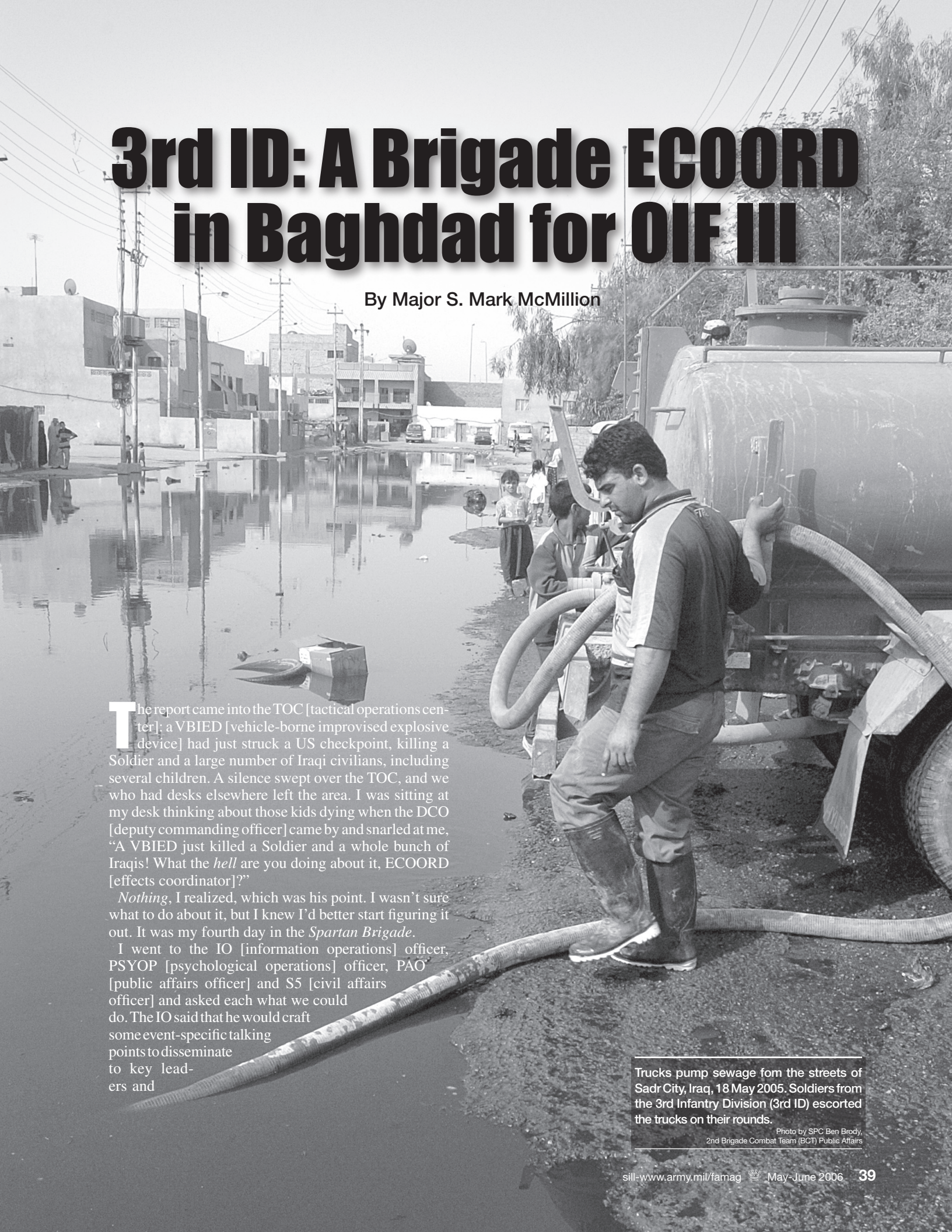
This article is an altered version of an article written by Major Gibney by a similar title that was published in the April-June Air Defense Artillery. *The author made changes and approved all edits.* *Ed.*

3rd ID: A Brigade ECOORD in Baghdad for OIF III

By Major S. Mark McMillion



The report came into the TOC [tactical operations center]: a VBIED [vehicle-borne improvised explosive device] had just struck a US checkpoint, killing a Soldier and a large number of Iraqi civilians, including several children. A silence swept over the TOC, and we who had desks elsewhere left the area. I was sitting at my desk thinking about those kids dying when the DCO [deputy commanding officer] came by and snarled at me, "A VBIED just killed a Soldier and a whole bunch of Iraqis! What the *hell* are you doing about it, ECOORD [effects coordinator]?"

Nothing, I realized, which was his point. I wasn't sure what to do about it, but I knew I'd better start figuring it out. It was my fourth day in the *Spartan Brigade*.

I went to the IO [information operations] officer, PSYOP [psychological operations] officer, PAO [public affairs officer] and S5 [civil affairs officer] and asked each what we could do. The IO said that he would craft some event-specific talking points to disseminate to key leaders and

Trucks pump sewage fom the streets of Sadr City, Iraq, 18 May 2005. Soldiers from the 3rd Infantry Division (3rd ID) escorted the trucks on their rounds.

Photo by SPC Ben Brody, 2nd Brigade Combat Team (BCT) Public Affairs

individual Soldiers. The PSYOP said we could put a message out over the FM radio station and use a loudspeaker team to disseminate information at the site. The PAO said he would put together a news release for the radio. The S5 said he would call the Iraq Civil Defense Corps and the Baghdad Fire Department and coordinate an emergency HA [humanitarian assistance] drop.

"What the heck is an HA drop?" I asked. He looked at me like I was the dumbest thing walking. Quickly he sketched out what was in various packages and combinations of HA and what was available and on-hand.

I went back into the TOC to gather more facts. The brigade surgeon was briefing the commander on the casualties. "…and, Sir, we're MEDEVACing [medical evacuating] three of the kids to the CSH [combat surgical hospital, pronounced cash]."

"How do we find their parents?" the commander asked. Suddenly, everything the others had told me came into focus.

"Sir, we can put a message out over the radio that the children are being sent to our hospital and give them a point-of-contact," I interjected. He looked at me doubtfully, but said to give it a try.

Later, we found out that two of the families had heard the announcement. One of the children died before the parents could get there, but the other family connected with its child. The family was grateful.

Key leaders contacted their SOIs [spheres of influence] in that area and asked if they thought an HA drop was a good idea. The civilian leaders said they thought emotions were running too high and we needed to hold off for a few days.

SOIs are those local civilian leaders with whom we had established relationships to help accomplish our essential effects tasks (EETs). They were sheiks, government officials, businessmen, religious leaders, Iraqi police and Iraqi Army commanders, or anyone else who could help us understand the population and (or) influence them.

To me, this event captures the essence of what the brigade ECOORD brought to the fight in Operation Iraqi Freedom (OIF) III. We were the 2nd Brigade Combat Team (BCT), 3rd Infantry Division (3rd ID), transformed into the modular design and engaged in OIF III in eastern Baghdad.

As the brigade ECOORD, I was the guy who initially floated between the various subject matter experts (SMEs) and brought their disparate efforts together in a coordinated, synchronized manner. The ECOORD is not necessarily the lethal/nonlethal effects expert, but he must be familiar with the various means the brigade can bring to bear, from the lethal/kinetic to nonlethal effects, such as IO and PSYOP.

ECOORD Challenges. The ECOORD faces several challenges. However, it is important to remember that BCT operating environments vary greatly, even among brigades that fall under the same headquarters. For example, one of our adjoining units was involved in a very active counterfire fight while we had minimal indirect fire attacks.

So the challenges I am outlining are based on my observations as the ECOORD for the 2nd BCT, 3rd ID, during OIF III.

If the ECOORD is a non-branch-qualified major, one of the biggest challenges for him will be to coordinate the efforts of several other majors to maximize their benefits. I was fortunate in that I joined the brigade staff in Iraq, and it was already well integrated and had a terrific teamwork ethic.

In other units, that may not be the case, and being a non-branch-qualified major could inhibit the ECOORD's ability to do his job. Those circumstances warrant the ECOORD's being a lieutenant colonel. Ideally, the various members of the effects team would fall under him for rating purposes as well.

The current modified table of organization and equipment (MTOE) titles the position "Fire Support Coordinator (FSCOORD)" in the brigade "Command Section" paragraph. The FSCOORD is to be an FA lieutenant colonel, one of three on the brigade staff.

In our brigade, I was a major and called the "ECOORD." The brigade staff lieutenant colonels were the executive officer (XO) and S3; the DCO was a colonel, a wartime-rank only.

By current MTOE, there is also an FA major in the effects section and an FA captain assigned to the nonlethal section. This is a somewhat mysterious delineation, especially when viewing the other members of those sections. The effects section strongly resembles the old fire support element (FSE) while the nonlethal section consists of IO, PSYOP, brigade judge advocate, electronic attack, civil affairs (CA) and a targeting chief warrant officer three (CW3). A CW4 targeting warrant is also in the effects section.

In the 2nd BCT, the DCO stepped up and supported me with his rank and position. This was critical; he championed the nonlethal effects process for the brigade.

• There are still challenges ahead to work out the synchronization and integration of nonlethal operations and kinetic (combat) operations. Unfortunately, many maneuver leaders see them

3rd ID: S5 in the 2nd BCT

The 2nd Brigade Combat Team (BCT), 3rd Infantry Division (3rd ID), had a civil affairs (CA) officer (S5 or now the S9) as a new position on the brigade staff. He was an active duty major with a CA functional area.

The institutional training for these CA officers is intense. They train for nine to 12 months before becoming a qualified CA officer. This includes regional and cultural training as well as a language course.

The S5 is integral to all parts of lethal and nonlethal operations. In addition to managing the Reserve Component CA company assigned to the brigade, the S5 coordinates all civil-military operations (CMO) for the BCT. Here are some of the key tasks the 2nd BCT S5 was responsible for.

Coordinate with the Iraqi emergency services. This included establishing and maintaining a relationship with the Baghdad Fire Department and the Iraqi Civil Defense Corps. These emergency agencies coordinated all emergency ser-

as distinctly separate and only modestly related. My role as the ECOORD seemed to be more deconfliction as opposed to integration and synchronization. I expect this to change as more commanders begin to grasp the inherent ties between the nonlethal and kinetic operations.

There is a clearly defined staff planning process for what used to be known simply as "operations." Somehow in the turbulence of the war on terrorism and transformation, we have lost sight of this deliberate process and further convoluted it by creating an artificial separation between nonlethal and kinetic operations. When conducting effects-based operations (EBO), a raid or cordon and search is simply another means of achieving the commander's desired effects.

The ECOORD is the ideal position to straddle both of these spheres and keep them synchronized. As an attendee at the lethal targeting meetings and decision briefs, I ensured that our nonlethal efforts complemented kinetic operations. As the primary organizer and facilitator of the effects meetings (the DCO or brigade commander chaired them), I needed to be fluent in all PSYOP, IO, PAO and civil military operations (CMO) efforts.

Additionally, the ECOORD is well suited to coordinate these areas as force multipliers to achieve the commander's desired effects. Unfortunately, too many maneuver commanders seem to be oriented on combat operations. Clearly the kinetic aspect of our operations was the "glass ball" that cannot be dropped. However, I saw it as the primary effort in only a few instances.

• Another challenge was determining appropriate staff boundaries. The S3 and the brigade ECOORD must create the relationship synergy to make EBO work. The brigade S3 has a clearly defined traditional role. The ECOORD is not nearly as well defined (hence this article).

Photo by SPC Ben Brody, 2nd BCT Public Affairs

Iraqi Army Captain Ebaa Taha al-Abodi, 305th Iraqi Army Battalion, working with the 3rd ID, directs a woman through his unit's sheep distribution point in Baghdad, Iraq, 26 March 2005.

In many instances, there was room for misunderstanding between the S3 and ECOORD. Fortunately, I had a superb S3 who was an exemplary team player, and we worked through all issues quickly.

The ECOORD must cultivate a strong relationship with the S3 that facilitates accomplishing the mission. He must understand all the resources the brigade can bring to bear on a problem and help the S3 attack problems on multiple fronts, ranging from raids and airstrikes to tactical loudspeaker teams to mutual back-scratching with SOIs through funding infrastructure projects.

One conclusion that I came away with is that the ECOORD cannot be subordinate to the S3. That would create an untenable relationship that would not facilitate the give-and-take needed to create the synergy for nonlethal and kinetic operations. This line of reasoning goes back to the basic concept of EBO (*all* efforts support achieving the commander's desired effects). The traditional model of the S3-fire support officer (FSO) relationship for combat operations is still appropriate.

• There is some debate in the field about who is best suited to be the ECOORD in stability and reconstruction operations (S&RO). Some think the

vices from ambulance to fire throughout the city. The S5 met with or talked to these key Iraqi leaders weekly to maintain and foster the relationship.

Work with Iraqi election officials. The S5's role was to establish and foster relationships with key election officials, including the time-consuming development and maintenance of a sphere of influence (SOI) book for the local leaders. The national referendum in October 2005 followed by the national elections in December were the BCT's main efforts. The S5's critical task gave the BCT commander situational awareness of the overall election process.

Our BCT had more than half the Baghdad local civil government within its area of operations. This included five local councils that consisted of a minimum of 20 councilmen each (not including the sub-councils). Managing the individual personalities and each council's unique problems was a challenge.

Manage CMO funds. The S5 had the project purchasing officer (PPO) in his section. The PPO was responsible for all commander emergency response project (CERP) funds. The S5 was the honest broker when it came to managing these funds. Even though the "lion's share" of the funds went to the US Army Corp of Engineers, the S5 shared responsibility with the engineers to ensure that all CMO projects met the commander's intent.

MAJ John H. Stone, IN
S5, 2nd BCT, 3rd ID, OIF III

IO officer should "wear the ECOORD hat" because he is the SME for IO and PSYOP (clearly major players on the current battlefield).

However, there are two major challenges with an IO officer's serving as the ECOORD. IO officers come from a myriad of backgrounds (ours was Signal) and have little or no experience in synchronizing/coordinating diverse elements across the battlespace. The expertise needed for these types of tasks are difficult to train. Artillerymen train to synchronize and coordinate diverse elements and practice their skills during rotations at the combat training centers (CTCs).

The difficulty facing IO officers is the very nature of IO. Current training for IO officers consists of a three-week course in IO. To compound this, much of the experience to date is of questionable value, at best, due to the evolving nature of IO as the Army continues to "adjust fire" in that area. This lack of synchronizing/coordinating experience combined with the fluid nature of IO doctrine make it very difficult for an IO officer to succeed as the ECOORD.

The S3 already has a full-time job planning and executing ground operations. Just as the brigade FSO coordinates indirect fires to work in conjunction with maneuver, the S3 needs that same expertise applied to nonlethal fires.

Synchronization and deconfliction are the "bread-and-butter" of fire support officers at every level from company to division. Historically, this has involved maneuver, artillery, rockets, mortars, attack aviation, close air support (CAS) and even naval gunfire. In a high-intensity conflict, those again will need to be synchronized and deconflicted. In current operations in Iraq, other things need to be synchronized and coordinated. Institutional knowledge, practice and experience come together to make the fire support officer the ideal ECOORD to coordinate lethal and nonlethal effects.

Without the ECOORD synchronizing and integrating all kinetic and nonlethal efforts, the BCT still would move forward because of the extra efforts of the team members. But just imagine how much faster and more powerful the brigade performance is with the ECOORD coordinating these efforts in a single complementary, reinforcing direction.

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Electronic TFTs Update

The Firing Tables and Ballistics (FTaB) Division has completed populating the artillery and mortar electronic tabular firing tables (ETFT) on Army Knowledge Online (AKO) websites and has created a site for the small arms ETFTs. The next update will be the armor ETFT website.

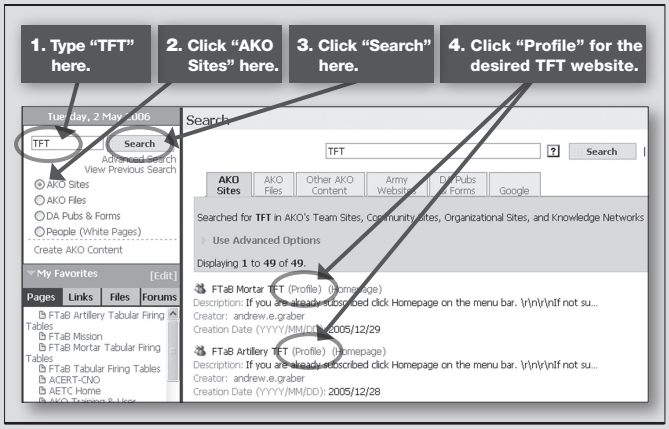
ETFTs found on other websites cannot be guaranteed to be current—only the ETFTs located on the FTaB AKO website is guaranteed to be current.

The response to the website since its launching in July 2005 has been excellent. As a result, FTaB has implemented a number of suggestions to make the site more user friendly. First, locating the ETFT websites on AKO is now easier.

Second, the subscription process is simpler; however, FTaB will not automatically approve any subscription request. This has been implemented to protect Soldiers and Marines from unauthorized individuals receiving the information and using the information against them.

For the Soldier to gain access to the ETFTs, he must first sign onto AKO and search for the "TFT" site. The subscriber then clicks on the "Profile" for the desired TFT website. When the site opens, he clicks on "Register" on the menu bar at the top of the profile window. A window will open asking him to send a request to the FTaB publications team.

Upon receipt of the subscriber's request for access to the ETFTs, the FTaB publications team will send an email requesting additional information to determine if mission needs warrant access to the ETFTs. The subscriber must respond from his AKO email address. Based on the information received, the FTaB publication team will either approve or disapprove access.



Process for Subscribing to Electronic Tabular Firing Tables (ETFTs)

Once granted, the subscriber can access the ETFTs from around the globe 24 hours a day for the rest of the calendar year. At the end of the calendar year, FTaB will query the subscriber base and request confirmation that access for the next year is required. If a subscriber does not respond, his subscription will be terminated and he must request a new subscription if he requires further access.

The leadership in Marine units can establish access to the ETFTs on AKO by contacting the Marine Corps Detachment at Fort Sill, Oklahoma, at (580) 442-6498 or 3897 or DSN 639-6498 or 3897.

When new or updated TFTs are available, FTaB will send announcements using the AKO Army-wide announcement system and the respective branch journal publications. Further, the site is set up so that, if a new document is added, subscribers automatically receive an update notification.

Andrew E. Graber
Firing Tables and Ballistics Division
Aberdeen Proving Ground, MD

Air Force Staff Sergeant Dan Kovarik (right), a Joint Terminal Attack Controller (JTAC), guides an A-10 Warthog onto a target during the live-fire portion of Air Warrior II at Fort Polk, Louisiana, while Senior Airman Joshua Cullins observes.

US Air Force Photo by SrA Stephen Otero

Building the Tactical-Level Joint Fires Team (JFT)

By Colonel David R. Brown, USAF; Lieutenant Colonel Steve D. Hughes, USAF; Major David J. Ell; and Chief Master Sergeant (Retired) Timothy M. Finn, USAF

Joint terminal attack controller (JTAC) talking to a pilot: "Follow the highway leading north until you cross the railroad track, and then turn right over a dark oily looking street. On the left, you will see a large yellow building, looks like a supermarket.

"Well, that's not it. It's on the second floor of the two-story gray building on the higher ground just behind the yellow one."

This "talk-on" actually occurred September 1950 during the battle for Seoul. However, it easily could have been a JTAC talking a close air support (CAS) aircraft onto a target today.

CAS is an enduring mission, the basic premise of which has not changed appreciably since biplane aircrew members dropped handheld bombs in World War I. Now B-1s patrol over Afghanistan, waiting for a call from a JTAC. In both cases, conditions on the ground required a response from the air to resolve a situation in favor of friendly forces.

The Joint Fires Integration and Interoperability Team (JFIIT) at Eglin AFB, Florida, has the mission to "act as US Joint Forces Command's (JFCOM's) lead agent to *investigate, assess and improve* the integration, interoperability and operational effectiveness of Joint Fires...." *Joint Publication (JP) 3-09 Doctrine for Joint Fire Support* defines "joint fires" as "fires produced during the employment of forces from two or more components in coordinated action toward a common objective."

A subset of joint fires, "joint fire support," also is defined in JP 3-09, as "joint fires that assist land, maritime, amphibious and special operations forces to move, maneuver and control territory, population and key waters." A very important element of joint fire support is joint CAS (JCAS). *JP 3-09.3 Joint Tactics, Techniques, and Procedures (TTPs) for Close Air Support* defines "CAS" as "air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces."

While JFIIT works many issues outside the JCAS mission area, JCAS is a key enabler of joint capabilities and a foundational part of our work. There is good reason for this. If the services can conduct efficient and effective JCAS, they have the fundamental ability to be successful in other joint mission areas, such as joint suppression of enemy air defenses (JSEAD) or joint combat search and rescue (JCSAR) missions. As a subset of joint fires, JCAS at the tactical level is critical and so is its training and the organization of the JCAS team.

CAS Historical Changes. Beginning in the mid-1970s and continuing into the 1980s, a very subtle but distinct change took place in the CAS world. It was a change that took nearly 20 years for the CAS community to figure out.

Since its inception, CAS had been conducted visually. Either on the ground or in another airplane, the tactical controller had to see the target and the attacking CAS aircraft.

To begin an attack, the CAS aircraft

departed a controlled initial point (IP) and then, based on guidance from the controller, the pilot visually acquired the target and maneuvered to point his aircraft at it.

The primary reason to point at the target was to bring weapons to bear. The pilot needed to use his aircraft as a "pointer" to release either gravity or forward firing weapons. The controller visually confirmed the airplane was on the right target based on his observations of the CAS aircraft's nose position, attack axis and perceived ground track. Based on the controller's visual observations, once he was satisfied that the CAS aircraft was engaging the correct target, he cleared the pilot to drop his weapon(s).

This was how CAS was conducted in Operation Desert Storm, Vietnam and Korea. In fact, those same procedures essentially developed in the 1940s during World War II and remained virtually unchanged for more than 50 years.

In the late 1960s and 1970s, the advent of aircraft technological advances and precision weapons (laser-guided bombs), infrared target designation systems and (or) night-vision devices brought two more capabilities to the CAS mission. The first was increased precision, enabling the bomb to hit very close to the desired aim point consistently. The second, the aircrafts' standoff attack capabilities, was more subtle, and the CAS community's lack of perception of it for more than 20 years caused a significant delay in exploiting precision weapons.

With the fielding of laser-guided bombs, aircraft no longer had to "point" at the target for weapons release. To employ a laser-guided bomb successfully, the attacking aircraft could execute an offset, level or high-altitude attack.

With the advent of upgraded laser-guided bombs and improved infrared target designation systems, the potential to exploit this capability increased, and the attacking aircraft could employ precision weapons from a standoff attack. Attacking aircraft no longer had to roll in or point at the target to employ their weapons, and the most effective attack platform was not limited to just fighter aircraft in a standard diving attack.

Several new developments seriously affected traditional CAS employment, including global positioning system (GPS) weapons, digital transfer of information, robust command and control systems, collateral damage consequences and a permissive combat environment that allowed the use of non-traditional CAS aircraft (bombers).

US Air Force Photo by TSgt Brian Davidson

Airman First Class James Blair coordinates air cover for 10th Mountain Division Soldiers during operations in the Sroghar Mountains, Afghanistan.

The procedures developed during World War II and refined in Korea and Vietnam remained the same until Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) when the TTPs caught up to the advances. Not officially published until the 3 September 2003 revision of JP 3-09.3, JCAS TTPs were used extensively in OEF and OIF. These procedures were the first comprehensive change or update in CAS TTPs in more than 50 years.

The concept of "direct" and "indirect" controls of CAS were eliminated and replaced with three types of controls: Types I, II and III. These were designed to capitalize on current and potential advances in weapons and systems technologies. Also, based on lessons learned from OEF and OIF, Types I, II and III controls were reviewed and updated with Change 1 to JTTP 3-09.3 that was released on 2 September 2005.

The 2005 change clarified the descriptions for Types I, II and III CAS controls and provided an example of each. Type I control is used when the JTAC must visually acquire the attacking aircraft and the target for each attack. Type II control is used when the JTAC requires control of individual attacks but assesses that either visual acquisition of the attacking aircraft or target at weapons release is not possible or when attacking aircraft are not in a position to acquire the mark/target prior to weapons release/launch. Type III control is used when the JTAC requires the ability to provide clearance for multiple attacks within a single engagement, subject to specific attack restrictions. Type III control does not require the JTAC to visually acquire the aircraft or the target; however, all targeting data must be coordinated through the supported commander's battle staff.

During the past three and one-half years, service interest and investment in JCAS has expanded as joint operations have increased. JP 3-09.3 was the first to publish a change as part of an out-of-cycle revision. Simultaneously, employment using non-traditional CAS aircraft became routine. Additionally, the Army, Air Force and Special Operations Command (SOCOM) agreed to standardize training requirements for JTACs and established the joint fires observer (JFO) position to aid in executing Types II and III CAS. The services also established various training facilities that are accredited to train both JTACs and JFOs.

Building the JCAS Team. Given these improvements, what does the future hold for JCAS? Where do we place our emphasis? The answer lies in the JP 3-09.3 definition, "Air action…*detailed integration* of each air mission with the *fire and movement* of those forces." To provide and maintain a capability to integrate CAS fully into a ground force's fires and maneuver, the joint forces must place more emphasis on joint fires training at the tactical level (brigade combat team, or BCT, and below) that results in close working relationships between fire support element (FSE) and tactical air control party (TACP) members.

Case in point: a statement consistently repeated at the combat training centers (CTCs) is "Army FSE/fires and effects cells (FECs) and TACPs are not training effectively together to form a cohesive team that the brigade staff can coordinate and execute joint fires with." Other oft repeated phrases are, "The only time FSEs and TACPs train together is during

CTC rotations and, occasionally, during brigade field training exercises" and "TACPs, FSEs and brigade staffs should seek every opportunity to train together." The preceding statements may sound trite, but how do commanders and leaders approach and resolve these issues?

Brigade FSOs, air liaison officers (ALOs) and their senior NCOs must adopt the following home-station training practices to foster closer and more effective FSE and TACP working relationships.

• *Focus on overcoming service cultural differences.* The services must build an effective joint team by holding FSE and TACP events in each other's facilities. This allows team members to familiarize themselves with each other's strengths and weakness. Each must get to know the other members of the team and build esprit de corps. Even social events are important to mitigate the "us versus them" mentality.

• *Align JFOs and JTACs and their respective unit training calendars.* These assets must routinely train as a team during live-fire events and in call-for-fire simulators. Air support operations squadron (ASOS) operations officers should incorporate JTACs and their aligned JFOs when using the indirect fire-forward air control trainer (I-FACT). The Army must align the JFOs and their JTACs in JFO courses and joint fires and effects trainer system (JFETS) simulations.

ASOS also should coordinate to have aligned FSE personnel and JFOs participate in CAS mission scenario practical exercises as outlined in *Air Force Instruction 13-112, Volume 1, Terminal Attack Controller Training Program*, Paragraph 2.5.8. CAS mission practical exercises are training scenarios that provide trainees (JTACs and, when incorporated, JFOs) an opportunity to practice airstrike control planning, coordination and execution but does not involve control of actual aircraft.

• *Learn to move freely on each other's communication nets.* FSE and JFO personnel should conduct weekly communications checks in conjunction with their TACP counterparts. They must capitalize on these weekly checks by expanding them into combat skills development training. The sessions should include JCAS scenarios that involve and challenge JTACs and their JFOs and, ideally, their FSE and TACP counterparts.

When practical, they should conduct cross-training on each other's equipment, i.e., AN/PRC-117F, Mark VII laser rangefinder, AN/PRC-148, infrared zoom laser illuminator designator (IZLID) pointer and defense advanced GPS receiver (DAGR).

• *Integrate TACP TTPs in BCT tactical standing operating procedures (SOPs).* The BCTs must conduct joint training events during brigade and battalion staff exercises, "walk and shoots" and brigade combined arms live-fire exercises (CALFEXs). Training exercises, if planned and resourced correctly, will provide brigade and battalion staffs and TACPs opportunities to integrate airpower into schemes of maneuver.

These actions will enable leaders to tailor training better to maintain perishable skills (JTAC call-for-fire training and JFO Type II and III CAS targeting communications) and sustain proficiency in core competencies. Some units already may operate under these team building steps, at least in part. However, the concept of habitual relationships *must* become ingrained at all levels—in spite of the turbulence of personnel turnover, whether deployed or at home station.

Proposed Joint Fires Team (JFT) Organization. Systems and capabilities will continue to improve as they have since the first days of warfare. However, these improvements alone will not translate to increased JCAS effectiveness.

We must focus on building the joint team that can capitalize on future technological advances. If we are going to transform into a truly joint fighting force, then we must revamp our approach to JCAS by organizing our FSE and TACP personnel into a JFT. The intent is to give this team the ability to integrate and control all fires, i.e., CAS, artillery, mortars, rotary-wing close combat attack, rocket and naval surface fires.

At a minimum, the JFT should consist of a JTAC, FO/JFO and their radio operators. Integrating these teams into training events such as platoon live fires and company CALFEXs will hone their combined skills and develop a very capable team that can focus all fires at the tactical level.

JFT equipping, training and manning should be a joint endeavor. The exact composition and location of these teams need to be decided.

One example of an operational requirement for JFTs is the Army's recently formed reconnaissance, surveillance and target acquisition battalions. As the eyes of the BCT, the brigade now can look deeper then ever before, especially with multiple unmanned aerial systems, but the brigade must have the ability to destroy the enemy as he is acquired. JFTs would be a key asset that brigades could leverage to execute their missions. This is especially true given that JFTs frequently would be in the most advantageous positions to see the enemy and would have the critical ability to integrate all supporting fires.

The joint fires community must capitalize on the momentum in the JCAS mission area. Once we view JCAS as a joint task under the control of a JFT, we will be one step closer to ensuring we consistently meet the ground commander's desired effects. We cannot afford to wait another 20 years or for another war to capitalize on the potential we have in our hands *right now*.

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Major David J. Ell currently is the J34 Ground Combat Division Chief in JFIIT. Previously in the 101st Airborne Division (Air Assault), Fort Campbell, Kentucky, he was the Division Artillery S3 and, during OIF, a Battalion S3 and Brigade Fire Support Officer (FSO). He commanded D Battery, 319th Field Artillery, in Vicenza, Italy, and B Battery, 2nd Battalion, 319th Airborne Field Artillery Regiment (2-319 AFAR) in the 82nd Airborne Division, Fort Bragg, North Carolina.

Chief Master Sergeant (Retired) Timothy M. Finn, USAF, is a Close Air Support Analyst in the Air-to-Surface Division of JFIIT. He served 31 years on active duty and filled positions in tactical air control parties (TACPs), air support operations centers (ASOCs) and the CAS Cell at the Combined Air and Space Operations Center at Prince Sultan Air base, Saudi Arabia. He also performed duties as a terminal attack controller (TAC).