Field Artillery

A Professional Bulletin for Redlegs

November-December 2001

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INTERVIEW

ARTICLES: Tranformation of Fires

ARTICLES: Feature

DEPARTMENTS

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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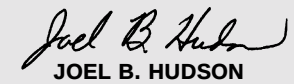

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Transformation—The Way Ahead

None of us will ever forget the attacks on our nation that occurred on 11 September 2001. The images of the World Trade Center collapsing and the smoke billowing from the Pentagon will forever play over again in our minds. So will the images of our national colors being raised in the rubbled streets of New York and the Stars and Stripes being draped from the blackened walls of the Pentagon.

Today, men and women from the Army and our sister services and agencies are engaged in a war against terrorists and those who aid them. The events of 11 September again have reminded those who serve that we have accepted the noble task of defending our nation's freedoms and again have caused all Americans to appreciate that "Freedom Isn't Free."

The Challenges. Accomplishing this profound responsibility requires us to be ready today to respond to the challenges of the contemporary operating environment and to be ready tomorrow to meet the demands of the future by increasing our commitment to Transformation. It means we have to invest our best professional and intellectual effort in developing leaders to deal with the complexities of today's world and the diverse challenges of tomorrow's battlefield. It means we must find solutions to materiel issues affecting our current operating force and take advantage of emerging technologies to develop those capabilities that our Army and the Field Artillery will require as we transform. It also means we must develop and adapt the tactics, techniques and procedures (TTPs) for responsive lethal fires whenever we are called, wherever in the world we deploy and in whatever operational environment we are asked to defend our nation's interests.

FA Worldwide Operations. The world environment in which we operate today clearly reinforces the importance of each component of the broad range of Field Artillery and fire support capabilities. Operations in Afghanistan include special operating forces on the ground, enabling the delivery of joint fires with precision targeting. These operations also have the potential for committing light forces with rapidly deployable, responsive fire support. Korea, a theater constrained by terrain and weather, demands a fires-centric strategy and heavy forces to counter the adversary's ground-based, long-range precision strike assets and his ability to mass forces.

In the Balkans, Field Artillery units continue to provide a broad range of capabilities across the spectrum. We have howitzer crews prepared for the potential of conflict, Firefinder radars providing protection to the force, special munitions effects to enhance maneuver and responsibility for the effects produced by information operations, a process naturally linked to our targeting methodologies.

Today, the Field Artillery is preparing for and executing a broad range of fires and effects across the full spectrum of military operations in a wide variety of operating environments.

The Way Ahead. Transformation is with us now and will lead to our success in the future. Transforming the Field Artillery requires we adapt units and tactics to the current operating environment. It necessitates the continued development of fires and effects capabilities for the Interim Force and, ultimately, the accelerated design and fielding of dominant fires organizations. Such organizations must be able to deliver highly lethal, overmatching fires and potent enabling effects on demand for the Objective Force.

Our traditional role in counterfire is transitioning from what has been largely a reactive process into "proactive counterfire." The process will evolve into a fully integrated offensive counterstrike system to shield the Objective Force and enable its freedom of action.

We understand the importance of effects and the significance of being able to deliver them rather than simply to coordinate them. The Field Artillery has led the way in developing and executing information operations in the Balkans, and we can derive much from that experience as we assume responsibility for producing a full range of lethal and nonlethal effects on demand.

The effort to coordinate fires and effects is underway in the Initial Brigade Combat Team (IBCT) at Fort Lewis, Washington. The insights derived from the IBCT fires and effects coordination cell's (FECC's) coordination of both lethal and nonlethal strikes ultimately will help us transform into a responsive, networked means to deliver the effects required for dominant maneuver.

The events of 11 September confirm the operational environment we face and have caused us to accelerate rather than redirect the Transformation process. Transforming fires and developing enabling effects will be a dynamic, evolutionary process, one that calls for our collective effort. Together, we must leverage emerging technologies and develop the doctrine, TTPs, organizational structures and weapons systems to enable the Field Artillery to play a dominant role in the Objective Force.

I close by asking each of you to remember our fellow service members engaged in the current fight and support those who may be called to fight. They will have *Priority of Fires* from the Home of Field Artillery.

What is an American?

This is an excerpt from a Veterans Day speech delivered by Major General (Retired) Leo J. Baxter, Lawton, Oklahoma, a former Chief of Field Artillery. He reports that his definition of an American was inspired by an anonymous definition that appeared on the internet in the wake of the terrorist attacks of September 11th.

"You probably missed it in the rush of news in [early November], but there was a report that someone in Pakistan had published an offer of a reward to anyone who killed an American, any American. So I just thought I would let them know what an American is, so they would know when they found one.

"An American is English, or French, or Italian, Irish, German, Spanish, Polish, Russian or Greek. An American may be African, Indian, Chinese, Japanese, Australian, Iranian, Asian, Arabic, Pakistani, or Afghani.

"An American also may be a Cherokee, Osage, Comanche, Kiowa, Blackfoot, Navaho, Apache, or one of the many other tribes known as native Americans.

"An American is Christian, or he could be Jewish, or Buddhist, or Muslim. In fact, there are more Muslims in America than in Afghanistan. The only difference is that in America they are free to worship as each chooses.

"An American also is free to believe in no religion. For that he will answer only to God, not to the government or to armed thugs claiming to speak for the government and for God.

"An American is from the most prosperous land in the history of the world. The root of that prosperity can be found in the Declaration of Independence that recognizes the God-given right of each man and woman to the pursuit of happiness.

"An American is generous. Americans have helped just about every nation in the world in its time of need. When Afghanistan was overrun by the Soviet army 20 years ago, Americans came with arms and supplies to enable the people to win back their country. As of the morning of September 11, Americans had given more than any other nation in the world to the poor in Afghanistan.

"An American does not have to obey the mad ravings of ignorant, ungodly, cruel, old men! American men will not be fooled into giving up their lives to kill innocent people, so that these foolish old men may hold on to power. American women are free to show their beautiful faces to the world as each chooses.

"An American is free to criticize his government's officials when they are wrong, in his or her own opinion. Then he is free to replace them, by majority vote.

"Americans welcome people from all lands, all cultures, all religions, because they are not afraid. They are not afraid that their history, their religion, their beliefs, will be overrun or forgotten. That is because they know they are free to hold to their religion, their beliefs, their history, as each chooses.

"And just as Americans welcome all, they enjoy the best that everyone has to bring from all over the world. The best science, the best technology, the best products, the best books, the best music, the best food, the best athletes.

"Americans welcome the best, but they also welcome the least. The national symbol of America, Lady Liberty, welcomes 'your tired, your poor….The wretched refuse of your teeming shore ….the homeless, tempest tossed…' These, in fact, are the people who built America. Many of them were working in the twin towers on the morning of September 11, earning a better life for their families.

"So you can try to kill an American if you must. Hitler did. So did General Tojo, and Stalin, and Mao Tse-Tung, and every bloodthirsty tyrant in the history of the world.

But in doing so you would just be killing yourself…because Americans are not a particular people from a particular place. They are the embodiment of the human spirit of freedom. Everyone who holds to that spirit, everywhere, is 'an American.' God Bless America."

Fort Sill NCO Academy Supports Uzbek Army

In three international exchange visits in 2001, the Fort Sill NCO Academy, Fort Sill, Oklahoma, supported the Uzbek Army's development of a professional NCO Corps by helping them establish an NCO educational system (NCOES). Personnel from the Fort Sill NCO Academy traveled to Uzbekistan in February and early May with Uzbek Army personnel visiting Fort Sill in late May.

Uzbekistan used to be part of the Soviet Union, called the Uzbek Soviet Socialist Republic, and still has Russian as its national language. The country, just north of Afghanistan, gained its independence in 1991.

The first visit occurred after the Uzbek Army requested US Army assistance in developing its NCOs via the US Central Command (CENTCOM), headquartered at MacDill AFB, Florida. The team consisted of the (former) Commandant of the Fort Sill NCO Academy Command, Sergeant Major (CSM) Joseph W. Stanley; the Advanced NCO Course (ANCOC) School Chief (now Assistant Commandant), First Sergeant John M. Dorsey; and (former) Chief of Training for the NCO Academy, Sergeant First Class Matthew E. Benner. A sergeant major from CENTCOM also accompanied the team.

The team briefed the Uzbek Army on the different levels of US Army NCOES and the organization and staff needed to conduct and administer the training at the Fort Sill NCO Academy. The visit included discussions about the duties

and responsibilities of the US Army NCO; Uzbek Army officers perform many of the duties a US NCO performs. The team briefed the Uzbek personnel on the concepts of NCOs training and supervising soldiers in addition to staffing and running NCOES.

The Uzbek Army was especially interested in Fort Sill NCO Academy operational aspects, management and administration. The Uzbekistanis were briefed on everything from barracks arrangements to firing ranges to admin offices and classrooms—from first wake-up to graduation. Because women are becoming an integral part of the Uzbekistani Army, they paid particular attend to how women soldiers fit into and function within US units and in the training environment.

During one visit to Uzbekistan, the US Army team toured the building for the Uzbek NCO School. Although still under construction, the building's classrooms are being designed for an instructor-student ratio of 1 to 14, allowing for small group instruction.

The Uzbekistanis' May visit to Fort Sill allowed them to tour the NCO Academy training facilities. The Fort Sill NCO Academy briefed them on how to develop lesson plans, programs of instructions (POIs) and instructor duties plus outlined staff administrative requirements in more detail.

All briefings and presentations were by US NCOs—a fact that made the Uzbekistanis wary initially. But the US team reinforced the concept that NCOs conduct the daily business of the Army, a concept the Uzbek Army appeared willing to adopt.

The international exchanges accomplished two things for the Uzbek Army personnel: they began to see an expanded role for their NCOs and, therefore, saw the requirement for upgrading their NCO training to fulfill those roles.

NCOs' conducting such exchanges is just another example of NCOs taking care of business in this ever-changing world.

SFC Matthew E. Benner,
Chief of Training
NCO Academy, Fort Sill, OK

The Right Fire Supporters in the Right Positions Send the Right Message

Commanders of both the 4th Infantry Division (Mechanized) Artillery and 1st Cavalry Division Artillery at Fort Hood [Texas] made bold moves in keeping with "the azimuth" of Field Artillery modernization and transformation. In these division artilleries, majors who have been branch-qualified as S3s or executive officers are assigned as brigade fire support officers (FSOs). This sends a great message to brigade combat team (BCT) commanders and (hopefully) future selection and promotion boards.

But there is more we can do. The Officer Professional Management System (OPMS) XXI allows FA commanders to assign fire supporters at every echelon and apply the same bold initiative.

Combat Observation Lasing Team (COLT). Most direct support (DS) FA battalion commanders assign their "stud" lieutenants as COLT 6s. This may be the only fire support assignment where Gunners currently *want* to be selected. That is as it should be as COLTs increasingly work with enlisted tactical air control parties (ETAC-P), air defense teams and engineer reconnaissance teams (ERT) to be the "eyes of the BCT." And those who do the job well usually have good things in store for them.

Armor/Infantry Fire Support Team (FIST) Chief. We should assign lieutenants who have been successful cannon battery fire direction officers (FDOs) and (or) platoon leaders to be FIST chiefs. This is not a new suggestion, but bears repeating.

We must develop our young fire supporters and lay a foundation upon which to build for future fire support assignments.

Armor/Infantry Task Force and Cavalry/Attack Aviation Squadron FSO. We should assign captains who have been successful cannon or MLRS [multiple-launch rocket system] battery commanders. This is a tough one, as branch-qualified captains are in high demand.

Also, unique FSO skills are required to advise Army aviation commanders on the employment of the Apache, OH-58C and OH-58D Kiowa Warrior.

BCT and Armored Cavalry/Attack Aviation Regimental FSO. We should follow Iron Gunner 6 and Red Team 6 and assign majors who have been a successful cannon or MLRS battalion S3s. This is a critical assignment as we normally fight as BCTs and, therefore, must be able to synchronize effects at this level.

Division DFSCOORD [Deputy Fire Support Coordinator]. We should assign lieutenant colonels who have been successful cannon or MLRS battalion commanders to be DFSCOORDs, perhaps before they attend a war college-level of schooling.

Corps DFSCOORD. We should assign colonels who have been successful division artillery or FA brigade commanders to these positions. This would be a change from the current practice of assigning some lieutenant colonels who are pre-positioned for battalion command and, therefore, only get six to eight months in the saddle before attending the pre-command course (PCC). In addition, the "water level" at corps is 06, which would make the DFSCOORD an equal.

Echelon Above Corps (EAC). As with the corps DFSCOORD, we should con-

tinue to assign a colonel as the chief of the battlefield coordination detachment (BCD). A brigadier general who has commanded a corps artillery should be the ECOORD [effects coordinator] at the joint task force (JTF) level.

The emerging ECC [effects coordination cell] concept takes the integration and synchronization of lethal and nonlethal effects to lower levels than it has been before. This is good, but it complicates things.

Integration across joint and combined battlefield command and control systems and intelligence nodes will be critical and challenging, but we're on the right track. To do it right, we will need fire supporters of immense capabilities and resolve to bring effects-based fires together for the maneuver commander.

Let us ensure we put our best foot forward and assign the right Gunners to be our fire support ambassadors at all levels, from company team to EAC.

LTC(R) Stuart G. McLennan III
Harker Heights, TX

131A Targeting Technician Program Maturing

It was very edifying to read your May-June edition with the theme of "Targeting: Lethal and Nonlethal." An important trend that readers may overlook is the evolution of the Field Artillery warrant officer Targeting Technician, MOS [Military Occupational Specialty] 131A. I noticed that several of the articles were authored or co-authored by FA Targeting Technicians. This should be acknowledged as a true sign of the maturation of the FA warrant officer program.

Starting in 1993, the Field Artillery embarked on a program integrating warrant officers into the targeting arena. Throughout implementation, there were many growing pains during the selection, education and positioning of warrant officers into targeting positions. I think the articles in the May-June edition point out the success of this program and truly recognize the efforts of the commanders, warrant officers and NCOs who have made this program work.

The May-June magazine illustrates the institutionalization of working tactics, techniques and procedures in the targeting process from the maneuver brigade through divisional operations. The high level of technical expertise and clear articulation of the technical applications of the targeting process highlight the successes of integrating a warrant officer into this important function. Additionally, the edition has an article "Q-47 Future Firefinder Radar" [by Chief Warrant Officer Three Robert A. Nelson, Jr.] that shows the FA Targeting Technician has maintained the technical edge and plays an essential role in the development and sustainment of our combat multipliers.

With this praise, I'm not suggesting the maturation of the 131A Targeting Technician program is complete; we have many more areas in the spectrum of operations to conquer. But I am confident that with the intuition, imagination and resourcefulness of our FSCOORDs [fire support coordinators], DFCOORDs [deputy FSCOORDs], FSOs [fire support officers] and warrant officers, the FA will meet the challenge.

As we focus on the evolution of the Army's targeting process, I hope the goal of the Field Artillery Targeting Technician program "hitting its target" is not lost.

CW3 Donald F. Cooper
Career Manager (FA/ADA/EN)
Warrant Officer Division,
PERSCOM
Alexandria, VA

Apply to USMA by 1 April

The United States Military Academy (USMA) at West Point, New York, is one of the world's premier institutes of leader development. Graduates not only receive a Bachelor of Science degree, but also a commission as a second lieutenant in the US Army.

Each year approximately 250 soldiers (Active, Reserve and National Guard) and more than 100 dependents of military members are offered admission to West Point or the US Military Academy Preparatory School (USMAPS) at Fort Monmouth, New Jersey.

For a dependent to be eligible, he or she must be the child of a career military member. The term "career military member" refers to members of the Army, Navy, Air Force, Marines or Coast Guard who are on active duty (other than for training) and who have served continuously on active duty for at least eight years or who are, or who died while they were, retired with pay or granted retired or retainer pay.

Also included are service members currently serving in the Reserve Component who are credited with at least eight continuous years of service computed under section 12733 of Title 10, United States Code (i.e., at least 2,880 points). Finally, Reservists who would be, or who died while they would have been, entitled to retirement pay except for not having attained 60 years of age are also included in this category.

The prep school prepares soldiers for success at West Point through an intensive curriculum focused on English and mathematics. Applicants must be US citizens, unmarried with no legal obligation to support dependents, high school graduates, under 23 years of age prior to July 1 of the year entering USMA (under 22 years of age prior to July 1 of the year entering the Prep School), of high moral character and must have a sincere interest in attending West Point and becoming an Army officer.

Soldiers and dependents who meet the basic eligibility requirements, have achieved SAT scores greater than 1000 or ACT composite scores of 20 or higher and achieved good grades in a college preparatory high school curriculum are especially encouraged to apply.

All application requirements must be met by 1 April 2002 to be considered for an appointment to West Point or USMAPS in July 2002. Those who are interested should call DSN 688-5780 or (845) 938-5780, email tc2324@usma.edu or fill out the request form at http://forms.admissions.usma.edu/cb.

MAJ Kirk W. Gohlke
Admissions/Marketing
USMA, West Point, NY

Colonel Steven L. Bailey
Commander of the 3d Initial Brigade Combat Team (IBCT)
2d Infantry Division, Fort Lewis, Washington

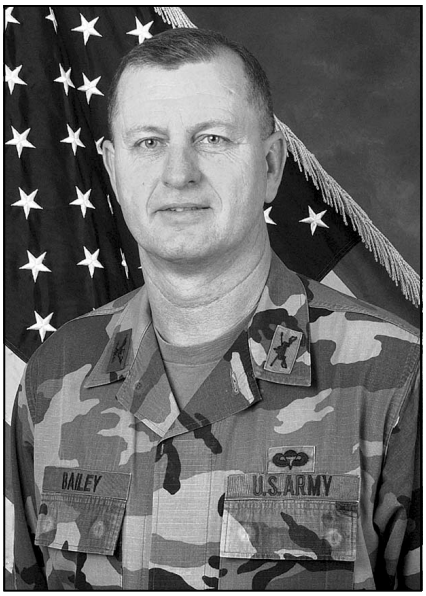
Fires for the IBCT
A Mobile Infantry-Centric Force

Interview by Patrecia Slayden Hollis

The Initial Brigade Combat Team (IBCT) is the first of the IBCTs being developed as part of the transformation of the Army into the Objective Force. The IBCT will deploy anywhere in the world within 96 hours, sustain operations for 180 days without relief and conduct stability and support operations (SASO) and small-scale contingency operations (SSC) against low- to mid-range threats that can employ conventional and asymmetrical capabilities. With augmentation, the brigade can fight at the higher end of the spectrum, a major theater war (MTW).

The brigade must operate in urban, complex and open areas. Its two core qualities are high mobility (strategic, operational and tactical) and its ability to achieve decisive action through dismounted infantry assaults. The IBCT is projected to be deployable in FY03. (See the organizational figure on Page 6.)

The IBCT's organic fire support assets are a 3x4 (12) M198 155-mm towed howitzer battalion in direct support (DS) with one Q-36 and one Q-37 radar; fire support teams (FISTs) embedded in the infantry battalions and the reconnaissance, surveillance and target acquisition (RSTA) squadron; a fires and effects coordination cell (FECC) as part of the brigade headquarters; four unmanned aerial vehicles (UAVs) in the RSTA squadron; and 66 mortars. The mortars are 36 120-mm mortars (10 in each of the three infantry battalions—four in the headquarters and headquarters company mortar platoon and two in each of the three company mortar sections; and six in the RSTA—two in each of the reconnaissance troops); 12 81-mm mortars (four per infantry battalion in each mortar platoon) and 18 60-mm mortars (six per infantry battalion—two in each of the company mortar sections).



Q *Given that your FA battalion's primary mission is counterfire, what is its role in shaping and close supporting fires? How do you mass and integrate mortars with Field Artillery?*

A Because the IBCT is infantry-centric and vulnerable to indirect fire, the primary mission of 1-37 FA is counterfire. But the brigade is capable of operating across the spectrum of conflict, so the mission of our FA battalion depends on the scenario. If the brigade is conducting operations at the lower end of the spectrum—SASO or an SSC—then the mission is different than if the brigade is conducting operations at the higher end—an MTW. So, in fact, 1-37 FA must be prepared to do it all—counterfire and shaping, close and rear fires—like traditional DS FA battalions.

Now having said that, mortars are our primary close support weapons. The mortars, basically, are the battalion commanders' or the company commanders' assets. If we faced, say, a massive infantry assault, we could use the FECC [fires and effects coordination cell] to integrate and synchronize the effects of mortars from several different units and FA to mass against the central target. But massing mortars would be the exception. Because of the distances over which we must operate, massing mortars is just not practical in most situations.

Q *What are those operational distances and what are your challenges?*

A We must operate in a 40-by-40 to 50-by-50 kilometer box, as compared to the legacy brigade's 10-by-10 kilometer operating area. Our brigade will be spread out to conduct nonlinear, non-contiguous operations—it will be difficult to move mortars into position to mass—or even on occasion our howitzers, for that matter. If we need more close support firepower, we depend on CAS [close air support] or other joint fires.

The brigade was designed with additional C^{4}ISR [command, control, communications, computers, intelligence, surveillance and reconnaissance] assets to "see" a situation developing in advance before we come in contact with the enemy. With these C^{4}ISR assets, we can see our units, the enemy and the terrain and can do a better job of predicting the firepower we'll need.

In our BCTP [Battle Command Training Program] Warfighter exercise [4 to 8 September], we had almost a 100-by-100 kilometer area of operations when we started the exercise with stability and support operations. That was a challenge—in terms of infantry operations and communications plus radar coverage.

When the brigade is spread out over a 100-by-100 kilometer box, you must operate in squad-sized elements to have an area presence. That's an old lesson, but that also means you have to leverage C4ISR down to the lowest level to be successful—you don't realize how important that is until it becomes a challenge. Our communications network was a challenge over such a large area. So operations at the squad level is easy to describe and hard to do.

Because we will have to fight in squads dispersed over large areas, often in complex or urban terrain, it is not practical to have forward observers only at the company level. Therefore, we have requested and the DA staff has approved forward observers at the platoon level. It will add 13F20s [Fire Support Specialists] to the brigade—their value-added is well worth it.

Another challenge was radar coverage. The brigade has one Q-36 and one Q-37 radar, but we need another Q-36. Our Firefinder radars are critical to counterfire and force protection.

Our area of operations was so large and nonlinear that we had to accept some risks by focusing the arcs of our limited radars on selected areas, based on information that indicated enemy forces in those area. By taking advantage of our organic ASAS [all-source analysis system] and reach-back intelligence capabilities, we had a better picture of the enemy and where he was operating. We leveraged our intelligence technology to adjust our radar coverage and assumed some risk in other areas.

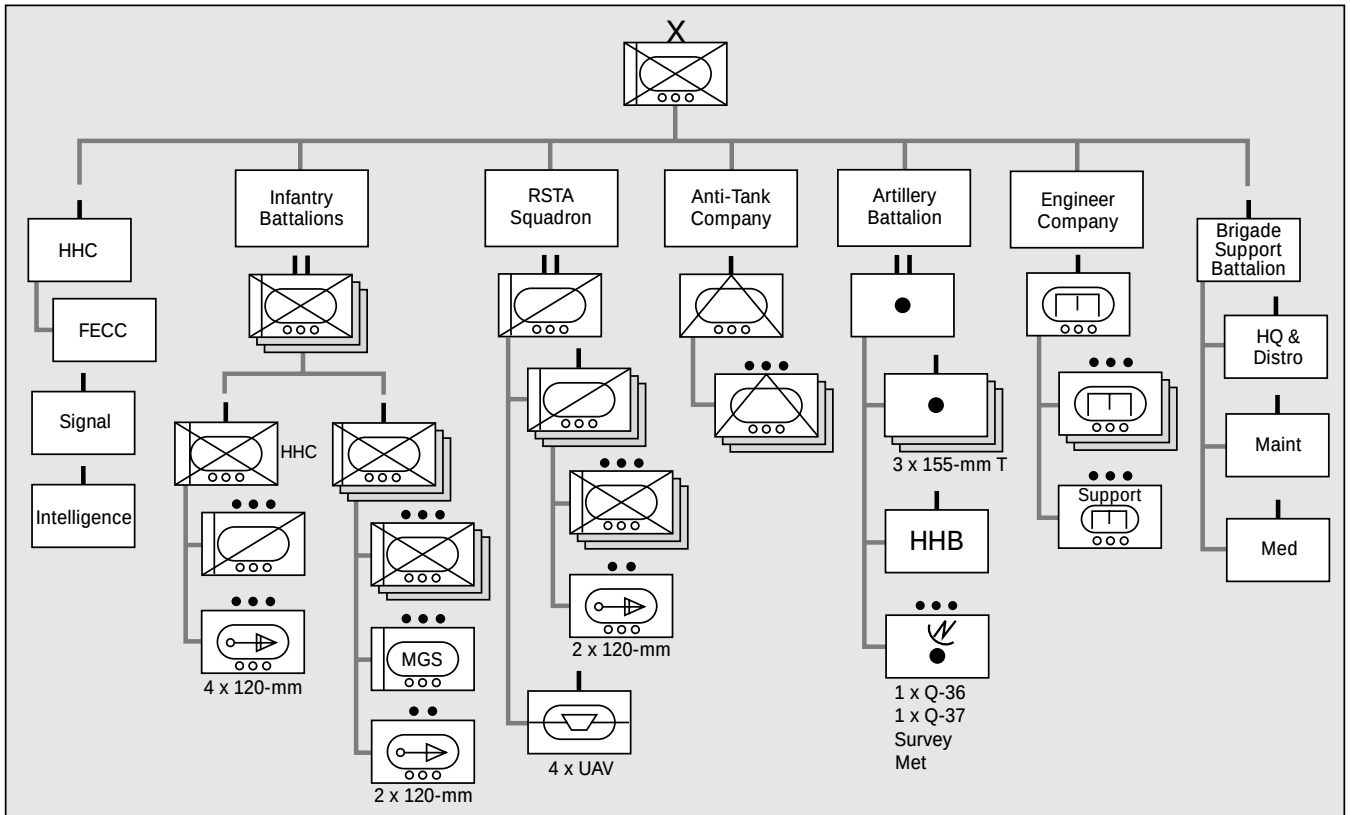
It is along those same lines that we attempted proactive counterfire during our Warfighter—with some success

The need for a second Q-36 applies not just in a 100-by-100 kilometer operational area, but also in a 40-by-40 kilometer area—particularly when we must fight guerilla forces simultaneously with conventional forces, as happened during our Warfighter. In one scenario, we had nearly a 360-degree environment for the enemy to attack us. With only two radars, we were limited in the direction the arcs could search; in addition we needed the Q-37 to look deep at the conventional forces being introduced into the theater.

Q *How did your UAVs contribute to the brigade's intelligence and targeting?*

A Our Hunter UAVs proved to be excellent information sources. They provided intelligence and targeting data, triggered CAS, adjusted indirect fires, reported battle damage—in short, served as reconnaissance elements and "forward observers."

In the Warfighter, our UAVs were highly effective in helping us transition into scenarios with increased threats. Our



Initial Brigade Combat Team (IBCT) Organization

SASO scenario moved into a SSC sideline and then into an MTW when the enemy committed to a conventional attack against us while he still had his non-conventional forces in the area. We had to deal with three levels of military operations at the same time.

We got an early JSTARS [joint surveillance and target attack radar system] indication that triggered us to retask a UAV to look in a specific area and found the enemy assembling his air assault forces—infantrymen and helicopters. At that time, they were out of our artillery range.

So our JTF [joint task force] headquarters redirected CAS on that target. We then tracked the force as it began to move with the AMDWS [air-missile defense warning system] and used our UAV to trigger our artillery and direct fires against the force when it landed within range. In that one engagement, we used UAVs to attack the enemy with CAS, then artillery and mortars plus direct fire from our maneuver forces. The enemy air assault battalion was completely unsuccessful.

The RSTA squadron commander employs the UAVs. The preferred method of employing the UAV is as part of the overall intelligence plan—determine a route to cover gaps in intelligence gathering and then deconflict its airspace in advance. Otherwise you have conflicts in airspace control between the Army and Air Force and our mortars and artillery.

Obviously, when a critical target presents itself—such as the air assault battalion—we can dynamically re-task a UAV to confirm the target and provide the grid coordinates to kill it. But such re-tasking is the exception.

Q *How did you employ the FECC?*

A We are "breaking new ground" with the FECC, a relatively new concept. One lesson we learned early on is the FECC's nonlethal effects cell needs to do some initial coordination to ensure nonlethal effects line up with lethal effects before we go into the targeting meeting. The FECC, in essence, needs two meetings for targeting. The preliminary meeting ensures the targets and objectives of nonlethal effects complement those of lethal effects and both meet the commander's guidance and intent. The actual targeting meeting synchronizes it all.

Hunter Unmanned Aerial Vehicle (UAV). In the Warfighter, our UAVs were highly effective in helping us transition into scenarios with increased threats.

If you don't have the preliminary meeting, the focus of the target meeting is fragmented and the meeting takes too long and is less effective. We have to be focused and flexible enough to target the enemy effectively as we cross the spectrum of conflict from a SASO/SSC into an MTW—move from an emphasis on nonlethal (information operations, psychological operations, civil affairs, etc.) to lethal effects. We need to develop, revise and refine out FECC TTP [tactics, techniques and procedures] as we practice our operations.

During our Warfighter, I asked Lieutenant Colonel Skip [Henry S.] Larsen, the ECOORD [effects coordinator/FA battalion commander], to help me figure our how to kill mortars, which are fleeting targets. The enemy would fire a couple of mortar rounds and move out.

The result of our work was that when the radars acquired the firing mortar, the FECC communicated over a counterfire quick-fire net to send the nearest infantry unit in to detect the moving or repositioned mortar and kill it or locate it precisely enough for an artillery kill. This quick-fire net was especially effective in urban areas with the local populace all around the mortar position or in areas restricted to indirect fire due to the ROE [rules of engagement]. This "maneuver counterfire" proved very successful.

The key to synchronizing intelligence and targeting is the brigade TOC [tactical operation center]. During the Warfighter, the brigade TOC included the FA battalion TOC, FECC and RSTA TOC with the MI company. Coordination and synchronization are much easier when you are all together. But it also created a big TOC with a big signature.

We have an exercise planned at Yakima Training Center [Washington] in the near future in which we're going to split the components out and make the TOC signature very small. We will leverage technology to plan, synchronize and execute brigade operations from different locations by VTC [video teleconference] and the "white board" embedded in our C^{4}ISR.

Q *What were other challenges during the Warfighter?*

A When we are operating at the lower end of the spectrum of conflict where we won't be augmented, we have to be very accurate and predictive in reporting our ammunition status and

"Maneuver Counterfire." When the radars acquired the firing mortar, the FECC communicated over a counterfire quick-fire net to send the nearest infantry unit in to kill it.

other CSS [combat service support] requirements. In a more traditional brigade, if you aren't accurate in your reporting, you have enough supply assets to push forward in sort of an emergency resupply mode. We don't have that capability embedded in the brigade. So we have to take advantage of our situational understanding provided by our C4ISR and predict our supply needs down to the lowest possible level.

When the level of conflict increases, we will have a CSS structure—the brigade is not designed to fight an MTW without augmentation. The military situation and how long the brigade expects to have to fight at that increased level of combat intensity determine the amount and types of augmentation from corps—not just CSS, but other assets as well. These include CASEVAC [casualty evacuation], access to helicopters and engineer and other assets.

One important lesson learned during the Warfighter is that when the brigade moves into a conventional fight and has to go into the defense, it needs augmentation of engineer assets from the JTF. Our C4ISR reach-back assets gave us early warning of an advancing conventional force so we could quickly dig in to blunt the enemy's attack. Our one engineer company with limited dig capability was a precious force protection asset.

We also were surprisingly successful in the battles against the non-conventional forces and terrorist in our area of operations. We had some casualties, but in most incidences, we were successful.

We certainly have more counterterrorism capabilities than traditional forces. Our C4ISR provides dossiers on known and suspected terrorists, their photos, information on the different cells out of which they operate, the enemy orders of battle—in fact, reach back to the national database on terrorists. Our RSTA recon troops provide HUMINT [human intelligence], which the MI company analyzes.

Q *Please describe several scenarios representative of IBCT employment.*

A First, the requirement to be able to deploy the IBCT in 96 hours was imposed by the Army to restrict the size of the brigade—not as a requirement in all circumstances. The actual deployment time line will be dictated by the situation, the availability of air transport assets and the ability of the "receiving end" to accommodate those aircraft—not necessarily in 96 hours.

Ideally, the brigade was designed to operate in the SASO or SSC environment because of the deployability and mobility of our infantry-centric force. We could go into Kosovo, Bosnia or back into Somalia.

We have infantry forces and snipers maximized to fight in urban and complex terrain. We specialize in clearing buildings and conducting dynamic breaches to open up an entry that the enemy isn't expecting. We spend about 50 percent of our training time on MOUT [military operations in urban terrain], about 30 percent on complex terrain and only 20 percent on the more traditional open, mechanized fight, such as at the NTC [National Training Center, Fort Irwin, California]. But with the augmentation of selected assets as the scenario dictates, the brigade can fight across the entire spectrum of conflict.

One scenario the IBCT is suited for is to come in behind a lead battalion, either from the 101st [Airborne Division (Air Assault)], 82d [Airborne Division], Rangers or Special Forces. The battalion would secure the airfield and its immediate perimeter, and the IBCT would flow in by air after them.

The brigade has the mobility to expand the operational area and has some "teeth" to protect and secure the airfield until heavy forces can start arriving. For example, we have 132 Javelin [antitank] launchers in our infantry squads and RSTA troops, an excellent weapon. We also have nine platoons of mobile gun systems [tank-like, light armored vehicles with105-mm guns]. Of course, these are in addition to our FA battalion's 155-mm M198s; the battalion has the command and control capabilities to deploy along with the FECC as a complete entity or in firing battery sets.

These systems give us the firepower to follow an initial entry force into the theater to secure the environment for follow-on forces. We would ensure the enemy not only can't seize the airfield, but also can't influence subsequent operations on the airfield.

In another scenario, we could be employed effectively in Intrinsic Action type of deployments. The Army routinely rotates heavy forces back into Saudi Arabia and Kuwait, practicing deployments and training in exercise Intrinsic Action.

If the Iraqis begin to build up along the border, as they often do, then the brigade could fly out immediately to the area, push out and secure the borders as heavy brigade elements from, say, the 1st Cavalry or 3d Infantry Divisions fly in behind the brigade. The heavy elements then would draw equipment out of POMCUS [prepositioned materiel configured to unit sets], do some equipment testing and calibration and join us on the border.

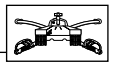
As the combat intensity of a scenario increases, we can become the fifth maneuver brigade [including the aviation brigade] of a heavy division. In fact, we worked on just such a scenario with the 4th Infantry Division at Fort Hood [Texas].

That allows the division to use us as an economy-of-force element to secure an unprotected flank. If augmented, we could serve as a security force—operate similarly to, for example, the 3d Armored Cavalry as a covering force. But to fight out in front, we will have to have additional fire support and tank assets. Then the division would have a robust force out front with great information-gathering capabilities as well.

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

A We ask our Field Artillery battalion to do more than the traditional DS battalion, and it has done a superb job.

1-37 FA is leading the way in transformation. It was the first in the brigade to field its equipment…the first to deploy and re-deploy by air (and so the battalion is writing the brigade's deployment SOP)…and the first in the brigade to live fire. 1-37 FA is a critical force protection and firepower asset for the IBCT.



Colonel Steven L. Bailey commands the 3d Initial Brigade Combat Team (IBCT), 2d Infantry Division, Fort Lewis, Washington, the first of the IBCTs in the Army's Transformation initiative. In his previous assignment, he was the Senior Trainer for Armor Task Forces at the National Training Center, Fort Irwin, California. He commanded the 1st Battalion, 32d Armor, part of the 9th Infantry Division, Fort Lewis. In the 24th Infantry Division (Mechanized), Fort Stewart, Georgia, he was the S3 of the 3d Brigade and Executive Officer for 2d Battalion, 69th Armor. He commanded a tank company in the 1st Battalion, 33d Armor, part of the 2d Armored Division, Germany. He is a graduate of the Army War College, Carlisle Barracks, Pennsylvania.

Transforming Fires for the Objective Force

By Brigadier General William F. Engel

Artist's Rendition of Objective Force, HQ TRADOC

The Field Artillery is decisively engaged in transforming fires on every axis of Army transformation: Legacy Force, Interim Force and Objective Force. (See Figure 1.) However, there are many questions about where the Field Artillery fits in the future Army and the Objective Force of 2030. "What will be Crusader's role in the Objective Force? Are we going to have an artillery version of the future combat system (FCS)? Will the high-mobility artillery rocket system (HIMARS) replace the M270A1 multiple-launch rocket system (MLRS) launchers? Do you envision a replacement for the M119A1 105-mm howitzers in our light units if all the divisions become Objective Force design?" While we don't have the answers to all these questions, it's clear we will continue to be a major player in the combined arms team throughout the Army's transformation.

By 2030, the Field Artillery likely will have undergone some fundamental operational and organizational changes. One thing is clear, the Army is aggressively moving forward with transformation, and we must move in concert to remain relevant.

We may or may not have artillery battalions in direct support (DS) of maneuver brigades in the future. We may have something potentially more dynamic, such as batteries tailored to support FCS-equipped combat battalions. Or, we may have something that works much like DS on two levels—one for FCS-equipped combat battalions with batteries in command or support relationships and one for the brigade from a more multi-functional "fires battalion," or the brigade may receive its support

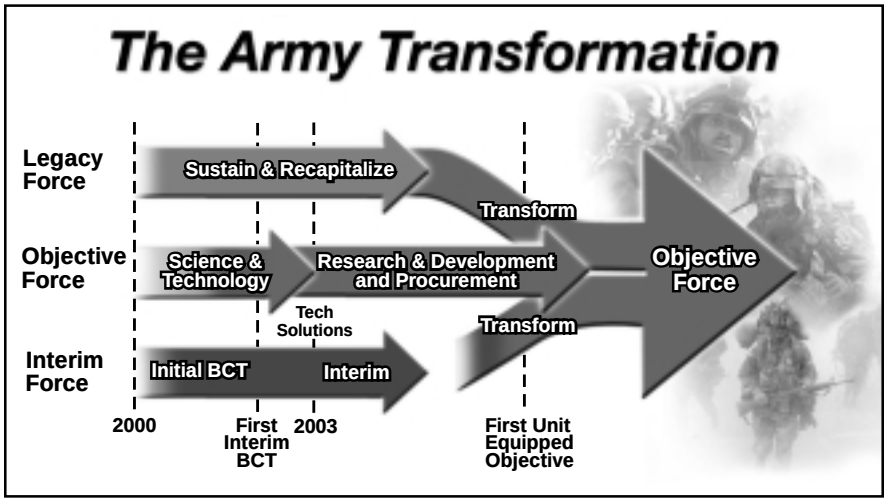


Figure 1: The Army is transforming into a more responsive, deployable, agile, versatile, lethal, survivable and sustainable force.

from fires units organized above brigade. In fact, we are examining many different operational and organizational concepts to determine how the branch will make the greatest possible contribution to combined arms warfare—today and in the future.

No matter what the endstate, our mission will remain the same—respond to the needs of the combined arms team. We have a long legacy of evolving in this manner, and it has served us well.

HIMARS probably will support the Objective Force.

Because the Objective Force is still in the conceptual stage, there are misconceptions about aspects of that force. For example, some believe the FCS will replace every type of vehicle in today's heavy divisions. That isn't the concept. Simply stated, FCS is envisioned as a networked system-of-systems that will serve as the core building block in future combat battalions for maneuver, support and sustainment.

For those who may be bothered by the many uncertainties of the transformation process, have faith. We are an integral member of the Training and Doctrine Command's (TRADOC's) transformation team developing the operational and organizational concepts for the Objective Force.

FA Progress—The First Two Axes. The transformation effort is a work-in-progress to achieve the Army Vision, and the FA is being affected by actions on all axes.

Legacy Axis. We have partnered with the 4th Infantry Division (Mechanized) Artillery at Fort Hood, Texas. A major milestone on the Legacy axis is the Division Capstone Exercise (DCX) Phase II that recently concluded. This exercise showcased the capabilities of the Army's first digital division. At the conclusion of this exercise, the 4th Infantry Division no longer was an Experimental Force (EXFOR) for the Army. Its tremendous warfighting capability now supports warfighting commanders-in-chief (CINCs).

Many of the lessons learned from the 4th Division's experiences apply to other heavy divisions. Recent reviews of digitization issues suggest these issues also apply to the Interim Force.

The III Armored Corps will comprise the Legacy Force and be the Army's "strategic hedge" during the transformation process. The III Corps divisions, armored cavalry regiment and associated corps slices will receive priority for material modernization.

For the FA, this means fielding Crusader and the M270A1 in these units—creating a "fires hedge" as the Army transforms. This also means Army National Guard units that are part of the supporting Legacy Force's FA brigades will be modernized ahead of some active units. Other heavy Legacy Forces probably will remain Paladin- and M270-based until their parent divisions transform into the Objective Force design. At this time, we don't know when we will phase out the M270A1 launcher; HIMARS most likely will be part of the Objective Force.

We are carefully watching for decisions on the 82d Airborne Division and 101st Airborne Division (Air Assault). If the Army chooses to maintain the unique warfighting capabilities of these two light divisions by the end of the transformation period, it will cause the Field Artillery to seek a long-term solution for a replacement to the M119A1 (towed 105-mm) howitzer.

Interim Axis. The Army is aggressively "moving out" in forming and fielding brigade combat teams (BCTs). The first Initial Brigade Combat Team (IBCT), the 3d IBCT, 2d Infantry Division at Fort Lewis, Washington, just completed its first Battle Command Training Program (BCTP) Warfighter Exercise; we are gaining many insights about the unique operational demands of this organization.

For example, the fires and effects coordination cell (FECC) is a visionary organization that is becoming a reality in the IBCT. The FECC is responsible for integrating and synchronizing all lethal and nonlethal effects. Although the total integration of lethal and nonlethal targeting presented challenges in the Warfighter exercise, this concept appears to be valid. I feel confident the FECC will solidify its value in the future.

Another challenge of the IBCT Warfighter was mortar integration. The large number of mortars in the IBCT intensifies the age-old challenge of integrating mortars into fire support.

The Objective Force Axis. Before I discuss Objective Force concepts and their implications for the FA, I must briefly describe the changing operational environment. There is broad consensus that our Legacy, Interim and Objective Forces will face a very different operational environment than many of us faced in the past. In fact, recognition of the challenges associated with this new operational environment is a major catalyst for transformation.

New Operational Environment. The US military is the most studied force on the planet. Almost every nation has carefully watched and analyzed our

Courtesy of United Defense

Crusader helps create a "fires hedge" as the Army transforms.

- Ceasing large-scale maneuver and dispersing formations into smaller elements.
- Conducting efforts to preserve military capabilities and forces.
- Seeking protection in urban and complex terrain to use collateral damage as a shield.
- Retaining and judiciously using existing capabilities for precision strike and maneuver against key US capabilities and locations.
- Conducting decentralized operations coordinated through a preserved command and control structure.
- Integrating special operation forces (SOF), paramilitary, terror, and unconventional capabilities to deny sanctuary to US forces.
- Reverting to low-tech systems for redundancy and low-tech counters to US advantages.
- Using weapons of mass effects (WME) to interdict our access to a theater or deny our operations within a theater.

Figure 2: Enemy Methodologies in the New Operational Environment

- Minimize collateral damage.
- Counter the enemy's use of the urban environment as a sanctuary.
- Routinely implement strict rules of engagement (ROE) and interaction.
- Identify combatants and potential non-combatant casualties.
- Target small, dispersed formations that move less often.
- Engage an enemy who aggressively limits his exposure and our engagement time.
- Preemptively attack the enemy's precision strike capabilities that have considerable standoff range.
- Maximize our ability to preemptively strike the enemy.

Figure 3: FA Challenges in the New Operational Environment

actions during the last 10 years. Those who have studied our actions over time believe we are fairly predictable. Potential adversaries are adopting selected advanced capabilities and innovative strategies to overcome US military dominance, particularly with respect to ground forces.

These adaptive strategies for confronting US forces focus on several primary integrated goals: denying or delaying US intervention; creating US casualties to degrade our political will; extending the duration of operations; dissolving allied coalitions; and preserving key regime-ensuring military forces. Likely operational methodologies to achieve these goals include those listed in Figure 2.

This new operational environment poses some unique challenges for the Field Artillery. We must exploit technology to help us respond. Some of the more significant challenges are listed in Figure 3.

Given this kind of creative adversary, we must be able to respond to modernized conventional and unconventional forces that employ adaptive strategies and asymmetric tactics. Our transformed Army and its Field Artillery must retain a quality of "adaptive dominance"—the ability to change faster than the enemy can react. This adaptive dominance will require inherent versatility and adaptive leaders.

Developing future leaders and soldiers who can operate with confidence and competence in an environment of constantly changing conditions and the resultant uncertainty is paramount. These leaders and soldiers must be prepared to shift rapidly and smoothly across the range of operations and conflict spectrum. Advanced technologies will empower our soldiers to new levels of performance. These soldiers and leaders will remain the centerpiece of tomorrow's Field Artillery.

Transforming our soldiers and leaders will present Fort Sill many institutional challenges as we move into the future. At some point, we literally will be training soldiers and leaders from all three axes. This will require greater agility in the schoolhouse than we have today. We must be flexible in developing the right skills and attributes at the right time for the appropriate grade levels.

We also must find a way to accelerate Field Artillerymen's experiences at all grade levels. We simply cannot wait for the experiences they need to transpire as a result of the normal varied assignments over time.

While technical competence will remain important, we are rapidly shifting to an era of tactical dominance much like the maneuver arms. For example, put yourself in a Crusader cockpit. While time spent performing tasks—such as computing the technical gunnery solution, determining self-location and matching fuze, projectile and charge—will shrink drastically, time and effort spent tactically maneuvering or "fighting" Crusader to provide the best, most responsive support will increase significantly. With this example, you can begin to envision the breadth of the transformation of our branch.

Objective Force Operational Concepts. As mentioned, there is still considerable misunderstanding about the Objective Force at this point. At the risk of causing additional confusion, I will

Courtesy of HQ TRADOC

Artist's Rendition of a Future Combat System (FSC)

Courtesy of HQ TRADOC

Artist's Rendition of a Reconnaissance, Surveillance and Target Acquisition (RSTA) FCS

describe a few of the more important ideas that are emerging and assess how these ideas will impact the Field Artillery.

The FCS-equipped combat battalion will be the fundamental building block of the Objective Force. The combat battalion is envisioned to perform the missions currently done by light infantry battalions; armored task forces; armored cavalry squadrons; Interim Force reconnaissance, surveillance and target acquisition (RSTA) squadrons; and motorized infantry battalions. Some key characteristics of that force are outlined in Figure 4.

Future Combat System (FCS). Probably the most frequently asked Objective Force question I hear is: "Just exactly what is FCS?" This system-of-systems, the core of future maneuver battalions, will be comprised of a family of advanced, networked, ground-based maneuver, support and sustainment systems that may include both manned and unmanned platforms. The largest FCS platforms will be lighter than current mechanized systems with each element possessing common or similar characteristics with respect to mobility, survivability and sustainability.

Some FCS platforms will be multifunctional and modular, combining two or more battlefield functions, such as direct fire, indirect fire, point air defense and battle command for maneuver battalion operations. Some FCS variants may have single functions.

The survivability of FCS is predicated on a holistic approach rather than on just the passive armor protection of today.

FCS also will provide the means for maneuver forces to generate *organic* complementary and reinforcing effects. The indirect fire range requirement for the FCS has not been finalized. The technical challenges of platform weight and the required munitions effects will refine the requirements for the indirect fire capability for FCS as we continue to analyze warfighting needs.

Fires Implications. So what are the implications for us? We're not totally sure, but we have some insights. Fires at the brigade level could be more focused on shaping operations while FCS-equipped combat battalions could handle many more close support fires tasks within their own maneuver battalions and companies. If you think in terms of the relationship of mortars for organic fire support in the maneuver battalion and company (but with greatly expanded capabilities), then you can begin to grasp the operational concept for fires at these echelons. The key idea is that the FCS-equipped combat battalion will have an enhanced organic indirect fire capability.

This shift is not inherently bad. Today we are challenged to meet the needs of the maneuver brigade and its subordinate battalions with mortars and our Paladin howitzers. We often hear the complaint that most of FA fires are applied to satisfy the brigade's needs at the expense of subordinate units. Often this is true.

So, if FCS can meet the technical challenges normally associated with range for indirect fires, we may see a greater balance between FCS-generated organic fires and external supporting fires. This enhanced balance will require the projected increases in situational understanding and enhanced automation.

Fires Tasks in the Objective Force. Objective Force concepts correctly recognize that close supporting fires, shaping fires and preemptively attacking the enemy's strike capabilities will be enduring tasks for tactical echelon combined arms operations. What may be different is what units at what levels execute these tasks.

Today, an FA battalion in direct support must do all three. With an enhanced organic capability for indirect fires in the FCS-equipped combat battalion, we may see this unit handling more of the close supporting fires. How-

- Have more comprehensive *organic combined arms* vice today's reliance on task force organization and extensive supporting relationships.
- Have an *expanded operating radius and area of influence.*
- Have an *expanded mission set* and broader *general-purpose quality.*
- Redefine close combat, encompassing a significant shift in decisive action toward *tactical standoff engagement* versus today's higher reliance on direct fire engagements in close combat assault.
- Conduct *continuous operations*, as enabled by an organic capability to conduct high-intensity combat operations for up to three days.
- Have *a higher operational tempo*, enabled primarily by superior situational understanding that significantly reduces the uncertainty that often retards tempo and by more lethal and precise weapon systems that hasten the pace of destruction.
- Have radically *shifting force ratios* for offensive and defensive operations.
- Have greater freedom of action, even while significant elements in the battalion are fully engaged.
- Employ substantially different approaches to *force survivability* and *sustainability*.
- Have sharply improved exploitation of the *vertical dimension.*
- More *routinely integrate higher Army and joint capabilities* at lower tactical levels.

Figure 4: Key Characteristics of the Objective Force Combat Battalion

ever, Objective Force concepts clearly recognize the need for external support from assets outside the combat battalion.

In the future, a robust FECC will orchestrate this external support for the combined arms brigade (maneuver). The combined arms brigade will retain primary responsibility for setting the conditions for subordinate units through shaping operations. These concepts describe long-range, precision fires and effects from external support as being a critical enabler for shaping operations. These shaping operations are described in Figure 5.

- Isolate ongoing close fights of FCS-equipped combat battalions.
- Sharply expand the level of continuous fires supporting FCS combat battalions, when required.
- Augment the volume of fires to achieve rapid decision.
- Ensure freedom of action for subordinate units.
- Provide specialized capabilities, such as obscuration.

Figure 5: Purpose of Shaping Operations for the Objective Force

Our Fires Concept. We envision a fires battalion as the primary source of this external support. While the final design of our FA forces supporting tactical echelon Objective Forces isn't totally clear, we have begun to examine how we should evolve. At some point, we will formalize our concept in concert with overarching Objective Force ideas.

As part of that process, we have begun a series of experiments in our Depth and Simultaneous Attack Battle Lab to explore operational and organizational issues for fires and effects at brigade and below in an environment representative of the future. The insights from these experiments and from the ongoing series of warfighting seminars at Headquarters TRADOC will allow us to shape and refine our concepts.

The Fires Battalion. We probably will retain something like a battalion organization in a "force pool" above brigade level. However, this battalion may be very different from today's battalion organization. We are calling this conceptual unit a fires battalion.

The fires battalions routinely could be mission tailored from standing force pools of battalions. These standing battalions would be modular—probably around platoons and batteries, as we know them today. Those platoon and battery modules also would be able to operate as subordinate forces to at least the battery level, providing responsive, decentralized support to FCS combat battalions, as needed. This design may include NetFires (missile in a box) to take advantage of its unique munitions capabilities.

Mission tailoring would begin upon deployment notification and be driven by the specific contingency and its mission. This normally will entail the packaging of cannon, rocket and missile capabilities that can be rapidly retailored with changing mission requirements—before deployment and after arrival in theater.

We hope to increase the span of command and control of the fires battalion and its subordinate batteries. We would like to have between four and six subordinate batteries, given the expected improvements in automation capabilities. Clearly there are limits on span of control, and we need to understand those boundaries better if we are to raise the "tooth" without unduly raising the "tail." Mission needs would drive both the arrangement and combinations of systems in our fighting organization and the types of command or support relationships to maneuver units at the different echelons.

Networked Fires. We must move from what is perceived as a stove-piped functional capability to an execution-centric, integrated combined arms capability. What that means is we probably won't pursue a next-generation automation system but rather continue to develop the right fires functionalities for migration to the next-generation Army battle command system (ABCS) as an integrated combined arms network. With FCS-based maneuver units generating some level of indirect fires, the need for an integrated approach to fires that works seamlessly with the combined arms team becomes very important.

The network must be able to help prioritize and direct requests for fires to the most appropriate systems in real time. This includes joint and other Army systems, such as Army Aviation. Sometimes this will result in a solution that employs multiple types of systems for optimal effects—something that doesn't happen today. The network must allow access to all relevant sensors in real time. When we have this type of capability, we will begin to break down many of the barriers that keep fires from being dynamically integrated with maneuver.

The Army is aggressively moving forward with transformation. To remain relevant to the combined arms team, we must continue to move in concert with this process. Failure to do so is not in the best interest of the Army or the branch.

Change is not inherently bad; we must embrace those changes that will improve combined arms operations and the integration and synchronization of maneuver and fires.

I've described some of our emerging ideas to begin this process. While Interim Forces are just beginning to field equipment and execute their operational concepts and Objective Force concepts and FCS development are in their infancy, you can rest assured we are fully engaged on all axes for our lane.

My tenure as Assistant Commandant of the Field Artillery School spans the time of the release of the Army Vision to the present. As I depart, I am convinced our branch is and will remain an essential part of all future combined arms operations for our Army.

Brigadier General William F. Engel was the Assistant Commandant of the Field Artillery School and Deputy Commanding General for Training of Fort Sill, Oklahoma, from October 1999 until October 2001. Currently, he is the Commanding General of White Sands Missile Range, New Mexico. In his assignment before coming to Fort Sill as the Assistant Commandant, he was the Deputy Director of Operations at the National Military Command Center, J3, on the Joint Staff at the Pentagon. He also served as the Chief of the Command Planning Group at Headquarters Training and Doctrine Command, Fort Monroe, Virginia, and Chief of the Systems Integration and Programs Division of the Directorate of Combat Developments in the Field Artillery School, Fort Sill. He commanded the 17th Field Artillery Brigade, III Corps Artillery, Fort Sill, and the 4th Battalion, 41st Field Artillery, part of the 197th Field Artillery Brigade (Mechanized) at Fort Benning, Georgia, deploying the battalion to the Persian Gulf during Operations Desert Shield and Storm. He holds a Master of Arts in Political Science from Central State University in Oklahoma.

1-37 FA, 3d IBCT, 2d Infantry Division at Fort Lewis, Washington

Counterfire for the IBCT

By Captain Kevin E. Finch,
Lieutenant Colonel Henry S. Larsen III and
Captain Vincent J. Bellisario

The Initial Brigade Combat Team (IBCT) closes with and defeats enemy forces using dismounted infantry in a combined arms environment. A key capability that allows the IBCT's infantry to conduct operations is protection from enemy counterfire. Although the reconnaissance, surveillance and target acquisition (RSTA) squadron and military intelligence (MI) assets play unique and key roles in proactive and reactive counterfire, counterfire planning and execution falls on the IBCT's Field Artillery battalion—1-37 FA, 3d IBCT, 2d Infantry Division at Fort Lewis, Washington—and the 3d IBCT's fires and effects coordination cell (FECC).

This article focuses on how the Army's first IBCT and its FA battalion are accomplishing the critical common task of providing responsive counterfire and how the IBCT's organization differs from current legacy forces. The IBCT's unique ability to conduct proactive counterfire is the primary distinction between it and its legacy counterpart.

But before discussing counterfire in the IBCT, I present an update of the development of the first IBCT's FA battalion.

Update on the IBCT FA. 1-37 FA's transformation has come at a faster pace than it has for the infantry battalions, the RSTA squadron or the brigade support battalion. The reason is the vast majority of the FA equipment was readily available for fielding—to include the 12 M198 155-mm towed howitzers, medium tactical vehicle (MTV) 5-ton trucks, meteorological section, advanced FA tactical data system (AFATDS) and Force XXI battle command brigade and below (FBCB^2).

In March, 1-37 FA was the first unit in the brigade to field its digital tactical operations center (TOC). The battalion plus combat service support (CSS) slice

elements then air deployed on 18 Air Force C-17 sorties to Moses Lake (intermediate staging base) and road marched to the Yakima Training Center, Washington, as part of exercise Striker Thunder. The battalion also redeployed by air to Fort Lewis at the end of the exercise.

These deployments marked the first time an IBCT battalion-sized unit trained on the common task training list (CTTL) of "Deploy/redeploy by air." The other CTTL tasks are Coordinate and control battalion moves, Conduct counterfire operations, Control delivery of fires, and Coordinate and monitor CSS operations.

Once the 3d IBCT fielded its digital TOC in April/May, the focus of brigade training shifted from the battery/company/battalion level to battalion/brigade/joint task force (JTF) level in preparation for the September Warfighter exercise. This intensive train-up was significant in that it was the first time 1-37 FA trained with the FECC while being able to leverage the brigade's fairly robust intelligence structure and organic sensors that are primarily embedded in the RSTA squadron.

During the September Warfighter at Fort Lewis, we fought as an integrated combined arms brigade for the first time. Much of the tactics, techniques and procedures (TTPs) for proactive and reactive counterfire is the results of training and the Warfighter exercise.

Legacy versus IBCT Counterfire Structure. Counterfire TTP at the brigade level have served legacy forces since the introduction of the Firefinder radar; basically, counterfire has been an artillery mission. In the IBCT, the unique RSTA squadron plays a significant role in counterfire.

The task and purpose of counterfire doctrine outlined in *FM 6-121 TTP for Field Artillery Target Acquisition* has not changed with the advent of the IBCT, just the method of execution. Counterfire is still the maneuver commander's responsibility and the effects coordinator (ECOORD)/fire support coordinator (FSCOORD) is still his primary advisor and executor. Field Artillery TA exists to support the commander's scheme of maneuver during the offense and to protect his most vulnerable assets during the defense or in stability and support operations (SASO).

In the legacy brigade TOC, the emphasis is on reactive counterfire and, basically, leaves proactive counterfire to chance encounters with the enemy's indirect weapon systems. For the IBCT, which is lighter and more deployable than the legacy force, protection is emphasized—proactive counterfire plays a vital role.

To accomplish both proactive and reactive counterfire, the IBCT differs from its legacy counterpart in its TOC layout, personnel structure, equipment and TTP.

TOC Layout. The FECC in the brigade TOC is composed of two sub-cells: the operations and counterfire cell and the targeting and plans cell. The operations and counterfire cell focuses on the current fight while the targeting and plans cell focuses on planning for future operations and the deep fight.

If the brigade TOC employs a forward and main command post (CP), the operations and counterfire cell pushes ahead with the forward CP and the targeting and plans cell remains in the main CP with the brigade planners and maintains a link to all the brigade's military intelligence assets.

FECC Personnel. The FECC is staffed with the soldiers shown in Figure 1. These soldiers are not taken out of the FA battalion staffing, but are organic to the brigade's headquarters and headquarters company (HHC) and an integral part of the brigade staff. Such staffing allows the FECC to operate around the clock, solving one of the legacy brigade TOC's manning challenges.

The addition of a dedicated counterfire officer in the FECC to facilitate proactive counterfire in the brigade TOC best supports the scheme of maneuver and protects assets in the defense or in a SASO environment. This position also eliminates the need for establishing a counterfire headquarters at either the direct support (DS) FA battalion or reinforcing FA battalion TOC.

The TA platoon leader and platoon sergeant operate at the brigade TOC during the planning process and then serve in either the brigade or battalion to which the radars are assigned or attached. This ensures the radar teams have input for the security, location and logistics necessary to accomplish their mission. A targeting and plans battle captain, targeting NCO, plans NCO and two AFATDS operators augment the targeting officer, who in the legacy force is often over tasked due to manning shortfalls.

The brigade conducts nearly simultaneous planning cycles with its battalions, fields enhanced targeting assets and has the ability to "reach back" for information and intelligence. These capabilities can increase the brigade's operational tempo significantly, making the addition of the positions in the FECC necessary to plan and facilitate proactive counterfire and execute the overall brigade plan.

Finally, the addition of the battle captains in the two cells not only provides 24-hour leadership, but also fills the need for an assistant brigade fire support officer (FSO)—a need that still exists in the legacy TOC.

The addition of these personnel creates a formula for success in the IBCT.

IBCT Counterfire Equipment. The FECC relies on a robust automation

DECOORD-04*
Fires and Effects NCO-E7

FECC Forward Operations and Counterfire Cell	FECC Main Targeting and Plans Cell
Shift A:	**Shift A:**
Operations and Counterfire Battle Captain-03	Targeting Officer-CW2
Counterfire NCO-E6	Plans NCO-E6
Fire Support Specialist/Driver-E4	Fire Support Specialist/Driver-E4
Shift B:	**Shift B:**
Counterfire Officer-CW2	Plans and Targeting Battle Captain-03
Operations NCO-E6	Targeting NCO-E6
Fire Support Specialist/Driver-E4	Fire Support Specialist/Driver-E4

*The ECOORD-05 serves in the tactical command post (TAC) with an AECOORD-03.

Legend:

AECOORD = Assistant Effects Coordinator
DECOORD = Deputy Effects Coordinator
ECOORD = Effects Coordinator (FA Battalion Commander)

Figure 1: Fires and Effects Coordination Cell (FECC) Staffing

package that gives near real-time situational awareness and the ability to direct fires with a click of a button. The targeting cell's linkage with RSTA assets greatly enhances the FECC's ability to conduct proactive counterfire. The RSTA assets include the unmanned aerial vehicle (UAV); Prophet signal intelligence system (maps enemy electronic emitters on the battlefield); and reach-back through Trojan Spirit and the joint surveillance and target attack radar system (JSTARS) common ground station (CGS) to such systems as the E-8 JSTARS, national intelligence databases and satellite imagery.

The counterfire cell's digital control of the IBCT's Q-36 and Q-37 Firefinders at the brigade TOC allows for more flexibility than ever before. With its digital linkage across the brigade, the FECC can direct reactive counterfire acquisitions to more than just the FA battalion. If the situation warrants, the FECC can coordinate for maneuver assets to go on search and attack missions into no fire areas (NFAs) or areas off limits to indirect fires due to the rules of engagement (ROE).

The AFATDS 6.2 software on the common hardware software system links all of the targeting, counterfire and fire support assets in the IBCT. This system also allows for the FECC to post its written orders digitally on a web site and transmit graphics with plans to all AFATDS across the brigade. The linkage of these assets (shown in Figure 2), the passing of information in almost real time and the focus on the targeting process have changed the way the brigade conducts proactive and reactive counterfire.

Proactive Counterfire. The IBCT has a unique ability to conduct proactive counterfire. The brigade's constant focus on targeting provides the FECC a vehicle to facilitate proactive counterfire.

Warfighter Exercise. During the IBCT's Warfighter, the FECC had great success using operational/theater and internal brigade reconnaissance assets to conduct proactive counterfire. The process began at the IBCT's targeting meeting where the RSTA squadron was tasked to focus its assets on named areas of interest (NAIs) in which the FECC and brigade S2 believed enemy artillery high-payoff targets (HPTs) would be located. The RSTA assets included a tactical UAV (TUAV) and reach-back to national assets and Prophet.

By using Prophet's direction-finding mapping and monitoring capabilities and JSTARS CGS' ability to develop moving target indicators, the RSTA squadron analyzed the information to direct the TUAV to the NAI that showed the greatest potential to contain enemy artillery.

Once the TUAV confirmed the vehicles on the ground were enemy artillery, the RSTA FSO requested the FECC provide the means to destroy the target. Depending on the type of target, the FECC then requested close air support (CAS) or FA or coordinated with the brigade executive officer to order maneuver assets into the target area.

Although CAS is not an all-weather asset, in this exercise it was the most lethal proactive killer of enemy artillery and proved to be an invaluable asset during the IBCT's Warfighter. Tomahawk land attack missiles (TLAMs) also were effective against enemy command and control nodes.

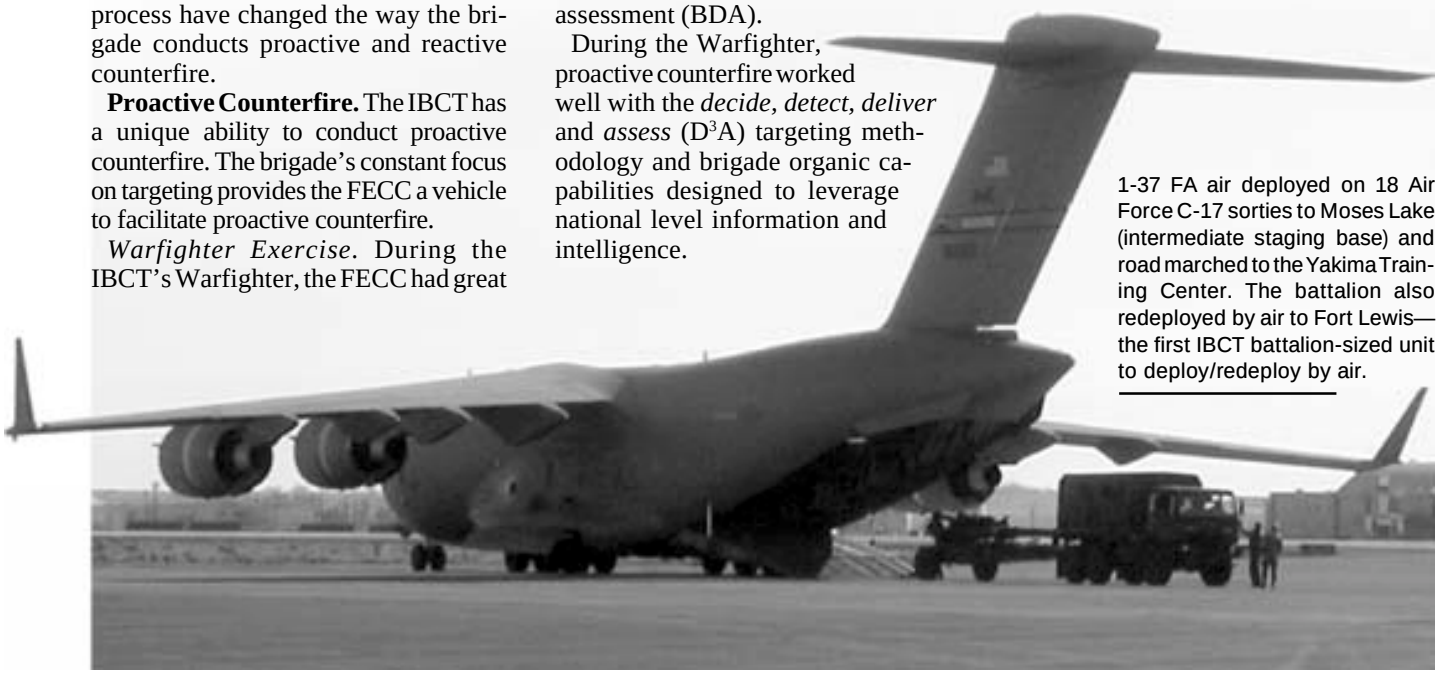
Once the delivery system was chosen and dispatched, the TUAV loitered over the location to report the battle damage assessment (BDA).

During the Warfighter, proactive counterfire worked well with the *decide, detect, deliver* and *assess* (D^3A) targeting methodology and brigade organic capabilities designed to leverage national level information and intelligence.

Target Planning. The proactive counterfire process begins with targeting as described in *FM 6-20-10 TTP for the Targeting Process*. Targeting is continuous and drives both proactive and reactive counterfire in the brigade. The process begins as a part of the military decision-making process (MDMP) and continues daily throughout the course of an operation.

The targeting meeting is based on a 72- 48- and 24-hour decision cycle. In preparation for the meeting, the brigade S2 with his staff, DECOORD, nonlethal effects officer, FECC targeting officer and FECC targeting and plans battle captain establish the high-value target list (HVTL) for the next 72-hour period. The targeting meeting is based around the D^3A methodology and establishes the priorities and desired effects on the HVTL. This leads to the development of the brigade's HPT list (HPTL) and target synchronization matrix (TSM). The TSM outlines what assets will be used to accomplish the desired effects.

The brigade S2 and the brigade collection manager develop the NAIs where the enemy is suspected based on intelligence from internal and external sources. Using the NAIs, the brigade S3 assigns a unit to detect enemy activities in selected locations. The FECC uses this detection information to establish initial targets to deliver munitions or a nonlethal method to achieve the desired effect. Most often, the unit that detects the enemy will trigger the delivery sys-



1-37 FA air deployed on 18 Air Force C-17 sorties to Moses Lake (intermediate staging base) and road marched to the Yakima Training Center. The battalion also redeployed by air to Fort Lewis—the first IBCT battalion-sized unit to deploy/redeploy by air.

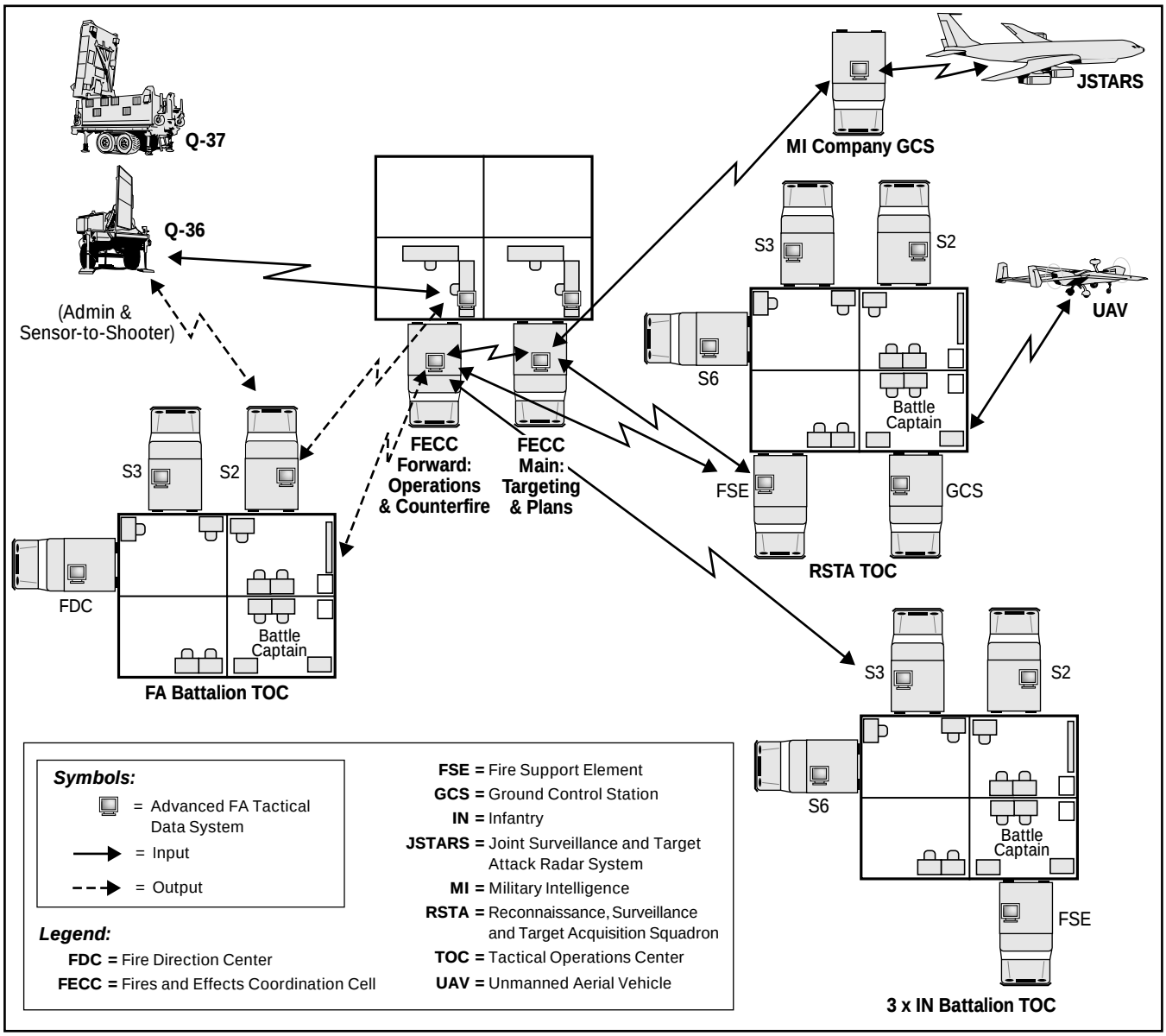


Figure 2: AFATDS Communications Structure

tem and assess the target for the desired effects stated in the TSM.

At the initial meeting, the entire 72-hour cycle is discussed, but at preceding daily meetings, only the 72-hour HVTL is introduced and changes by exception are made to the 24- or 48-hour HPTL and supporting TSM. Therefore, each subsequent targeting meeting advances the HPTL 24 hours and the new 72-hour HVTL is introduced.

The TSM generated from the initial targeting meeting is the driving force behind the rest of the initial MDMP process and is the critical document that drives the subsequent daily fragmentary orders (FRAGOs) to the units.

The targeting meeting establishes the initial coordination that links the FECC's plans and targeting cell with maneuver units or the RSTA squadron, which are the *detect* assets in the proactive counterfire fight.

The AFATDS digital link to the CGS, other military intelligence resources and RSTA assets truly facilitates proactive counterfire. With the TSM and the cooperation of the RSTA and MI assets, the plans and targeting cell acts as the broker between the *detect* and *deliver* assets for the brigade's proactive counterfire. If assets are required to influence the deep fight and the brigade's internal assets cannot influence that fight, the FECC can request additional support from higher headquarters using AFATDS.

Reconnaissance and Surveillance (R&S) Plan. In operational experience, the link between the FECC and the RSTA fire support element (FSE) has proven highly effective in conducting proactive counterfire. The RSTA FSO and TUAV mission commander, both located in the RSTA TOC, are able to cross cue the TUAV onto suspected targets that have been detected by sensors in the RSTA intelligence, surveillance and reconnaissance (ISR) network. The RSTA ISR network is a combination of scouts; ground surveillance radars; the improved remote battlefield sensor system (IREMBASS), which is a low-power, passive sensor that can be emplaced on the battlefield to detect targets by seismic/acoustics, thermal or magnetic changes; Prophet signal intelligence (SIGINT); TUAV; and reach-back capability to the higher ISR network.

1. A digital call-for-fire (CFF) is sent from the reconnaissance, surveillance, and target acquisition (RSTA) squadron fire support element (FSE) to the fires and effects coordination cell (FECC).

2. The tactical unmanned aerial vehicle (TUAV) mission payload commander (MPC) inputs the appropriate battery's location into his workstation, allowing the ground control station (GCS) software to match the gun target (GT) and observer target (OT) lines; hence, the corrections from the TUAV MPC are identical to the corrections from the battery location.

3. The battery fires on the target; as rounds impact in the target area, the MPC operator captures the 10-digit grid of the impact on his workstation, and the software derives the correction.

4. Subsequent corrections derived by the MPC are verified by the RSTA fire support officer (FSO) and sent digitally to the FECC. Simultaneously, voice commands are used to ensure positive observation of the target and target area to capture corrections and adhere to the rules of engagement (ROE).

5. The TUAV MPC provides combat assessment for the mission, and the RSTA FSO transmits battle damage assessment (BDA) to the FECC.

Figure 3: Proactive Counterfire Tactics, Techniques and Procedures (TTP)

After the R&S plan has been established with NAI to TAI links, enemy indirect fire assets can be detected, tracked and then attacked to generate full-spectrum effects.

The TUAV is the most flexible and dynamic IBCT targeting asset for counterfire. The TUAV allows the RSTA squadron to rapidly extend "eyes on target" over the brigade battlespace to locate threat fire support systems that meet the target selection standards (TSS) for a variety of delivery systems—intelligence and electronic warfare (IEW) systems, cannon or rockets and tactical air support platforms. In the recent IBCT Warfighter, the RSTA squadron FSE was able to detect supporting threat tube artillery elements, initiate an immediate CAS request and provide terminal control using the TUAV "eyes on" to achieve positive indirect control. The TUAV also served as an "observer" to provide corrections for indirect fire cannon missions.

See Figure 3 for a summary of proactive counterfire TTP. The IBCT will refine the TTP as the brigade conducts additional integrated, combined arms training exercises.

Reactive Counterfire. In the legacy force, the reactive counterfire process started at the brigade with the brigade FSO's and targeting officer's selecting desired zones and the FA battalion counterfire headquarters' completing the other tasks to make counterfire successful. Within the legacy FA battalion TOC, the battalion S3 positions the radar, the S2 creates the radar deployment order (RDO) and the battalion TOC, as a whole, conducts the time-honored counterfire drill.

In the IBCT, the FECC's counterfire cell is the focus of the reactive counterfire fight. The counterfire cell employs the brigade's two counterfire radars.

Much like the proactive counterfire fight, the reactive counterfire fight begins with the TSM. The TA platoon leader or platoon sergeant with the plans and targeting cell and counterfire officer map out a draft RDO, based on the requirements of the TSM for the radar.

This draft RDO is posted digitally on the FECC plans cell AFATDS web site for the FA battalion staff to have input into radar planning. When ordered to do so by the ECOORD, the FECC counterfire cell AFATDS digitally inputs the RDO and sends it to the radar.

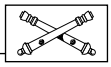
When the radar receives the information, it stores the new zones in the database and activates the RDO, which automatically turns the radar to the desired azimuth. When the radar receives an acquisition, it sends a priority-one call-for-fire or an artillery target intelligence coordinates report (ATI;CDR) to the counterfire cell AFATDS. Both message formats initiate a fire mission in the counterfire cell AFATDS; the counterfire officer takes the appropriate action. As with any other fire mission, coordination must be accomplished as needed and a firing unit that can support the mission must be chosen.

If the fire mission is denied because of an NFA or ROE restriction, the counterfire officer can coordinate with the brigade battle captain to send a maneuver unit to that location—an action that must not violate a ROE restriction. If the target is confirmed, the maneuver unit can destroy the target within the restrictions of the ROE.

The location of the counterfire cell at the brigade headquarters allows a level of flexibility in the reactive counterfire fight that previously was difficult to achieve.

One of 1-37 FA's primary missions in support of maneuver forces in the IBCT is counterfire. But like all DS FA battalions, 1-37 FA must provide and coordinate for effects-based fires, lethal and nonlethal, throughout the brigade's battlespace—deep, close and rear.

Even with the addition of the 120-mm mortars with their 7.2 kilometer range in the infantry battalions and RSTA squadron, Field Artillery plays an important role in the close fight in the IBCT and will not walk away from that vital mission.

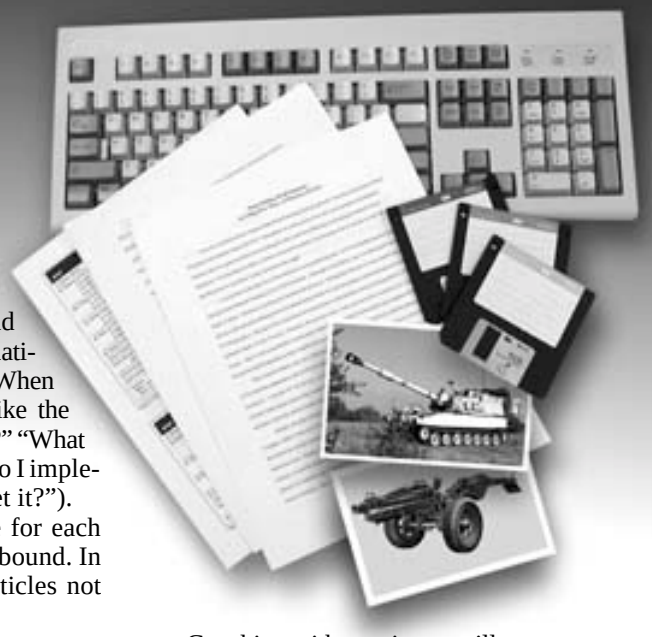


Captain Kevin E. Finch is the Targeting and Plans Battle Captain in the Fires and Effects Coordination Cell (FECC) of the 3d Initial Brigade Combat Team (IBCT), 2d Infantry Division, Fort Lewis, Washington. His previous assignments include serving as a Battalion Assistant S3, Battalion Fire Support Officer (FSO), Battalion Fire Direction Officer (FDO), Firing Battery Platoon Leader, Platoon FDO and Company FSO, all with the 1st Battalion, 82d Field Artillery, 1st Cavalry Division, Fort Hood, Texas.

Lieutenant Colonel Henry S. (Skip) Larsen III commands the 1st Battalion, 37th Field Artillery, direct support to the IBCT at Fort Lewis. His previous assignments include serving as the Chief of the Policy and Strategy Division of the US Southern Command, Miami, Florida; S3 for the 17th Field Artillery Brigade, III Corps Artillery, Fort Sill, Oklahoma; Executive Officer of 3d Battalion, 18th Field Artillery, also in the 17th Field Artillery Brigade; and Chief of Division Plans for the 2d Infantry Division in Korea. He commanded B Battery, 3d Battalion, 82d Field Artillery, 1st Cavalry Division during Operations Desert Shield and Storm.

Captain Vincent J. Bellisario is the FSO for the 1st Squadron, 14th Cavalry, the Reconnaissance, Surveillance and Target Acquisition (RSTA) Squadron of the IBCT at Fort Lewis. His previous assignments include serving in the 1st Armored Division as a Battalion FSO for 1st Battalion, 6th Infantry in Germany; as a Combat Observation Lasing Team Leader for the 16th Airborne Battalion (Polish) in Bosnia-Herzegovina during Operation Joint Guard; as a Firing Platoon Leader for 4th Battalion, 27th Field Artillery; and as an FDO for the 4th Battalion, 29th Field Artillery, also in Bosnia-Herzegovina during Operation Joint Endeavor.

2002 *Field Artillery* Author's Guide



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Magazine Features. In addition to articles, we routinely print the Chief of Field Artillery's column (The Update Point); letters-to-the editor (Incoming); interviews with Army, joint and combined leaders; news items from the Field Artillery School (View from the Blockhouse); columns by senior NCOs for NCOs (From the Gun Line); and book reviews (Redleg Review). We primarily review books focused on Field Artillery or fire support; the publisher must send the book, and we provide the reviewer.

Subjects. The majority of the articles accepted cover subjects at the tactical level of war with some at the operational and strategic levels as long as their contents relate to Field Artillery or fire support or are of special interest to our readers.

If an author is writing about the past, he should analyze the events and show how they apply to Field Artillerymen today—not just record history. If he's identifying current problems, he must propose solutions. (An author may identify problems without proposing solutions only in a letter-to-the-editor.) In addressing the future, he should clearly explain his points and their implications.

Since its founding in 1911, one of *Field Artillery's* objectives has been to serve as a forum for professional discussions among the FA community. Therefore, an author's viewpoint, recommendations or procedures don't have to agree with those of the Branch, Army or DoD. But his article's contents must be logical and accurate, address disadvantages as well as advantages (as applicable), promote only safe techniques and procedures and include no classified information.

Articles must be clear and concise with the thesis statement (bottom line) up front and the body of the article systematically contributing to the thesis. When writing, authors must think like the Redleg in the field: "What is it?" "What will it do for me?" and "How do I implement it?" (or "When will I get it?").

Field Artillery has a theme for each edition, but we're not theme-bound. In most editions, we include articles not related to the theme.

Submissions. Include—

• A clean, double-spaced, typed, unpublished manuscript of no more than 5,000 words with footnotes and bibliography, as appropriate. Except in the case of Army-wide "news" items, *authors should not submit a manuscript to* Field Artillery *while it's being considered elsewhere.*

Send a PC-formatted text disk along with the hard copy of the manuscript. (We use MS Word.) Please do not layout your article with columns and graphics inserted or use the automatic footnote feature of some software programs; it causes us extra work to strip out the design before editing it and moving it to layout.

• A comprehensive biography, highlighting experience, education and training relevant to the article's subject. Include email and mailing addresses and telephone and Fax numbers; please keep this information current with *Field Artillery* for as long as we're considering your manuscript.

• Graphics with captions to illustrate and clarify the article. These can include photographs of any size (but preferably color/5x7-inch), drawings, slides, maps, charts, unit crests, etc. We accept high-resolution digital photos. (See the "Digital Shooter's Guide" on our web site.)

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Field Artillery Themes for 2002

Edition	Theme	Deadline
Jan-Feb	Training XXI	1 Oct 2001
Mar-Apr	Science & Technology for the FA	1 Dec
May-Jun	The FA NCO	1 Feb 2002
Jul-Aug	History	1 Feb: Contest* 1 Apr: Other
Sep-Oct	Close Support	1 Jun
Nov-Dec	Red Book—Annual Report	1 Aug

*Due date for contest submissions; see Jul-Aug edition for contest rules.

September 11th:

Soldiers Doing the Right Thing

By Brigadier General William G. Webster, Jr.

Brigadier General (Promotable) "Fuzzy" Webster is the Army's Director of Training in the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS). On September 11th, he was in his office at the Pentagon. In an interview with Field Artillery*, he described what he experienced that day; the January-February 2002 "Training" edition will carry the rest of his interview.*

On September 11th at the Pentagon, I witnessed firsthand the courage, leadership and competency of soldiers, doing the right thing and doing it instinctively under horrific conditions.

On that day, I was in my office about 35 yards away and one floor above where American Airlines Flight 77 plowed into the Pentagon. "Ground Zero" for the Pentagon was the office of the Deputy Chief of Staff for Personnel Lieutenant General Timothy J. Maude who, along with 187 others, died in that brutal terrorist attack.

Before the attack, I was having a meeting in my office. Someone had walked in and informed me that two airplanes had crashed into the World Trade Center twin towers in New York. I immediately turned on the TV to hear the news report and witness the horror of those attacks. At that point, we knew nothing about any other hijackings. I returned to the meeting to concentrate on what we had to accomplish and release my people as quickly as possible to return to their offices.

A few minutes later, a tremendous explosion rocked the building, knocking me forward out of my chair. A huge fireball rolled down the side of the building and shot through our ceiling vent overhead.

The concussion of the explosion hit with incredible power. Our blast-proof windows bent inward—went concave—and then regained their shape. Had those windows exploded, I and many others might not be here today. Those blast-proof windows and the fact the Pentagon was constructed so well 60 years ago surely saved many lives that day. Ironically, the Pentagon construction began 11 September 1941.

The Horror and Heroism. Immediately, the fire alarm went off and the lights went out. Smoke billowed through the hallways. As the people across the hall opened their door, a big ball of fire rolled outside their windows—the explosion had broken some of their windows, and they were diving for cover from the burning fuel.

People didn't panic. Soldiers of all ranks did what they were trained to do and acted as you would expect them to act. They took care of their teammates; they gathered up the people in their offices and led them out of the building.

Soldiers helped each other get the job done. Buddy teams of soldiers ran out to recon the stairwells to determine if they were clear and which ones already had fire and heavy smoke. They then directed people away from the dangerous stairwells and led them to those that were clearer.

The explosion bent the door frame of the office of Major General John R. Wood (FA), Director of Strategy, Plans and Policy, ODCSOPS, so badly that the door would not open. Brigadier General Karl W. Eikenberry, General Wood's Deputy Director, kicked in the door so General Wood could escape before the building collapsed.

It wasn't until I got outside the building that I realized what had caused the explosion. At that point, fire was raging

Photo by CPL Jason Ingersoll, HQMC Photolab

around the huge hole in the building and small pieces of airplane were all over the ground.

Soldiers went back into the building into burning rooms and across smoke-filled, blackened areas littered with debris to bring their teammates and people they didn't even know out to safety—sometimes dragging them or putting them on their backs to rescue them. I saw soldiers breaking windows to pull badly injured and burned people out. I saw one soldier grab a fire extinguisher to spray burning people and help them out.

There were a lot of heroes that day. Captain Darrell Oliver, Ordnance Corps, was knocked down by the force of the explosion and the collapsing walls. In the darkness, he heard his office mate, a civilian, who was knocked under her desk and unable to escape. With smoke billowing about knee high, he crawled to her, put the lady on his back and crawled out.

He then returned for a hearing-impaired janitor who was blinded by the smoke and disoriented. Terribly frightened and startled, the janitor decked the captain when he approached. Captain Oliver reassured him and put the janitor on his back and crawled out. For his heroic actions during the terrorist attack on the Pentagon September 11th, Captain Oliver received the Soldier's Medal, along with dozens of others in a ceremony in October attended by Secretary of the Army Thomas E. White.

Outside, I saw an Army nurse and a medic organizing soldiers, sailors, airmen and marines of all ranks, setting up a triage area. Soldiers worked to clear the airways of victims so they could breathe, treat them for shock, stop the bleeding—in short, rendered first aid like soldiers are trained to do.

It took the rescue and fire personnel just a few minutes to get there—really quite fast. The skills and leadership of our soldiers, of all the servicemen who immediately came to the rescue, saved many lives before the additional help arrived.

The rescue personnel and firemen started taking care of victims and the devastation, but soldiers wouldn't leave the area because we still had people inside who might be wounded or need help. So for hours we teamed up to carry stretchers—all services and ranks—and bring victims out of the building.

Secretary of Defense Donald Rumsfeld came over to the terrorist attack site to look at the damage to the Pentagon. His security personnel "went nuts," but he was determined to be there and help if he could.

Photo by Journalist 1st Class Mark D. Faram, USN

Medical personnel and volunteers work the first medical triage area set up outside the Pentagon. BG Webster is in the background upper right in Class B uniform with no hat.

The Army Operations Center never lost command and control. Soldiers immediately formed the Crisis Action Team, as they had practiced, and stayed on the job to receive reports from units.

A couple of times, we received warnings that other terrorist airplanes might be inbound to attack the Pentagon. The police and fireman made the servicemen pull away from the building for their own safety. But that didn't stop them from circling around and going back to rescue others. After a while, the top section of the wing attacked by the terrorists caved in, and rescuers could not get into the most devastated areas.

Days later, an Army civilian said to me that if he ever had to face another crisis, he hoped he again would face it with soldiers because they know what to do and they do it. He is right.

My Resolution. I was horrified by this cold-blooded act perpetrated on US servicemen and Department of Defense civilians who have devoted their lives to protecting America and helping to ensure the rights and liberties of those in South Korea, Kuwait, Kosovo, Bosnia and in many other nations. It was a sad, tragic day, but it was a day of strength and courage.

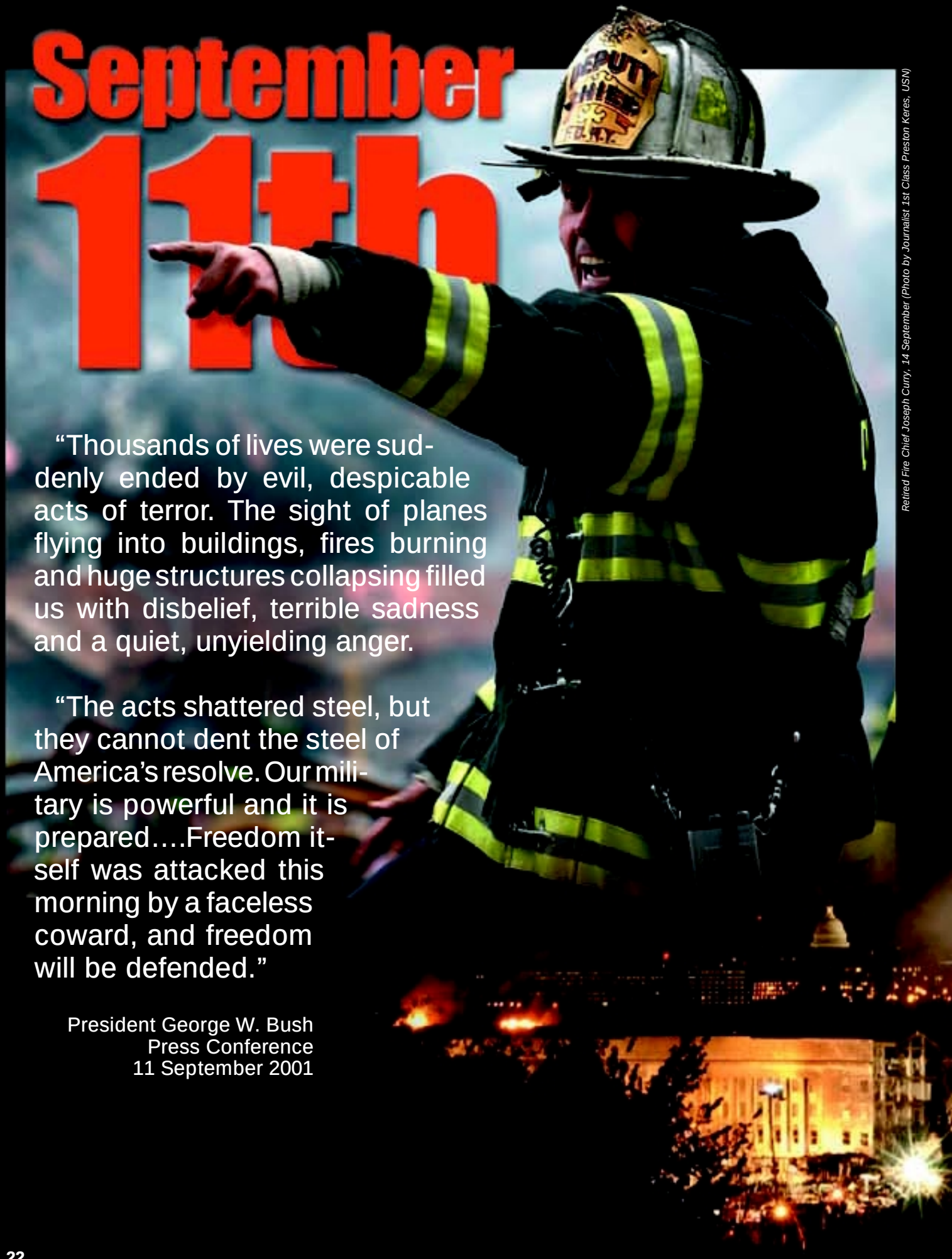
I was so very proud of our soldiers on September 11th. As I watched leadership, training and Army values in action in that crisis, I felt confident our Army training and leader development systems are "about right." Just like *FM 22-100 Army Leadership* teaches us, soldiers did what they needed to do when they were tired, frightened and many of them also injured. Soldiers did what they needed to do because they were trained to.

Of the 74 Army personnel who died that day, two still have not been identified positively. Our offices were destroyed. That same day, some of our great defense contractors offered us office space, computers, phones—at no expense and with no fanfare or expectation of future favors. We took them up on it. Like so many Americans, they want to do their part for the War on Terrorism.

One of the blast-proof windows in my office in the Pentagon used to face out toward Arlington National Cemetery across the highway. Before September 11th, when I was having a bad day, I would look out that window at the cemetery and contemplate the alternative—that always gave me perspective. I then would return to my work newly inspired to ensure soldiers were trained and ready so we wouldn't fill up that cemetery any faster than we had to.

And now, when I drive to the Pentagon, I see that huge hole in the side of the building and know that nearly 200 people died there. It gives me the same resolve to ensure soldiers get all the resources they need to be trained and ready to do the right thing—to include winning the War on Terrorism.

September 11th



Retired Fire Chief Joseph Curry, 14 September (Photo by Journalist 1st Class Preston Keres, USN)

"Thousands of lives were suddenly ended by evil, despicable acts of terror. The sight of planes flying into buildings, fires burning and huge structures collapsing filled us with disbelief, terrible sadness and a quiet, unyielding anger.

"The acts shattered steel, but they cannot dent the steel of America's resolve. Our military is powerful and it is prepared….Freedom itself was attacked this morning by a faceless coward, and freedom will be defended."

President George W. Bush
Press Conference
11 September 2001

Junior Officers: The Thinning Ranks

By Colonel Lawrence H. Saul

The Army faces a growing crisis as increasing numbers of junior officers are opting to leave the Army. (See Figure 1.) In the mid- to late-1990s and the early part of this new century, captains are choosing to return to civilian life rather than pursue careers as professional Army officers with alarming regularity. Junior officer retention has become a source of great concern for the Army.

A number of studies, results from field interview teams and research groups have identified several reasons as to why these potential senior leaders are leaving the Army. By leaving, they are voicing their dissatisfaction with current trends in the Army.

This article looks at two areas of concern that have an impact on junior officer retention: the Army's zero defects mentality and the generation gap; it then discusses mentoring and counseling, two programs that need emphasis to help stem the loss of the Army's future senior leaders.

Background. In the autumn of 1989, the Berlin Wall fell; its demise had the greatest impact on our Army in decades. The one tangible symbol of hostility between the West and the Soviet Union was gone.

As a result of the lessened threat from the Warsaw Pact, the Army was downsized from nearly 800,000 to less than a half million. We no longer had the requirement to maintain such a large standing army, an army awaiting the Red Horde's impending invasion of West Germany. The Soviets no longer posed a credible threat to Western Europe.

The hue and cry for a "peace dividend" could not be ignored. Pressing domestic social requirements dictated a dramatic reduction in defense budgets. The Pentagon was forced to downsize.

The force reduction imposed on the Army took out more troops, in terms of percentages, than some of our most calamitous battlefield disasters. Whole cohorts were decimated. Some year groups were targeted for major reductions and, at the same time, new cohorts were under assessed from the commis-

sioning sources. These knee-jerk decisions laid the foundation for future problems.

The debate on the effectiveness of the management of the drawdown, in terms of how personnel actions were executed, continues; however, what is not debatable is the effects these methods have had on contemporary attitudes, especially those soldiers who remained on active duty.

This huge drawdown has affected the culture of the Army in many profound ways. We have witnessed dramatic changes in how we do business.

Some Challenges. Some changes have been negative. The Army has become staid, overly cautious and unforgiving. Among the reasons for these problems are the Army's adoption of zero defects and the conflicting values between generations.

Zero Defects. This mentality fosters an unforgiving attitude that allows no mistakes. Commanders are so consumed with not failing that they micro-manage virtually all aspects of operations, allowing their subordinates no opportunities to make mistakes and learn from them. Subsequently, when mistakes are made, "heads roll."

Working in such an environment is destructive to the morale of soldiers and contrary to the positive goals of leader development. It causes a ripple effect that is felt throughout the ranks.

For junior officers, this has had the chilling impact of encouraging them to take the less risky route—be overly cautious and not "rock the boat." Being so cautious has caused the undesired effect of stifling initiative.

Seizing the initiative is one of the cornerstones of our warfighting doctrine. As written in *FM 100-5 Operations* (1993, Page 2-6), initiative "requires a willingness and *ability* to act independently within the framework of the higher commander's intent" (emphasis added). As the new *FM 3-0 Operations* hits the field, we need to look at the updated definition: "From an individual perspective, initiative is the ability to be a self-starter, to act when there are no clear instructions or when the situation changes."

Of course, the key issue here is *ability*. A zero defects commander does not allow his subordinates the ability to act on their own accord.

The worst thing we can do as we transform the Army is create an officer corps that is timid—a corps of leaders who fear taking action. Some would say we're already there. In environments that foster this attitude, all too often, good officers, the risk takers, perish.

FY	Army Average %	Field Artillery %
97	9.68	7.68
98	9.33	9.59
99	12.4	10.6
00	11.75	13.0
01*	11.35	11.0
02**	12.3	—

* Fourth Quarter projected based on the average trend of the past four years.

** Percent is based on the Officer Distribution Plan (ODP) forecast for FY02.

Figure 1: Captain Attrition Rates (Prior to Majors Board—3 to 11 Years in Service). In the mid- to late-1980s, prior to the drawdown, the FA captain attrition rate routinely was between 6.5 and 7 percent and fell within the Army's "normal" attrition rate. (Source: Field Artillery Officers Branch, Total Army Personnel Command, Alexandria, Virginia, October 2001)

We just now are seeing the second and third order effects of this egregious situation. We have seen many dedicated and talented young officers leave the service prematurely, often as a result of the zero defects attitude. We can ill afford to lose our future senior leaders while they are still in their formative years.

It is a fact: the success of Operations Desert Shield and Desert Storm in the Persian Gulf in 1990 and 1991 was the result of 25 years of rebuilding, training and dedication. The reason we were successful was due, in part, to the positive climate that existed in the Army between 1981 and 1991.

During this decade, we underwent a transformation that took the post-Vietnam US Army from demoralization and despair to the awesome force that devastated the Iraqi Army. However, many of the young men and women who commanded platoons and companies and helped win this victory have decided to leave active duty rather than continue to serve in an organization they see as wracked with poor morale, stifling leadership techniques and a culture of zero defects.

Sometime after 1991, we went from an organization that prized aggressive, imaginative leadership to one that cowed lieutenants into passivity. We have developed leaders who are scared to demonstrate any evidence of initiative.

The Generation Gap. Another aspect affecting the officer corps is the generational friction between company and field grade officers. That friction-causing gap is roughly the division between the so-called "Xers" and "Baby Boomers." This offers one view and an interesting thesis for the reasons so many junior officers are leaving the Army in the mid- to late-1990s and early part of the new decade. Apparently our junior leaders see a role expected of them in the future they find unappealing.

The fact that generational attitudes are so vastly different and so readily apparent compelled Dr. Leonard Wong, on the staff at the Army War College, Carlisle Barracks, Pennsylvania, to write a great monograph on this topic. Dr. Wong's work, "Generations Apart: Xers and Boomers in the Officer Corps," tells the age-old story of the different values of generations.

Boomers are classified as those people born between the Second World War and about 1960. When Boomers were young, society told them they were different from their elders—that their values were vastly different from their parents. This was called the "Generation Gap." 1960s radical leaders, such as Dr. Timothy Leary, warned Boomers not to trust anyone over the age of 30. However, when Boomers became subalterns, they had no reservation in adopting the prevailing organizational mores and values of the professional officer corps. They became members of the officer's club; they joined the Field Artillery Association, the Association of the US Army and other professional organizations.

Their wives were expected to give generously of their time to their husbands' units. Spouse employment outside the home was the exception. The officers' wives were expected to attend ladies teas and other functions; at one time, there was a "dress code," such as hat and gloves for teas.

The situation today is different. Young officers often think it quaint that some spouses volunteer for Army Community Service, the Thrift Shop or other community-oriented organizations while their own spouses pursue personal careers. Volunteering and other vestiges of a previous time are relegated to history. For example, the officers' club is a thing of the past.

Boomers felt a sense of belonging to a community; they identified with the

Mentoring [in the Army] is the proactive development of each subordinate through observing, assessing, coaching, teaching and developmental counseling, and evaluating that results in people being treated with fairness and equal opportunity. Mentoring is an inclusive process (not an exclusive one) for everyone under a leader's charge.

Figure 2: Definition of Mentoring (*FM 22-100 Army Leadership,* August 1999)

norms and values of the organization. For a variety of reasons, our junior officers have found much to be desired when it comes to "following in the foot steps" of the their superiors.

We must do a better job of teaching and coaching these young leaders. If we fail to develop these officers, they will continue to "vote with their feet." We have heard repeatedly from the Army's most senior leaders that we must stem the tide of these future leaders' leaving the Army in record numbers.

So, who are the leaders best positioned to reverse this trend? Battalion commanders. There is nothing new here; lieutenant colonels always have had a significant impact on junior officers. Their actions or lack thereof always have affected the most impressionable young people, particularly our company grade officers. To reverse this trend, we must do a better job when it comes to developing our young officers.

Reversing the Trend. To retain more junior officers in the Army, we can formalize or emphasize two programs: mentoring and counseling.

Mentoring. As the Army transforms, so too, must we transform the methods we use to develop junior officers. I propose we exercise a simple, straightforward system that exists informally—a system we know produces, but one we have half heartedly used for years: mentoring.

In the past 20 years, the Army has tinkered with this topic but only recently has encouraged its full implementation. By that, I mean we have not mandated the official implementation of a mentoring program. I know of no Training and Doctrine Command (TRADOC) service school that teaches mentoring as a separate subject, although some TRADOC schools' programs have faculty and staff mentor students.

Mentoring has become the current "hot topic" in the civilian sector and has bred a cottage industry of gurus cranking out best sellers and "how to" manuals. Even universities are implementing these concepts for the development of both faculty and students.

In 1985, the Army Chief of Staff General John A. Wickham, Jr., issued his four pillars of the Army: training, maintaining, leading and caring. Throughout his tenure, he emphasized these four points. An outgrowth of the "leading" pillar is mentoring.

General Wickham set into motion a plan designed to provide a basis for a teaching and coaching relationship between a senior and a subordinate. The concept of mentoring was widely accepted as the topic of many professional journal articles and was often an officer efficiency report (OER) objective. But, as Colonel Gail W. Wood pointed out in her 1990 article, "…the Army had not formulated an official definition of mentoring nor had it established any guidelines for instituting a mentoring program" ("Mentoring: A Useful Concept for Leader Development in the Army," US Army War College, Carlisle Barracks, Pennsylvania, 11 April 1990, Page 2). Not much has changed since she wrote that in 1990.

This is the troubling part. Virtually any retiree or older civilian with military service can tell you stories of how they were shaped and molded by a senior leader. Somehow, through neglect, we lost that art. We let it slip away.

I offer some concepts and ideas on the art of mentoring that I have seen effective: the definition of a mentor and the roles he fulfills plus the goals he accomplishes. A mentor can be defined in a variety of ways. The August 1999 publication of *FM 22-100 Army Leadership* provides a comprehensive definition, as outlined in Figure 2. An excellent list of the five definitions of a mentor were included in Lieutenant Colonel Michael A. Andrew's Strategic Research Project for the Army War College, as shown in Figure 3. No matter how you choose to define mentor, the concept is the same.

As one reads through these definitions and the roles of a mentor (Figure 4), one can't help but think of historical examples. One that comes to mind first is General John J. (BlackJack) Pershing's mentoring of his aide de camp, George C. Marshall, during World War I. Later General Marshall mentored many of the generals who led us to victory in World War II, most notably Dwight D. Eisenhower. There are many more examples from several eras of our nation's military history.

Today's Army does a feckless job of mentoring. How many Marshalls are we developing today? Think of the highly visible generals of our recent past and look for the rising stars they have mentored. Have you been mentored throughout the duration of your career? Have you mentored all of your subordinates? Have you consistently sought out young, developing officers and taken them "under your wing"?

There is no doubt that experience is the best teacher. When we can gain that experience from someone older, wiser and more mature, it has the added effect of being filtered by someone who has been able to analyze his experiences and take the lessons from them to pass on.

In our current zero defects environment, some experiences may prove fatal. If we hope to eradicate the zero

A Mentor is-

1. A wise and trusted teacher or guide.
2. A father figure, teacher, trusted advisor, protector for an inexperienced person.
3. An experienced, senior leader or manager who develops a younger less experienced leader and provides career counseling and sponsorship.
4. A senior member of an organization who establishes a relationship with a junior member of the organization and is influential in molding and shaping his career.
5. A highly placed, powerful, knowledgeable individual willing to share his experience.

Figure 3: Definitions of a Mentor (Daniel Lea and Zandy B. Leibowitz, as credited by Michael A. Andrews in his Strategy Research Project "Mentoring Lieutenants," dated 23 March 1987, Army War College, Carlisle Barracks, Pennsylvania)

Role of the Mentor is-	For Example, the Mentor-
Role Model	Serves as a father figure to venerate/emulate.
Teacher	Teaches specific skills, assisting career development.
Guide	Helps in understanding "unwritten rules," social norms.
Advisor	Shares knowledge, experience.
Validator	Confirms right-wrong, good-bad.
Counselor	Helps with career planning, providing emotional support.
Motivator	Shares ideas, ideals, values; improves self-confidence.
Protector	Shields; provides a buffer, freedom to fail.
Communicator	Projects all other behaviors.
Sponsor	Influences opportunities, jobs, assignments.

Figure 4: Roles of a Mentor (Daniel Lea and Zandy B. Leibowitz, as credited by Michael A. Andrews in his Strategy Research Project "Mentoring Lieutenants," dated 23 March 1987, Army War College, Carlisle Barracks, Pennsylvania)

defects mentality, we must make purging it from our ranks a top priority.

As a result of their pre-commissioning training plus their own motivation, the vast majority of young lieutenants want to contribute, want to succeed as a member of the team. They seek acceptance. It is incumbent upon the company commander, but more critically the battalion commander, to help these young officers transition into the Army smoothly. Senior leaders must understand and be sensitive to these issues and make the necessary adjustments.

In most situations, the battalion commander will have the most influence on his young officers. He is the senior leader, often with 20 or more years of service, who has the experience to perform the mentoring role. His education, training, age and maturity are vital to the process. It is the duty and responsibility of the battalion commander to teach, coach and mentor his young officers and build unit cohesion.

The battalion commander also should make an effort to incorporate the young officer's family into battalion life. In doing so, the young officer will feel as if he is a valued member of the team.

For the lieutenants, clearly, the company commander plays a mentoring role as well. However, the age similarities between the lieutenants and captains hinder the full development of the captain's mentoring role.

Comments from the field indicate our junior officers too often feel ignored. We cannot afford to lose this generation of young people. As the saying goes, they are the future. The Army needs to end this half-hearted approach and make mentoring a formal, mandated part of leader development.

Counseling. Recent reports indicate the Chief of Staff of the Army General Erick K. Shinseki is greatly concerned about the rising rate of junior officers leaving the Army. He has identified a serious shortfall in our leader development program: performance counseling. On this topic, General Shinseki says, "Counseling is most important, at this time, for young officers who are feeling particularly pressured to leave the Army." General Shinseki has "put the ball in the court" of battalion commanders.

What is the bottom line? Young officers want fair, consistent counseling. This feedback must contain information they can readily understand and put into action. Platitudes and "gut feelings" are not helpful.

Each young officer wants to know the truth—wants to "see" a snapshot of where he is and be counseled on where he needs to go. More importantly, he wants his leader to give him a glide path to get there. That means the senior leader has to do his homework to counsel him: get to know him well enough to have a "picture" of his abilities and think through his development.

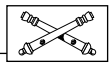
The officer efficiency report (OER) is nothing more than a counseling tool. It covers the full range of officer skills, attributes and accomplishments. When used as it was designed, the OER is a wonderful tool for leader development and counseling.

In addition to OER counseling, the young officer values the opportunity to learn from his superiors how to shape his own career and future schooling and assignments. For career guidance, "DA Pam 600-3 Commissioned Officer Development and Career Management" should be the document the mentor/counselor consults.

Often the young officer wants someone to listen to and validate his own outline of his future. As Dr. Leonard Wong suggests, the counselor's part of a session should be five percent talk and 95 percent listen ("Generations Apart: Xers and Boomers in the Officer Corps," Army War College, 2000). At some point, the young officer no longer wants to hear—he wants to be heard. The younger generation, like all previous generations of Americans, wants to have some control of their future, to shape their destinies.

Anecdotal evidence indicates the Army faces some tough times and tough choices ahead. We cannot afford to hesitate—we are losing junior officers at an alarming rate. Some very dedicated, high-quality officers are refusing commands and departing from active duty. Too many of our junior officers have lost the desire to continue to serve beyond their initial commitment.

We can ill afford to continue to lose our junior officers. Mentoring and counseling are two positive steps that can have a dramatic effect on junior officer retention and serve to preserve the legacy of our Army.



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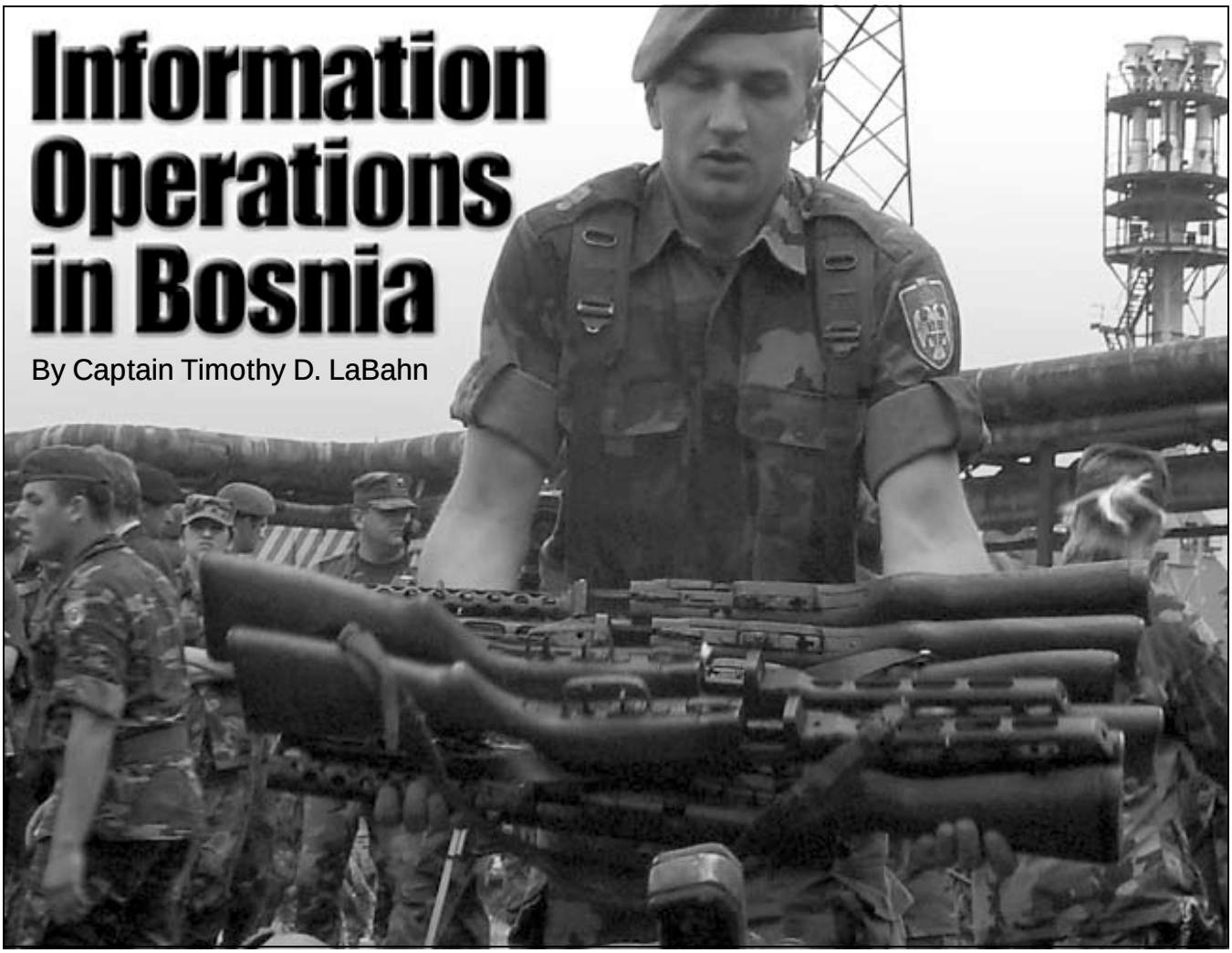
Information Operations in Bosnia

By Captain Timothy D. LaBahn



Weapons being collected and destroyed under Operation Harvest weapons turn-in program.

During Stabilization Force (SFOR) 9 in Bosnia-Herzegovina (Operation Joint Forge), the American-led Multi-National Division (North), as abbreviated MND(N), used information operations (IO) to accomplish its mission. The division's mission was to maintain a safe and secure environment and implement the General Framework Agreement for Peace (GFAP) in Bosnia.

We conducted IO to modify the attitudes, perceptions and behavior of key Bosnian decision-makers, groups and populations in a manner favorable to achieving the objectives of the SFOR and international community. IO generally tried to mitigate ethnic tensions left from the civil war and the poor state of the Bosnian economy and solve problems created by the return of displaced persons to their homes. IO involved engaging formal and informal Bosnian leaders at local, regional and national levels to both maintain a general dialogue and shape their behaviors and perceptions.

This article examines the structure of IO in MND(N) as well as how IO activities were planned, executed and assessed during SFOR 9. The division's IO cell planned, coordinated and synchronized IO while the Division's IO working group (IOWG) executed the operations. The military decision-making process (MDMP) and targeting methodology were integral to planning and synchronizing IO to achieve the desired effects.

IO Organization. The forthcoming *FM 3-13 Information Operations*, replacing FM 100-16, states that doctrinally, IO is composed of the 12 elements and two related activities shown in Figure 1. Due to the nature of its peacekeeping mission, the MND(N) did not integrate all the doctrinal elements of IO during SFOR 9, but the related activities of civil affairs (CA) and public affairs (PA) became primary components of the division's IO. CA, PA and psychological operations (PSYOP) were the "big guns" of IO.

Proponency for some of the elements of IO fell outside the the purview of the MND(N) IO cell. Elements such as operational security (OPSEC) counterintelligence and electronic warfare (EW) belonged to the G2. Information assurance was under the G6.

MND(N) IO integrated the elements of counterpropaganda, PSYOP, CA and PA with the actions of maneuver forces to influence and modify the attitudes, perceptions and behaviors of key decision-makers and groups. Counterdeception, physical destruction and computer network attack were not practiced in Bosnia.

IO Cell. The MND(N) IO cell was the staff agency responsible for planning, coordinating and synchronizing IO at the division level. The IO cell was structured around the 3d Infantry Division (Mechanized) fire support element (FSE) (-). A lieutenant colonel served as the chief of IO. The cell included current operations, plans, special projects/targeting, and intelligence sections.

The current operations section had two captains responsible for day-to-day

operations, liaison with other division staff agencies, production of the division's monthly television show and synchronization of the IO cell's operations with other staff agencies and subordinate units.

The IO NCO-in-charge (NCOIC) and clerk (a corporal) fell under the current operations section and coordinated all logistical and administrative support for the IO cell. The NCOIC was responsible for maintaining the IO portion of MND(N) tactical web site (TACWEB) computer Internet. TACWEB was the division's conduit for staff agencies to share information classified up to Secret.

Each staff section maintained a home page. The IO cell maintained the critical "action tracker" on its home page, which essentially was the IO "fire support" matrix into which subordinate units input planned IO events and assessments of those events upon completion. Notes from division IO meetings were posted weekly as was IO-related intelligence information, including key Bosnian leader biographies.

The IO plans officer, a captain, worked with the division plans group to integrate IO into plans and orders. This included planning for the use of PSYOP, PA and coalition press information center (CPIC) assets. He was the critical link that enabled the IO cell to turn IO plans developed by the IOWG into division-level operations orders.

The IO cell's special projects and targeting section contained a captain and a chief warrant officer two. The special projects and targeting officer prepared and facilitated the weekly IO targeting meeting. The special projects officer and intelligence officer drafted bilateral ("Bilat") meeting preparation packets, defining the purpose and desired endstate of the meetings and containing talking points, themes and messages to be delivered by members of the division command group to Bosnian leaders. The special projects officer drafted IO concepts to support specific problem sets faced by the division. These included goals and supporting objectives, themes, messages, talking points and a scheme of execution.

Information Assurance
Physical Security
Counterdeception
Counterpropaganda
Counterintelligence
Operational Security (OPSEC)
Military Deception
Psychological Operations (PSYOP)
Physical Destruction
Electronic Warfare (EW)
Computer Network Attack
Special Information Operations
Civil Affairs (CA)*
Public Affairs (PA)*
*Activities related to IO.

Figure 1: IO Organization—12 Elements of Information Operations Plus Two Related Activities

The special projects warrant officer prepared and facilitated weekly IOWG meetings where the division's monthly IO strategy was developed. He produced monthly IO implementing instructions in the operation orders (OPORDs) format that communicated the IO plan developed by the IOWG for the upcoming month. He produced monthly "smart cards" containing talking points on various high-profile or routine issues about which SFOR soldiers and leaders on patrol or more senior leaders might be questioned by civilians or the media.

Having an intelligence officer who supported the IO cell full time proved crucial to IO success. He was responsible for the IO intelligence preparation of the environment (IPE), identifying key political, economic and social factors that created the environment as well as the individuals, organizations and groups functioning in and impacting on the environment.

He also conducted pattern analysis on environmental trends affecting near- and long-term events. For example, he tracked relationships between the occurrence of ethnically related incidents and the return of displaced persons to their homes in areas populated by a majority of another ethnicity.

The intelligence provided by the IO intel officer gave the IOWG a "situational template" against which to plan when creating monthly IO strategies and allowed the IO cell to focus the right themes, messages and methods of engagement in contentious areas.

The Multi-National Division (North) Information Operations Working Group Members during SFOR 9

In the targeting process, the intel officer identified individuals, groups and populations that were part of problem sets. He also identified relationships between these targets and pressure points that could be used to influence their perceptions or behaviors in a manner favorable to MND(N) goals and objectives for the problem set.

IOWG. Although the IO cell planned and managed the division's IO, the true measure of IO capabilities lay in the IOWG. The IOWG brought together the staff agencies with means to execute IO. The core group contained representatives of PSYOP, CPIC and the civil military cooperation battalion. Representatives from the Joint Military Commission (JMC), PA, provost marshall's office, division engineers, staff judge advocate and political adviser's office (POLAD) rounded out the IOWG.

Subordinate units were part of the IOWG and were represented at specific weekly meetings when the IO strategy for the upcoming month was briefed and when they presented their assessment of whether or not they had reached the division's IO goals and objectives for the month. The G2 and G3 sections were considered members of the IOWG but usually were not present at IOWG meetings because the IO intel officer was a liaison with the G2 section as was the IO plans officer with the G3 section.

The IOWG was the primary agency for planning, coordinating and synchronizing IO in support of steady-state operations to maintain a safe and secure environment.

Tenets of IO. Before discussing the planning and execution of IO, one must understand the seven principles that guided MND(N) IO.

1. Speak with one voice. All division agencies representing MND(N) portrayed the same messages to the public and individuals they dealt with. Consistency of messages disseminated through multiple means reinforced the importance of the messages being sent.

2. Use multiple means to convey information. MND(N) had many methods of delivering themes, messages and information, ranging from mass media to face-to-face communications, Bilat meetings or patrols. Using all these methods ensured themes and messages received the widest possible dissemination.

3. Know the target audience. This involved assessing the individuals, groups and populations whose behaviors, perceptions and attitudes MND(N) IO activities would attempt to modify. This allowed the division to select the right means to deliver the message to the target audience.

4. Leverage the truth. MND(N) did not practice deception. The division projected the truth to gain and maintain credibility.

5. Centralize control of operations and decentralize their execution. IO goals and objectives were developed at the division level. Subordinate units had wide latitude in planning and executing IO to achieve goals and objectives.

6. Use the right tool for the right job. Select the best method to modify a particular group or individual's behaviors, perceptions and attitudes. If a specific action was desired from a mayor of a municipality, this meant sending his SFOR counterpart, the company commander responsible for that municipality, to meet with him and to influence him.

7. Synchronize efforts. The success of IO often hinged on synchronizing the methods of engagement between more than one staff agency and subordinate units.

These tenets were applied in planning IO and helped the IO cell ensure MND(N) themes and messages were disseminated to the proper target audiences and all IO supported the division commander's intent and focus. The MND(N) employed a variety of methods to achieve its desired IO effects. (See Figure 2.)

Mass Media—The "Road to the Future," a monthly division TV show, tells good-news stories and information on issues (i.e., the rights of displaced persons) and enhances the Stabilization Force's (SFOR's) image; radio shows by local DJs and directed by Psychological Operations (PSYOP) promote SFOR themes or messages and quote Bosnian leaders; regular morning and children's radio shows emphasize multi-ethnicity and tolerance; and division ads printed in five newspapers focus on the commanding general's IO messages.

Coalition Press Information Center (CPIC)- The CPIC communicates with the populace through the Bosnian press via press conferences, press releases and media round-table discussions. The CPIC develops talking points for members of the division.

Bilat Meetings- Bilateral meetings occur between Multi-National Division (North), or MND(N), leaders and key Bosnian formal and informal leaders at all levels. A Bilat may be between a company commander and leaders in the municipality his company is responsible for patrolling. They also may take place between the command group and regional- or national-level leaders. The purpose of the meetings is to inform, influence or co-opt the support of the leaders or to warn them; to gather information; and to keep the lines of communications open.

International Conferences- Examples are the quarterly conference of the Joint Military Commission (responsible for overseeing the implementation of the military provisions of the peace agreement) with the armed forces of Bosnia-Herzegovina and the quarterly conference of the International Police Task Force (the UN agency responsible for overseeing the Bosnian police) with the Bosnian police.

One-on-One Contact with the Populace—The PSYOP Teams distribute the popular children's magazine *MIRKO* that promotes ethnic tolerance and the adult *Herald the Progress* magazine that discusses economic issues and promotes tolerance. Teams and patrols distribute handouts to inform the populace on specific issues to create an understanding of SFOR and international community programs and fliers to give the populace information, such as the location of weapons collection sites. The teams and patrols also deliver verbal SFOR messages; teams and patrols cover areas that have more troublemakers more frequently to ensure the troublemakers know they are being watched.

Use of Printed Materials- MND(N) made limited use of printed materials, such as handbills. "Handout" materials were used to inform the populace of specific issues to create a clear understanding of SFOR and international community programs. During SFOR 9, MND(N) produced fact books and copies of the UN law on primary and secondary education imposed to integrate the Brcko District. PSYOP and maneuver patrols distributed more than 5,000 copies of these books and mitigated initial resistance due to ignorance of how the integration would affect education in Brcko.

Figure 2: Multi-National Division (North) Methods to Gain the Desired Information Operations Effects

Tactics, Techniques and Procedures (TTP) for Steady-State IO. MND(N) employed a variety of methods to achieve its desired IO effects. Every action, or inaction, presence or absence, statement or silence that was observed, recorded or implied had the potential to alter the perceptions, attitudes and behaviors of someone in the division's area of responsibility. In altering those perceptions, attitudes and behaviors, the division created IO effects. In short, everything the division did was part of IO to one degree or another.

To alter perceptions, attitudes and behaviors in support of SFOR objectives, IO had to be planned, coordinated and synchronized to allow the division to accomplish its mission in steady-state, day-to-day operations. Two planning processes supported steady-state operations: the division synchronization meeting and the two sets of IOWG meetings.

Division Synchronization Meeting. This meeting ensured the division's efforts were synchronized with the commander's priorities. The meeting coordinated and synchronized division steady-state operations four weeks out. Specified and implied IO tasks derived from this meeting provided input into an overall IO concept of operations for steady-state operations.

The division commander provided his guidance for planning for the fifth week out and determined focus areas for the division weekly, such as support for the return of displaced persons and refugees. The division commander's focus areas presented in the synchronization meeting were the basis for IO focus areas.

IOWG Meetings. This process consisted of two sets of meetings. Brief morning "huddles" were held Monday, Wednesday, Friday and Saturday to synchronize daily activities, coordinate short-notice tasks and share information about current efforts in the staff sections represented. A more formal meeting convened every Tuesday to develop IO plans to meet the commander's mission requirements generated in the synchronization process.

During the first week of the month, the IOWG developed IO goals and subordinate objectives to support the IO focus areas. At week two, the IOWG and staff sections came to the table with specific ideas for projects and initiatives to support IO goals and objectives. In its ideal form, week two was a brainstorming session. After the week two IOWG, the IO cell's special projects warrant officer and IO planner took the IO focus areas, goals and objectives and developed tasks for the staff and subordinate units to support the IO plan.

A TV crew from TV Tuzla films an interview with a Bosnian-Serb who has returned to his home in Milino Selo located in the predominately Muslim Federation. Segments like this were used to highlight successes of Bosnian Serbs returning to their homes with the hopes of encouraging more to do the same.

During week three, the IO strategy for the following month was briefed to the IOWG as the final "azimuth check" on the IO strategy for the next month. The strategy then was published as a set of implementing instructions—division OPORDs.

The week four meeting served two purposes. Subordinate units provided the IO chief and the MND(N) chief of staff a briefing on their tasks for the upcoming month and how they would accomplish them. They also assessed whether or not they had achieved their goals and objectives in the current month's IO strategy. The chief of staff oversaw the IOWG process for the division commander, maintaining visibility over how the subordinate units and MND(N) were doing in achieving the IO goals and objectives and providing guidance on the IO plan for the upcoming month.

IO Deliberate Planning TTP. Beyond support for steady-state operations, the IO cell planned IO in support of specific, discreet missions with a limited time frame for mission execution contingency plans (CONPLANS) and operation plans (OPLANS). The IO planner integrated the MND(N) IO capabilities into division plans developed by the plans group and synchronized them with maneuver operations.

In deliberate planning, IO mission analysis and course-of-action (COA) development were conducted for offensive and defensive IO. Offensive IO planning determined the vulnerabilities (or leverage points) of selected targets or target groups and how to direct MND(N) IO assets to most effectively deliver appropriate themes and messages to them. Defensive IO planning identified MND(N) IO vulnerabilities and ways to prevent competitors from effectively exploiting them. For the MND(N), defensive IO most often were counterpropaganda and truth projection.

The deliberate IO planning process resulted in IO goals and objectives, a target synchronization matrix identifying intended IO effects for each target audience, a time line with key IO events and a concept for assessing the effects of the IO plan. All of these products, along with supporting PSYOP and (or) PA and CPIC plans were incorporated in the IO annex to a CONPLAN/OPLAN.

For missions involving activity over a significant timeframe (i.e. the month-long Operation Harvest campaign encouraging Bosnians to turn in illegal and unwanted weapons), these actions were passed to the IOWG for tracking and modification, as required.

IO Targeting Process. This process was executed in deliberate planning in the MDMP and steady-state IO planning. Like the FA targeting process, the MND(N) IO targeting process used the *decide, detect, deliver,* and *assess* (D^3A) methodology to translate the commander's intent into a proactive IO targeting plan.

The *decide* function determined the high-payoff targets (HPTs) based on their value and payoff in terms of desired effects and how MND(N) wanted to influence the environment. Targets could be specific (e.g., civil, political and/or military leaders) or general (e.g., local population group).

The *detect* function integrated collection efforts for the target. The *deliver* function was the execution of proactive IO activities against designated HPTs. *Assess* determined the effects of target engagements by identifying whether or not the behaviors, attitudes and perceptions of the target were favorably modified by the IO method of engagement.

During the targeting process, the IO cell defined targeting objectives and the effects to achieve those objectives (see examples in Figure 3). Targeting objectives described the endstate of how a target was to be effected and could involve the use of more than one method of engagement. Targeting effects described what the IO cell wanted to convey and a specific method of engagement to support the targeting objectives.

The division used multiple messages delivered via multiple methods of engagement to achieve targeting objectives. For example, if a stated objective was to "*Mitigate* ethnic tensions related to the return of displaced persons in town x," radio shows would be used to *inform* the populace that increased financial investment by the international community was tied to their maintaining a safe and secure environment. Newspaper ads could *promote* ethnic tolerance and *warn* the population that MND(N) and SFOR would not tolerate obstruction of the return. MND(N) leaders would conduct Bilats to *influence* or *co-opt* local authorities to promote tolerance and maintain law and order so ethnic tensions would not escalate into violence.

The MND(N) IO targeting process was formally and informally executed. The division's weekly targeting meetings were formal; they were chaired by the assistant division commander and attended by IOWG members. The meeting translated the division commander's intent into a proactive IO plan for steady-state and some deliberate operations.

Objectives

- *Co-Opt* —Gain cooperation from an individual or group.
- *Inform*—Provide purpose, goals and objectives.
- *Gain Information*—Acquire new facts, details or information.
- *Enhance*—Add to an already a positive situation.
- *Promote*—Actively go out and show something in a positive light.
- *Mitigate*—Reduce the impact of misinformation or negate a problem or concern.

Effects

- *Inform*—Provide information to counter misinformation or provide factual content.
- *Warn*—Provide notice of intent in order to prevent a specific action.
- *Influence*—Curtail or cause a specific action.
- *Disorganize*—Reduce effectiveness or ability.
- *Isolate*—Minimize power or influence.
- *Co-Opt*—Gain cooperation.
- *Promote*—Positively reinforce a desired behavior or attitude.

Figure 3: Targeting Objectives and Desired Effects for Information Operations

The division also conducted IO targeting during crisis situations. IO targeting during a crisis was more informal and organized around the targeting cell members whose staff agencies could weigh in on a specific fight.

The most important IO were those steady-state engagements planned and executed by subordinate units. Subordinate units maintained regular contact with the population, leaders and organizations in their areas of operation. Between the IO strategy developed in the IOWG and subordinate unit targeting of local leaders, there was not much to be targeted by the division in a steady-state environment.

The targeting process better supported deliberate operational and crisis planning. In these situations, the division faced specific, narrowly defined problem sets with better-defined target sets. In situations that occurred outside the steady state, there were distinct "competitors."

Deliberate operational targeting was done either in the targeting meeting or a smaller forum. Targets, objectives, methods of engagements and desired effects were identified and a target synchronization matrix created.

The targeting scheme was approved by the division commander as part of an orders approval briefing. The targeting synchronization matrix then became part of the division implementation plan and was disseminated to staff agencies and subordinate units for execution. The IO cell monitored the execution of the IO "scheme of fires" and collected and processed data to assess the effectiveness of the IO plan.

The *assess* function of the D^3A process was the most challenging part of the IO targeting process. Unlike traditional FA battle damage assessment (BDA) that is based on whether or not the target was hit and how much damage was caused, which are immediately visible, IO effects were spread over the time that it took to modify perceptions, attitudes and behaviors.

Bilat meetings were the easiest methods of engagement to assess. At the meetings, MND(N) could subjectively evaluate the level of commitment formal and informal leaders had toward attaining the division's objectives and goals and compare the actions or public comments of targeted individuals with comments and (or) commitments gained during the Bilats.

Other measures of effectiveness were less direct but provided indications of the success of MND(N) IO efforts. Public opinion polls, surveys, media analysis, human intelligence (HUMINT), tactical PSYOP teams and patrols provided information critical to assessing changes to perceptions, attitudes and behaviors. Often, the only criteria that could be used to assess the effects of IO engagements in the short-term were whether or not the themes and messages delivered were the intended ones, whether or not they were delivered to the target, whether or not they were received (not immediately rejected) by the target and the dispersion of the themes and messages achieved in the engagement.

The true effectiveness of IO engagements and campaigns were determined

over time based on the actions of targets and perceptible changes in the environment. Continuous assessment provided the basis for adjusting future IO targeting and activities.

Conclusion. IO in MND(N) was based on the doctrine in FM 100-6 with an eye toward its replacement FM 3-13. However, this doctrine focuses heavily on strategic and operational IO and talks in conceptual terms. MND(N) conducted an adapted version of IO focused on modifying attitudes, behaviors and perceptions of individuals, groups and populations to move them closer to SFOR and international community objectives.

The many successes of MND(N) IO were derived from the excellent teamwork of IOWG members. With the IO cell planning and synchronizing and the IOWG executing, MND(N) massed multiple methods of engagement on targets to deliver themes and messages in support of the division's IO goals and objectives. The division was able to modify attitudes, behaviors and perceptions of the local populace to maintain a safe and secure environment, moving Bosnia closer to SFOR and international community objectives.

In the future, the IO battlefield operating system (BOS) will remain crucial to accomplishing the mission of maintaining a safe and secure environment. One goal of the SFOR and international community has been for Bosnian leaders at the national and local levels to take charge of their societies. IO supports this goal by using the voices and faces of these leaders to transmit SFOR themes and messages to the population, such as those promoting ethnic tolerance. Many Bosnian leaders are reluctant to speak publicly, and IO can influence these leaders to promote these themes and messages. IO also can influence leaders to take charge of key programs, such as the Operation Harvest weapons turn-in program.

In the future, some of the IO methods of engagement will become more complex and capable of delivering themes and messages in a more subtle manner. Some changes, such as removing the SFOR logo from most print media products, have already been made. MND(N) has a Bosnian television station produce its monthly TV show and Radio Mir, the division's extremely popular radio station, is run by local national DJs.

Perhaps the next level is an increased use of popular culture as a vehicle to promote SFOR themes and messages. One idea would be to create a situation comedy or dramatic television show promoting themes of tolerance and reconciliation. This would help reach a population that is continually progressing in its sophistication of media consumption.

Finally, IO must continue to focus on truth projection and informing the population. These are always key tasks because ethnic tensions are easily inflamed by disinformation, propaganda and ignorance.

IO in Bosnia must continue to nudge the attitudes, perceptions and behaviors of the actors making up the environment in the right direction and mitigate crises before they escalate to violence. IO must remain one of the key BOS to bring security and safety to Bosnia, promoting the country's multi-ethnic future.

Captain Timothy D. LaBahn deployed to Bosnia-Herzegovina with the 3d Infantry Division (Mechanized) and served in the Information Operations and Joint Military Commission Cells with Task Force 1-64 Armor at Camp Dobol. During Stabilization Force (SFOR) 9, he served in the Multi-National Division (North) Information Operations Cell as the Special Projects and Targeting Officer in the Division Headquarters at Eagle Base in Tuzla, Currently, he is a student at the Field Artillery Officer Career Course at Fort Sill, Oklahoma. Captain LaBahn also was the Battalion Ammunition Officer for 1st Battalion, 9th Field Artillery, and a Company Fire Support Officer for the 1st Battalion, 64th Armor, both in the 3d Division.

Proud Americans Restore 175-mm Gun Tube for Museum

Former members of the *Proud Americans* 2d Battalion, 32d Field Artillery (2-32 FA), the first heavy artillery unit in the Vietnam War (November 1965), recently restored a 175-mm gun tube and donated it to the museum at Fort Sill, Oklahoma. 2-32 FA, one of the most highly decorated units in the Vietnam War (participated in 15 campaigns), retired its colors 22 January 1972.

The 2-32 FA gun tube was found laying in a grassy field near the Ordnance Museum at Aberdeen Proving Ground, Maryland, and is believed to be the only surviving 175-mm tube from the Vietnam War. With the help of Brigadier General John S. Brown, Chief of Military History, the museums at Aberdeen and Fort Sill and 6-32 FA, the sister battalion to 2-32 FA, the tube was mounted on the chassis as shown in the picture. 6-32 FA is part of the 212th Field Artillery Brigade, III Corps Artillery, at Fort Sill, the only 32d Field Artillery Regiment battalion still on active duty.

The former members of 2-32 FA contacted now number 130 and are forming an association. For more information, go to http://proudamericans.homestead.com/ProudAmericans.html or contact Ralph Jones at Rjones@aol.com or (513) 583-1632.

SP4 Ralph Jones
Assistant Gunner, A Battery
2-32 FA, Vietnam, 1969-1970

Echeloning Fires: Breaking Bad Training Habits

By Lieutenant Colonel Scott G. Wuestner

Photos by Raymond A. Barnard, Command Photographer, JRTC, Fort Polk, LA

Over the years, many articles have been written about echeloning fires. Most Field Artillery Fire Supporters and their Infantry brethren can recite the 6-5-4-3 rule. This rule (in hundreds of meters) refers to the minimum safe distances (MSDs) outlined in "AR 385-63 Safety Policies and Procedures for Training, Target Practice and Combat" that units employ during danger-close live fires. The rule applies to units' using MSDs to echelon fires—step rounds closer to friendly troops: 155-mm, 105-mm, 81-mm and, finally, 60-mm munitions.

Mortarman emplacing a 60mm mortar at the JRTC.

In their March-April 1997 article "Risk Estimate Distances for Indirect Fire in Combat," Major Gerard Pokorski and Lonnie R. Minton sought to refine these distances by determining risk estimate distances (REDs) for combat conditions. The article provided excellent data in terms of the probability of rounds' incapacitating soldiers at the various ranges, called probability of incapacitation (PI). The REDs derived were based on the fragmentation patterns of the different weapons.

However, one critical assumption about the RED data was not emphasized in the article—and is a problem today. The article says, "The distances assume that the firing unit has had its *fires adjusted* onto the target by an observer" [I added the emphasis].

A combination of the misuse of REDs, an AR 385-63 safety procedure mentality (6-5-4-3 rule) and a lack of understanding or application of the five requirements of accurate, predicted fire have led to flawed tactics, techniques and procedures (TTPs) for echeloning fires. This article outlines the impact these failings have on the accuracy of rounds and what units can do about it.

Risk Estimate Distances. For whatever the reason, units fail to meet the major assumption upon which REDs were developed—adjust the rounds landing at those REDs.

During offensive operations at the Joint Readiness Center (JRTC), Fort Polk, Louisiana, mortars and artillery seldom are adjusted onto the target prior to an attack. Leader recons rarely are conducted, and forward observers (FOs) very rarely are left in position to watch over the objective in order to adjust the initial rounds of a preparation. During defensive operations, we achieve only a 20 to 30 percent success rate in adjusting rounds on single targets tied to obstacles.

In the September-October 1999 edition, the Chief of Infantry Major General Karl F. Ernst in his article "Is the FA Walking Away from the Close Fight" stated, "By changing between weapon systems as the distance between the friendly force and the enemy is reduced, the maneuver force is essentially assaulting behind a 'wall of steel'…" If rounds have not been adjusted onto a target, then REDs don't apply and our current methodology of using the effects radius to echelon fires is invalid.

Five Requirements of Accurate, Predicted Fire. The five requirements are 1. Accurate target location and size, 2. Accurate firing unit location, 3. Accurate weapon and munition information, 4. Accurate meteorological (Met) information and 5. Accurate computational procedures. These requirements are critical to assuring that fires are accurate and predictable and critical to the principle of mass that preparatory fires are based on. Nevertheless, they are not addressed in our current echelonment TTP. For more information, see the article "How to Meet the Five Requirements for Accurate, Predicted Fire (And What to Do If You Can't)" by Captain Christopher A. Patton, September-October 1998, Page 22; you can access the article on line at sill-www.army.mil/famag at "Previous Editions."

The artillery's most accurate shooter is the 155-mm howitzer firing a 95-pound projectile. Mortar rounds are affected significantly more by the effects of meteorological conditions than the heavier 155-mm projectile or the 33-pound 105-mm round.

Mortar Inaccuracies. Mortars inherently are not as accurate as cannon artillery. Our fixation on the effects radius has blinded us to many problems with mortars and their firing accuracy. At the JRTC, we commonly see the following errors with mortars in the indirect fire mode.

First, mortars rarely account for the error that occurs when they settle their base plates. Mortars must first settle their base plates for two to three rounds before they can fire accurately. Such errors can cause rounds to fall as much as 200 meters short of the target. This fact has not been factored into the echeloning fires model.

Second, mortars don't do a good job of consistently updating their Met data. Air temperature, air density, wind direction and wind speed all affect the lighter mortar round, thus mortars fail to compensate for nonstandard conditions.

The weight of the round makes a difference. The artillery's most accurate shooter is the 155-mm howitzer firing a 95-pound projectile. The 81-mm mortar round weighs 9.5 pounds while the 60-mm mortar round weighs only 4.5 pounds. Mortar rounds are affected significantly more by the effects of meteorological conditions than the heavier 155-mm projectile or the 33-pound 105-mm round.

Third, mortar systems rarely are provided the survey required for common direction to each firing unit. This, again, directly impacts our ability to mass all systems at the required time and space.

In comparison, artillery units do a reasonable job of meeting the five requirements in order to achieve accurate first-round fire-for-effect (FFE).

Using REDs at the maximum range of 10 percent PI, the difference between the effects of a 60-mm mortar and a 105-mm round is 25 meters. However, when we add in the effects of not settling base plates, the lack of Met data and survey, and the lack of observer adjustments or registrations to the mortars, the difference dramatically increases, making the higher caliber round more accurate.

Operational Training Data. During training at Fort Bragg, North Carolina, units consistently conduct "Walk and Shoots." Walk and Shoots are MSD live-fire tactical exercises without troops (TEWTs) with various surface- and aerial-delivered assets. In a two-year period, one brigade at Fort Bragg conducted 18 iterations of this training.

During these iterations, artillery maintained the five requirements and conducted registrations on their MSD targets. Likewise, the 60-mm and 81-mm mortars had Met and survey and registered on their closest targets. In each TEWT, the company executed preparatory fires on the final target using a quick-fire plan. The target was approximately two-thirds of the ranges for all assets.

After all 18 iterations were conducted, the average operational errors for the 105-mm were between 0 and 100 meters, the 81-mm errors between 100 and 300 meters, and the 60-mm errors between 200 and 400 meters.

Again, these errors, even with all requirements satisfied, cast serious doubt on the validity of our current TTP. The firing errors that occurred during the Walk and Shoots far exceed the effects patterns of the rounds.

Firing accuracy must be the driving factor when executing fires in the close fight.

The concept of echeloning fires by attacking targets on or around the objective using the weapons system with the largest RED (combat) is not valid if rounds are not adjusted.

Many rotations at the JRTC have shown that units rarely adjust their mortars or artillery. Firing accuracy must be the driving factor when executing fires in the close fight. We must understand each weapon system and the factors that affect that system's accuracy

before selecting the system to engage a target. We cannot afford to lose soldiers in combat because of poorly defined and developed TTP that contribute to fratricide.

Unfortunately, we have been practicing bad techniques that have become accepted as doctrine. We must not forget that our task is to place accurate fires on the enemy—to kill the enemy while protecting our troops.

Changing Bad Habits. Units should not let the AR 385-63 mindset take hold in their fire support teams (FISTs), fire support officers (FSOs) and infantry leaders. Unfortunately, many already have this mindset and require retraining. Here are ways to break the bad training habit.

• Conduct leader development classes on the principles and fundamentals of how MSDs and REDs are developed and applied and the capabilities/limitations of mortars and artillery, especially in regards to terminal ballistics and effects and the five requirements of accurate, predicted fire.

• Conduct a fire coordination exercise (FCX) that trains the maneuver-fire support team on how to plan for, coordinate and execute fires in the close fight. The FCX should include prep fires; actions on contact; suppress, obscure, secure, reduce and assault (SOSRA); conducting a deliberate attack; military operations in urban terrain (MOUT), etc.

The FCX can be on a terrain model or in the field as a situational training exercise (STX) lane with pyrotechnics and fire markers. This type of training enables leaders to visualize how fire and maneuver can work together without having to deal with the safety concerns of a live-fire exercise (LFX).

• Continue to execute MSD training LFXs. Units must re-examine the impact of the lack of firing accuracy on both mortars and artillery. They should obtain operational data on how accurately their mortars and artillery shoot with and without meeting the five requirements. Then units should apply those numbers to the REDs to obtain a more accurate combat MSDs. This will allow the maneuver commander to gauge the accuracy of his mortars and artillery and determine the risks he would be willing to take in combat.

In the end, we must train as we will fight. Clearly, the methodology to fix the current echelonment mindset requires a considerable investment in manpower, time and resources. But in combat, the ability of our companies and platoons to execute close supporting fires to standard is what will produce the greatest effect on the enemy and not ourselves.

Lieutenant Colonel Scott G. Wuestner is the Senior Brigade Fire Support Observer/Controller (O/C) at the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana. Also at the JRTC, he was the Senior Fire Support Combat Service Support (CSS) O/C. He was the S3 for the 3d Battalion, 319th Airborne Field Artillery Regiment and Brigade Fire Support Officer (FSO) for the 504th Parachute Infantry Regiment, both in the 82d Airborne Division, Fort Bragg, North Carolina. He also served as an FSO for the 1st Special Forces Operational Detachment-D, Fort Bragg; an FSO for the 2d Battalion, 75th Rangers at Fort Lewis, Washington, and FSO for the 3d Battalion, 17th Infantry, part of 7th Infantry Division (Light) at Fort Ord, California. He commanded A Battery, 5th Battalion, 15th Field Artillery, also in the 7th Division. Lieutenant Colonel Wuestner was a Fire Support Instructor for the Field Artillery Officer Basic Course at the Field Artillery School, Fort Sill, Oklahoma. He is a graduate of the Command and General Staff College, Fort Leavenworth, Kansas, and holds a Master of Arts in Management from Webster University in Missouri.

Assistant Commandants Change

On October 11th, the Assistant Commandant (AC) of the Field Artillery School and Deputy Commanding General for Training of Fort Sill Brigadier General William F. Engel participated in ceremonies passing his responsibilities to Brigadier General David C. Ralston. General Engel had held the position since October 1999. He now commands White Sands Missile Range in New Mexico.

General Ralston also served as Chief of Staff of Fort Sill and commanded the 1st Cavalry Division Artillery, Fort Hood, Texas—the same division artillery in which he served as Executive Officer. Also at Fort Hood, he was the S3 of the Division Artillery and S3 of the 3d Battalion, 3d Field Artillery, both in the 2d Armored Division. Among other assignments, he commanded the 3d Battalion, 1st Field Artillery, part of the 3d Infantry Division (Mechanized) in Germany. He was an Army War College Fellow at Harvard University and holds a Master of Arts in Personnel Management and Administration from Central Michigan University.

Photo by Linda A. Young, Fort Sill TSC

Shortly after becoming AC, BG Ralston attended the Army's inspection of Green Hall, 95th Reception Battalion, at the Field Artillery Training Center (FATC), Fort Sill. Green Hall is being considered for the Phillip Connelly Dining Facility Award. To the right is COL Tom O'Donnell, Commander of the FATC, and LTC Angie Joseph, Commander of the 95th Battalion.

Field Artillery
Digital Photo Shooter's Guide

The revolution of the "battalion digital camera" now in progress allows units to take and instantly download action photos of their latest training exercise or deployment to briefing slides, home pages and reports or to make inexpensive color prints of awards ceremonies for esprit de corps distribution to family members—all excellent applications. But this revolution also can be a challenge for the magazine. For printing purposes, we need photos shot at the highest resolution and in the largest frame size the digital camera will allow.

When sending photos to *Field Artillery*, our first choice is for you to mail or over-night glossy color prints (preferably) or black and white photos from traditional film cameras. This allows us to scan and work the photos in our software designed for publishing and ensures each electronic image has the high-quality resolution we require.

However, if you must take and send us electronic photos, please read on.

1. Shoot the Picture. When taking a picture, set the camera on the largest image size and the highest quality resolution settings the camera will allow. Set the image size at the largest your camera allows, usually "Full" or "XGA." The highest resolution settings usually are called "High," "Super Fine" or "Ultra-High." (Cameras set at "Standard" or "Basic" quality settings produce images only good enough for web sites.)

Do not shoot a small photo on a low-resolution setting so you can save data space on your camera's storage capacity. Shooting small images at low-resolution will allow you to take more photos per shooting, but we won't be able to publish any of them.

The higher settings create larger photos and files. A color photo usually results in a file of at least 2 MB and a grayscale photo of at least 1 MB. There is no "hard and fast" rule about the image's file size but, generally, the bigger the size of the digital photo, the better the quality of the photo.

If your camera gives you the option, shoot the photo as a PC tif file. We also accept jpg files. When saving a file as a jpg, choose a "Quality" setting of "Maximum" or "10" and the "Format Option" of "Baseline (Standard)."

2. Download the photo in raw data. When downloading the file from your camera or its removable storage card to another drive, save the image in raw data. Do not manipulate the data (resize or try to edit the image). Let us take care of that.

And, please don't try to "beef up" the resolution of the small, low-resolution photo you shot. For example, shooting a 500-kilobyte image and enlarging the pixels per inch until the file size is 1.5 MB will not make the image clearer—it only will make the image larger (bigger dots, not more of them).

3. Send us the digital photo. By following the first two steps, you'll have a large file for each photo. One way to get your photos to us is to send them on a 100 or 250 MB Zip disk or a CD. In some cases, a jpg file will fit on a 3.5 floppy disk—but do not resize the jpg photo to make it fit.

Our magazine's email will accept 5 MB or smaller per message. Do not try to send us larger files via email—the attachments will be stripped out. You may be able to send us several photos by email, one at a time. Be sure each message with a photo attached includes a caption of who's doing what, when and where in that image; who shot the photo; the title of the article it is intended to illustrate; and the name of the author.

Mailing or over-nighting individual electronic photo files larger than 5 MB is one option. Another is to send it to us digitally via the a special upload site. The Fort Sill ASP File Upload Site on the internet can handle large/single file uploads without special software. To access the ASP site, go to our "Digital Photo Shooter's Guide" on our home page at http://sill-www.army.mil/famag. Click on the ASP File Upload Site link that's toward the end of the guide.

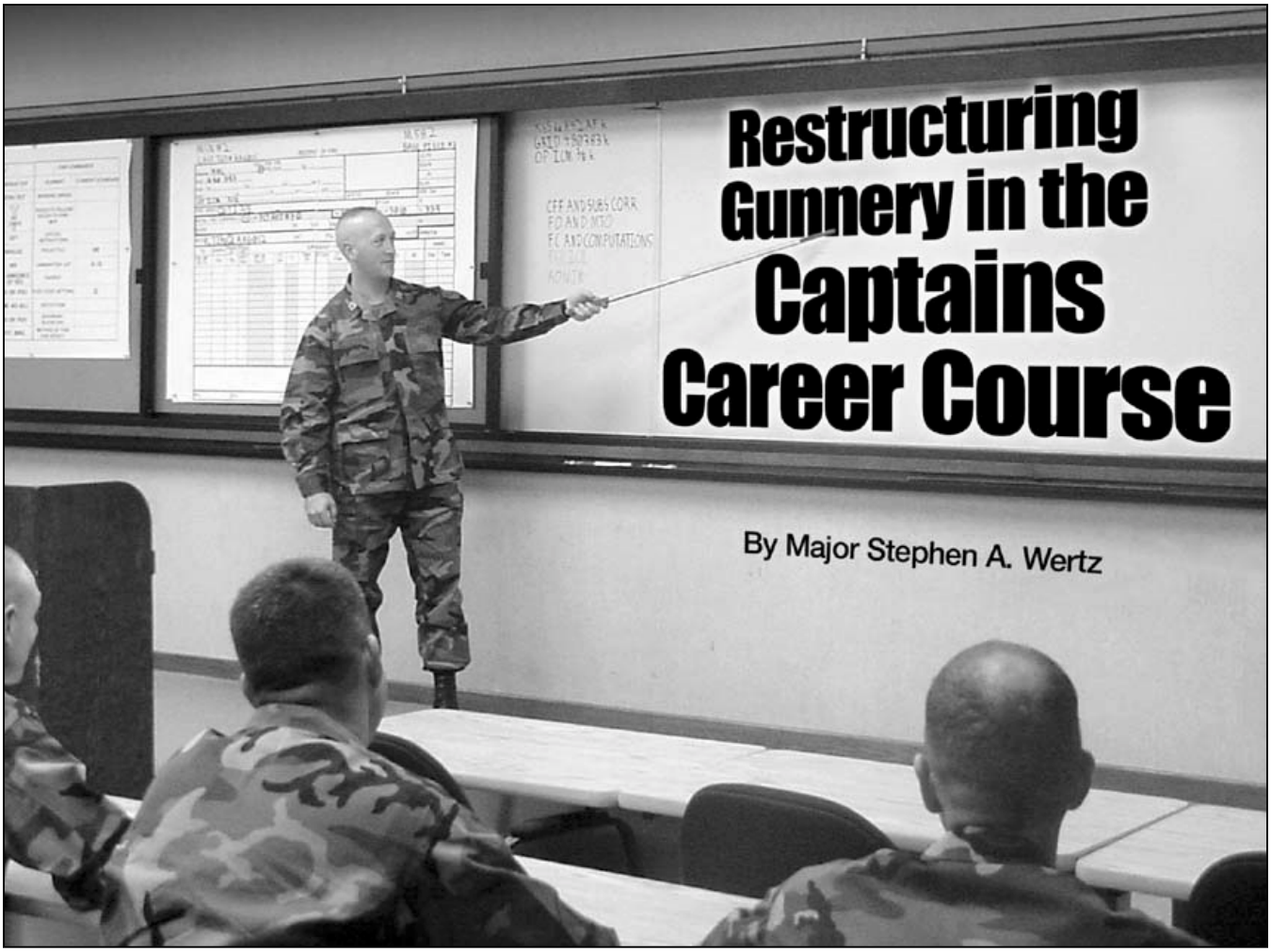
If you have questions, call the Art Director Bob T. Coleman at DSN 639-5121/6806 or Commercial (580) 442-5121/6806; the Fax number is DSN or Commercial 7773. Our email is famag@sill.army.mil. Our mailing address is *Field Artillery*, P.O. Box 33311, Fort Sill, Oklahoma 73503-0311. Over-night your photos to Room 7, Building 758, McNair Road, Fort Sill, Oklahoma 73503.

The majority of our digital shooters are not professional photographers. You are our authors and photographers—soldiers and Marines. Even better, you are mostly Field Artillerymen, telling the story of the best branch and best Army and Marine Corps in the world.

Help us illustrate your article with your photos—follow these instructions for taking and sending us digital photos. ***Good Shooting!***

Restructuring Gunnery in the Captains Career Course

By Major Stephen A. Wertz



Capt John F. Kesterson, Gunnery Instructor for the Captains Career Course

"The scheme of fires was totally out of synch with the scheme of maneuver." "There was no focus of fires." "Fires were not timely." "Volume of fire was not sufficient." How many times have artilleryman heard these comments during after-action reviews (AARs) at the Combat Training Centers (CTCs)? Worse yet, how many times have we heard them from our maneuver counterparts?

When we examine the individual within the unit who is responsible for ensuring fires are successful in both the fire support and fire direction arenas, he is usually a captain. Captains are the leaders on the ground who make or break units.

In the Field Artillery School, Fort Sill, Oklahoma, we recognize this. After much analysis, we altered our Captains Career Course (CCC) instructional material to produce a better-trained captain for the force and fleet.

Beginning in FY02, the Gunnery Department revamped CCC instructional material. The new instruction is designed to produce a more complete, tactical artilleryman.

The model we are using for this instruction is the battalion fire direction officer (FDO). However, this instruction covers a wide enough array of battalion-level subjects to benefit future fire support officers (FSOs), assistant S3s and battery commanders.

Battalion FDO Model. We use the battalion FDO as the focal point of our instruction because in tactical operations involving a battalion's delivery of fires, he is probably the most important individual in the battalion. He is the one who receives multiple calls-for-fire, decides which targets to attack and how to attack them, and decides what assets to use. Finally, he ensures his unit attacks those targets accurately and in a timely manner.

In a perfect world, the battalion FDO receives guidance and assistance in determining which targets to attack from the fire support coordinator (FSCOORD), the brigade FSO, the task force FSOs and his battalion S3. However, many times this guidance is not available due to the operational tempo of a battle, and the battalion FDO is forced to decide which missions are fired.

For this reason, a battalion FDO must be well-versed in both fire support and fire direction. He must be able to turn requests for fire from maneuver into accurate, timely fires from FA units.

No other position in an FA battalion requires such universal knowledge of our craft. Thus, our instruction covers a broad range of subjects that tie the tactical skills required in fire support to the technical skills required in gunnery.

Not all graduates of CCC will become battalion FDOs. However, because of the comprehensive nature of the job, if students understand and can perform the technical and tactical FDO tasks, it will improve their performance in whatever FA positions they hold.

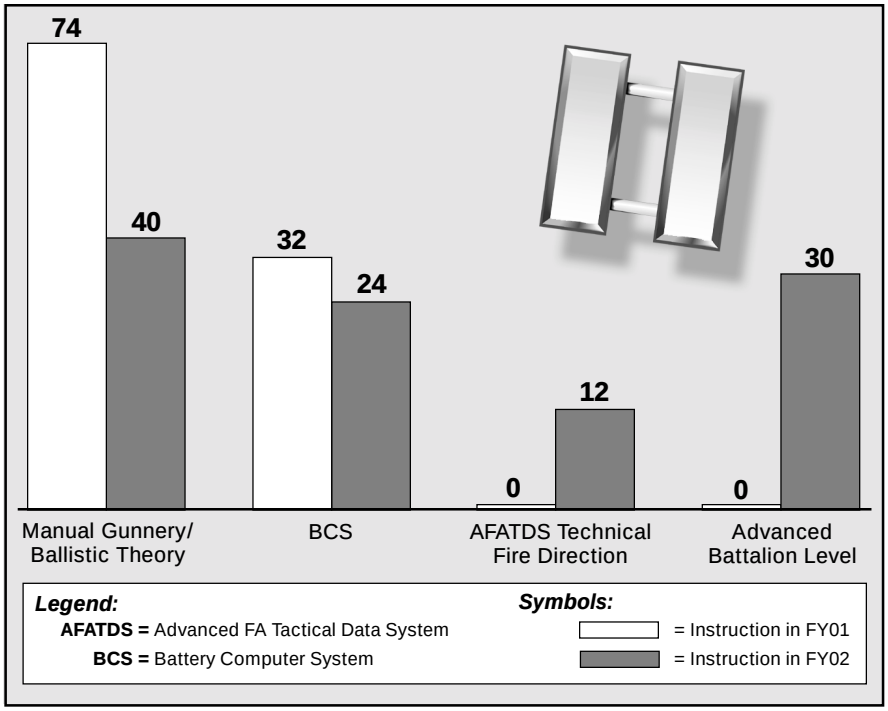
Instruction Modification. The Gunnery Department CCC instruction previously consisted of 74 hours of manual gunnery and 32 hours of battery computer system (BCS). (See the figure.) The content of the instruction was similar to that of the Officer Basic Course (OBC) but in a much accelerated time line.

Starting in FY02, all CCC students now receive 72 hours of instruction on the advanced Field Artillery tactical data system (AFATDS) Version A99 software. This instruction is taught by NCOs from the Fire Support and Combined Arms Operations Department in the Field Artillery School and consists mostly of instruction on the technical aspects of AFATDS.

Although most units today do not rely on manual gunnery as their primary means of technical fire direction, the FA School continues to teach some manual gunnery to the captains. There are several reasons for this. First, many CCC students' first assignments were with multiple-launch rocket system (MLRS) units where they didn't apply cannon gunnery fundamentals. The best method to reintroduce them to the cannon principles is to go back to the basics.

The next, and probably most important, reason is that manual gunnery contains the concepts we use for troubleshooting inaccurate fires. As captains, CCC graduates will be in positions where they will be expected to do this. Manual gunnery is the best method to teach ballistic theory and troubleshooting concepts. Although manual gunnery instruction is important, captains will not hold positions where they have to compute firing data manually.

There are other areas in which an FA captain should be proficient. To better balance these areas, we reduced our traditional gunnery instruction (manual/BCS) from 106 to 64 hours and added 12 hours of instruction on AFATDS Version A99 technical fire direction. This is important because AFATDS A99 started replacing BCS in fire direction centers (FDCs) in FY02. We also introduced 30 hours of advanced battalion-level instruction.



Changes in Field Artillery Captains Career Course (CCC) Types and Hours of Gunnery Instruction

The advanced battalion-level instruction follows the traditional gunnery and AFATDS instruction in sequence. The objective is to tie gunnery-related instruction to the tactical fire direction instruction received in AFATDS classes. In essence, this is what a battalion FDO should be able to do. He must be able to attack targets (tactical fire direction) and do so in an accurate, timely manner (technical fire direction).

The advanced battalion-level instruction is in three basic blocks and introduces several topics that FA captains should be familiar with. The first block covers coordinating the accurate massing of battalion fires. Subjects instructed in this block include battalion muzzle velocity management, battalion projectile/propellant lot management, applying meteorological messages, registrations, technical rehearsals and troubleshooting inaccurate fires.

The second block covers tactical fire direction. Subjects included in this block are focusing fires effectively, ensuring proper munitions and volume are fired to achieve the commander's intent, conducting automated tactical fire direction with AFATDS and conducting tactical fire direction for special munitions, such as family of scatterable mines (FASCAM) and smoke.

The third block covers conducting digital fire control within a battalion. Subjects covered in this block include establishing and following a digital fire mission processing standing operating procedure (SOP), conducting digital sustainment training and conducting digital fire control in support of a maneuver battle.

If graduating captains can comprehend and apply the principles taught in our revised gunnery instruction as well as apply the battalion-level fire support instruction, they will be better prepared to positively impact the performance of their gaining units.

Major Stephen A. Wertz is the Chief of the Fire Direction Branch in the Cannon Division of the Gunnery Department at the Field Artillery School, Fort Sill Oklahoma. His previous jobs in the Gunnery Department include serving as Chief of the Weapons Branch, Gunnery Instructor in the Officers Basic Course (OBC) and Captains Career Course (CCC) and Battery Trainer on the Paladin New Equipment Training Team (NETT). He previously was the Squadron Fire Support Officer (FSO) and the Regimental FSO in the 3d Armored Cavalry Regiment, Fort Carson, Colorado, and commanded 1st Squadron's Howitzer Battery. He also served with the 2d Battalion, 18th Field Artillery of the 212th Field Artillery Brigade, part of III Corps Artillery at Fort Sill, as a Battery Fire Direction Officer (FDO), Firing Platoon Leader and Battalion FDO.

7th FA on D-Day at Omaha Beach

First to Fire

By Lieutenant Colonel (Retired) Alfred A. Alvarez

The Enemy and Situation: "The 7th Field Artillery Battalion was assigned the mission of supporting the 16th Infantry in its assault on the northern Normandy coast in the vicinity of Collevillle-sur-Mer, 6 June 1944. This landing was accomplished against enemy coastal defense forces supplemented by a German infantry division that was in this particular beach sector on anti-invasion maneuvers. The enemy, firmly emplaced in built-in concrete fortifications on commanding ground overlooking the beach, directed artillery, mortar, machine-gun and small arms fire on attacking forces.

"The rough sea prevented many craft from immediately reaching the beach. While moving ashore in assault craft, violent seas hurled men and boats into intricate and almost impenetrable barriers of mine-capped underwater obstacles, bands of barbed wire and concrete walls…" (General Orders 200, Citation of Unit: 7th Field Artillery Battalion, 16th Infantry Regimental Combat Team, 1st Infantry Division, 12 December 1945)

Sunrise came around 0600 that day. I remember it as a dismal, dark morning on the tossing English Channel. The motion of our ungainly LCT [landing craft, tanks] on the turbulent seas caused sprays to soak us through and through.

Wet and cold from our exposure on the deck, I devoured a hot cream of celery soup from our British field rations for breakfast. The ingenious self-heating can had a heating unit in the oversized soup can. Loading this mixture with ration crackers produced a hot mush that literally stuck to one's ribs.

We slowly edged toward the beach, but it was too dark and we were too far away to see the beach. A rolling thunder of awesome explosions from the large guns of the Navy's battlewagons broke over us and seemed to push us forward.

We entered smoke and heard strange snapping noises. The shore appeared and the LCT ramp clanked and came down. We began exiting the craft into the surf at Omaha Beach.

This article recounts the turbulent first 24 hours of 6 June 1944—D-Day—on Omaha's "Easy Red" Beach. The 7th Field Artillery (7th FA), the "Lucky 7th," was part of the assault force of the 16th Infantry Regimental Combat Team (RCT) to open up the draws of Omaha Beach and reach the Normandy plateau. I was a private first class serving as C Battery's radio/telephone operator.

We were to provide the 105-mm punch that would allow follow-up waves to proceed and drive inland from the beach. Our parent organization, the 1st Infantry Division, had the mission to take and hold 10 kilometers inland.

Getting from the beach to the top of the bluff at Omaha now seems miraculous—about as far as most of us got. Yet, we did it, and eventually were able to provide direct support (DS) to the "Dough Boys" of the 16th RCT from the high-tide mark. We fired the first land-based artillery support in Normandy.

D-Day Minus 2. Our artillery convoys motored down from our locked-in concentration camps in Dorset County, England, to Weymouth Harbor where we boarded LCTs and DVKWs (2 and 1/2-ton amphibious trucks, called Ducks). We were part of Assault Force O.

Our LCT wallowed around in the English Channel for 24 hours. A naval officer briefed us that we were the leading assault element for that coming

morning on the coast of Normandy. The 1st Infantry Division—*The Big Red One*—was a prime, combat-experienced division chosen for the toughest of assignments: the amphibious assault of a built-up enemy beach. As history has recorded, the 1st Division already had participated in the North Africa and, later, in the Sicily amphibious assault landings. The 24-hour delay gave "the old sweats" time to regale us with war stories, telling us why the division was named the 1st—because we were always the first in…and last out.

Because I was curious, young and naïve, I asked several probably stupid questions. This prompted Sergeant Alex Kowalski (Greenfield, Massachusetts), our Chief of Detail, to say, "Listen, 'John' [as in "John-Ass Recruit"], you just get up that #$@%& beachhead bluff and make sure that %$#@& radio goes with you." The sergeant later was captured with the battery commander, Captain Jack Wood, and a forward observer (FO), Lieutenant William P. Hill; he died of wounds in a German prison camp.

My radio was an important part of our artillery reconnaissance party with First Lieutenant Peter J. Hoffman in charge. Our party had officers, instrument operators and commo personnel. We had 610 radios (two portions each) and many extra battery cases. Private First Class Eddie King (Waltham, Massachusetts) and I were radio/telephone operators and Private First Class George Rosner (Philadelphia, Pennsylvania) carried the batteries. Private First Class John R. Ulman (Connecticut) was the driver of the jeep that had the section's equipment in its trailer. As I now realize, we also were an FO party as we had Second Lieutenant Hill (an extra officer) from our battery. We were doubled up in all jobs: command, guns, survey and commo.

Our US Navy LCT was crowded with armor. Tanks and half-tracks backed in first, and the jeep backed in last. We were to lead the charge from our LCT by exiting first.

D-Day and Hell. The first indication that we were approaching landfall and H-hour on D-Day was strange pinging on the side of the LCT. The smoke from the burning beach engulfed us. The beach bombing and shelling must have been horrific, but as we later found out, it had not been as effective as we had hoped. We heard loud scraping noises as the LCT rammed some underwater obstacles. Finally, the LCT ramp slowly started down.

At this time, the vehicles in the craft were revving their engines and the carbon monoxide and diesel fumes were overcoming us. We wanted out.

The jeep went out and down. The ramp clanked, and we jumped out on both sides into five and one-half feet of surf. The jeep had a one-foot high exhaust and could operate submerged and loaded with all baggage and equipment and still hold three people: the driver and the two lieutenants.

The rest of us trudged out into the water carrying heavy loads. I had "long johns," impregnable "goo" to preclude contact with chemical gas, woolen ODs, gas flaps on my neck and wrists, a field jacket and netted helmet, web equipment, two canteens, three first aid pouches (one on the helmet with morphine syrettes), a Haversack, grenades, extra ammo, an M1 carbine enclosed in plastic taped with banana clips and one mag in its stock, an assault jacket with many pockets, a plastic-enclosed one-quarter mile reel of wire, a telephone and the 610 radio wrapped in a life preserver—we were *overloaded*.

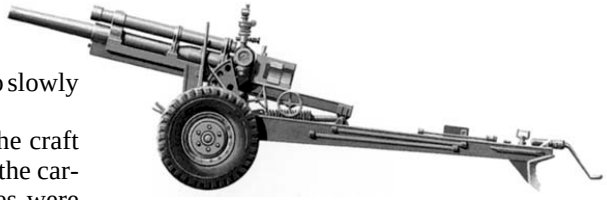
I'm five feet, seven inches tall and only had my nose out of water. I inflated the radio's life preserver as I stepped into the surf and rode it in. (I encountered Sergeant Kowalski later that morning, and he noted my radio was intact.)

The life preservers had explosive cartridges that inflated a rubber doughnut around your waist. Our combat-assault veterans had told us to wear our rubber gas mask cases inflated under our chins to keep our heads up and out of the water.

Unfortunately, the soldiers of the 116th Infantry RCT from the 29th Infantry Division assaulting the beachhead section to our left were inexperienced in beach landings. Many drowned when their inflated waist life preservers caused their heads to go underwater. Their bodies with their blue-and-grey shoulder insignia sadly lined the beach tidemark the next day.

I trudged out of the deep and into waist deep and then knee deep water. Later, my readings of this remembrance explained that these changing depths were "wave runnels." But what was fortunate for me was a death knell for others.

Eddie King and I got separated as we both hid behind large metal boat obstacles. However, both of us had identical portions of the radio, so when we got together, we had no commo; we needed Rosner with the battery packs.



The M101 105-mm howitzer was developed in the 1920s, perfected in the 1930s and produced in 1941.

After what seemed hours, we finally left the comparative safety of these large metal beach obstacles. Then crawling and dragging our stuff, we emerged and hid behind a berm lined with literally hundreds of soldiers.

Eddie King went back into the surf to pull in wounded, drowning soldiers. When he returned, he pointed to his head where blood trickled down his face. There in the center of his helmet was a bullet hole where a round had gone through it. I had the unenviable task of sticking my hand in his helmet and feeling mush, but it was only his hair soaked in blood. Luckily, the bullet only creased his head.

Someone called a medic over, and he sat down with his back to the enemy to bandage Eddie. A bullet struck the medic in the back. Eddie and I tried to bandage him and called for other medics to help, but we were unable to save him.

We spotted Rosner submerged with the battery box and finally got him out of the surf. Sergeant Kowlaski then married us up with a battery officer Lieutenant Merrill Ferrara. This officer earned his second Silver Star as he led us up the beach and up the bluff that day.

I remember seeing signs with skulls and crossbones—"*Achtung Minen*"—indicating a German minefield. There were wooden steps leading up the bluff interspersed with American bodies. I didn't know if they were victims of sniping or mines. We gingerly groped our way up, carrying equipment weighing about 75 pounds.

Arriving at the top, we realized Lieutenant Ferrara had been hit in the groin, and he was bleeding profusely from his crotch. I still recall how embarrassed we were as he lowered his trousers for us to apply a battle dressing. Later, when we had to renew the dressing, I recall how neatly I dug a small hole and buried the first dressing. I had some weird thought of being fastidious on the battlefield.

The top of the bluff was covered with smoke and, in comparison, was amazingly safe. All the firing was going over

6 June 1944: American assault troops land at Omaha Beach. Note the M101 105-mm howitzers on the beach.

our heads onto the beach or out to sea.

We could see machine-gun fire and artillery rounds continue to land on the packed personnel on the beach—living and dead—and masses of equipment in the surf, all lined up at the high-water mark. Landing craft now steadily attempted landings. The 16th Infantry RCT Commander Colonel Taylor's memorable words were prophetic: "Get off the beach because only the dead and those going to die will remain!"

Meanwhile, the officers of the 7th FA were organizing groups of all available soldiers and fighting as infantrymen, aggressively attacking the German pillboxes and machine-gun positions. Someone pointed out Lieutenant Colonel George Gibbs, our battalion commander, standing up, probably trying to inspire the troops.

Captain Robert W. Woodward, our battalion commo officer, led a group of battery personnel and wiped out a machine-gun emplacement. Technician Fourth Class Dock, who was the horizontal control officer of the battalion fire direction center (FDC), commandeered an abandoned US tank and silenced an annoying German pillbox.

On our smoking bluff, the only disturbing problem was a sniper's round occasionally zinged by our heads. We countered the snipers by organizing into hunter teams in the German trenches.

Meanwhile, our firing batteries were encountering countless difficulties coming through the surf. They were riding on DVKWs overloaded with 105-mm M101 towed howitzers, ammo and 10 personnel.

The two DS artillery battalions—7th FA for the 16th Infantry RCT and the 111th FA for the 116th Infantry RCT—did not fare well. The 111th lost all 12 of its guns to counterfire and rough surf, although one gun was salvaged. The 7th FA did a little better, losing only six of its 12 guns.

The 7th FA rescued the 111th's last gun, forming its now historical "seventh gun battery." I believe Sergeant Lester McPherson of Runford, Maine, 1st Section Chief, salvaged the seventh gun and made C Battery the unique seventh gun battery. At about 1600 on 6 June, the 7th fired the first land-based artillery support in Normandy.

Initially, the DVKW survivors, approximately 60 personnel, were reported as missing in action (MIA), but they eventually straggled into their batteries.

This momentous day ended with a spectacular strafing by some German fighter planes—every son-of-a-&%$# on the beach fired his weapon, and for us on the top of the bluff above, it was time to hide.

Our battalion, the 7th FA, was recognized with the Presidential Citation. The French upgraded our World War I *Fourreguerre* from *Croix de Guerre* status to the *Medaille Militaire* level identified by a yellow and green lanyard device on our left shoulders. Lieutenant Colonel Gibbs, Captain Woodward and Technician Fourth Class Dock were all awarded Distinguished Silver Crosses for their morning's exploits. Silver Stars were awarded to seven officers and 23 enlisted men for their gallantry on the beach that day. Purple Hearts for the wounded and killed in action (KIA) on 6 June eventually totaled 27, with Lieutenant Hoffman and Private Ulman missing in action (MIA). All the members of the 7th Artillery Battalion were awarded the assault landing "Arrowhead" to wear on our European Theater of Operations (ETO) ribbons.

On 12 June 1944, the 7th Field Artillery Battalion was at Caumont, France, some three miles farther inland than the nearest US forces on the Allies' Normandy front and two miles farther inland than the nearest British forces. The location of our battalion prompted the 1st Infantry Division Artillery Commander Brigadier General Clift Andrus, (who later became the division commander) to ask, "How did the *artillery* get out in front of the *infantry*?" The answer was simple: it was the 7th Artillery.

Lieutenant Colonel (Retired) Alfred A. Alvarez was a Radio/Telephone Operator for C Battery, 7th Field Artillery Battalion, 16th Infantry Regimental Combat Team, 1st Infantry Division, and landed on D-Day, 6 June 1944, at Omaha Beach on the Normandy Coast of France. He participated in the following campaigns during World War II: Normandy, Northern France, Central Europe, Rhineland and Ardennes. In 1949, he went to Officer Candidate School at Fort Riley, Kansas, and was commissioned a Second Lieutenant in the Field Artillery. He was a Forward Observer and then Infantry Platoon Leader in the 187th Airborne Regimental Combat Team in Korea in 1951-1952 and commanded three batteries in the 11th Airborne Division (Headquarters and Headquarters Battery, Firing Battery and Service Battery) in both Fort Campbell, Kentucky, and Augsburg, Germany. In the 82d Airborne Division, he was Secretary to the General Staff, serving for 18 months in the Dominican Republic Campaign in 1965; he also served as a US Observer in Bolivia with the 7th Special Forces in 1968 and G1 of the Qui Nhnon Support Command in Vietnam. After 32 years in the Army, he retired in 1974 at Fort Bragg as the XVIII Airborne Corps Adjutant General. Lieutenant Colonel Alvarez lives in Fayetteville, North Carolina.

Low-Angle Fires for MOUT

Few FA doctrine and literature sources mention fire direction in military operations in urban terrain (MOUT). However, the fire direction procedures for determining intervening crests in the mountainous terrain of the Mojave Desert at the National Training Center (NTC), Fort Irwin, California, apply to buildings as intervening crests in a MOUT environment. In addition, the procedures for low-angle fire adapted from *FM 6-40 Tactics, Techniques and Procedures (TTP) for Field Artillery Manual Cannon Gunnery* apply to fire direction in MOUT as the preferred firing angle.

High-angle fires may be required to attack targets in built-up areas, but the probable error in range for high-angle fires found in the tabular firing tables (TFTs) is greater than for low-angle fires. In an urban environment, the difference between a few meters and 10 can lead to a round's impacting on an unintended target. This increase in probable error should be considered when using mortars, which are high-angle weapons.

Low-angle fires will work in current MOUT training centers, villages, small towns and most cities whose buildings are three or less stories tall. However, high-angle fires may be the only option if the firing data for low-angle fires in cities with high buildings or skyscrapers indicates the structures will interfere with the projectile. Also, high-angle fires may be required to keep from hitting observers or other friendly troops positioned on top of buildings or other high points.

The fire direction officer (FDO) ensures fires clear intervening crests or buildings. Computing an executive officer's (XO's) minimum quadrant elevation (Min QE) solution offers one possibility; however, this method is based on the ascending branch of the trajectory and does not account for considerations as the round travels the entire length of the trajectory.

The steps outlined in the figure take the FDO through the process of determining any potential problems with his low-angle fires due to intervening crests or buildings. The steps must be followed for every position the howitzer occupies.

The procedures in the figure for low-angle fire are adapted for urban scenarios. Although urban areas are not new combat terrain, we have few MOUT TTP. We must tailor FA fire direction tactics, techniques and procedures for this environment.

1. After the howitzer occupies a position, the fire direction officer (FDO) analyzes the terrain for intervening buildings. If map spotting is not possible, then he needs information from the S2 on the height and grid of each building. This is a critical procedure because most maps do not have building altitudes.

If the S2 is unable to gather this information, then the ground forward observer (FO) reports obstruction data up through the chain of command until it reaches the artillery S2 or battalion FDO. Equally important, the observer must report his location with the correct altitude as he may be observing from an intervening building or crest.

2. Once the FDO determines the possible obstruction, the FDO determines the maximum altitude of the crest or building and computes the firing data to that point. (He determines the quadrant elevation, or QE, to the maximum altitude of the intervening building.)

3. The FDO adds the value of two Forks (Column 6, Table F of the Tabular Firing Table) to the QE determined in Step 2 to ensure the round-to-round variations (probable errors) will clear this point.

4. The FDO then records this quadrant and the round's charge on his situational map (SIT MAP) as a check to ensure rounds will clear the intervening buildings.

5. If variable time (VT) fuzes are to be fired, the FDO must take additional steps to ensure the VT fuze does not arm before passing over the building and detonate due to reflected energy from the building. The VT fuze is designed to arm 3.0 seconds before the set time. It can, however, arm up to 5.5 seconds before the set time. The FDO must apply an additional interval of 70 meters to ensure that if the round is armed before passing over the building, it does not acquire any reflected radar energy. The FDO must identify the appropriate vertical interval (VI) based on these conditions. This is the "VT VI." After determining the VT VI, the FDO proceeds through the following steps:

(a) Determine the armed VT QE using VT VI and range-to-crest.

(b) Determine the time-of-flight (TOF) to the crest.

(c) Add 5.5 seconds to the TOF from Step B and express this value up to the next whole second.

(d) Record both the armed VT QE and minimum fuze setting for the VT fuze on his SIT MAP.

Computing Firing Data for Low-Angle Fires with Intervening Crests/Buildings and Using Variable Time (VT) Fuzes. (Procedures are adapted from *FM 6-40 Tactics, Techniques and Procedures for Field Artillery Manual Cannon Gunnery*, "Safety," Chapter 15, Paragraph 15-30.)

1LT Christopher R. Boris
FDO, 3-6 FA, 10th Mtn Div Arty
Fort Drum, NY

2001 Redleg Reference

The following is a list of articles, interviews, "From the Firebase" (FF), "The Update Point" (UP), "From the Gun Line" (FGL), "Incoming" (INC) and "Redleg Review" (RR) appearing in *Field Artillery* during calendar year 2001. The entries are categorized by subject and listed chronologically by title and edition.

Unit Reports

"Digital and More Lethal—The 21st Century Battery" (4-42 FA, 4th IN Div Arty), Jan-Feb

"The First Multi-Component Battery: B/2-131 FA—D/2-20 FA" (49 AR Div Arty—4th IN Div Arty), Jan-Feb

"The Master Gunnery Team: Training the Firing Battery" (2-320 FA, 101st AA Div), Jan-Feb

"Transforming Fire Support for the IBCT—Supporting the Maneuver Commander" (1-37 FA, 3d IBCT, 2d IN Div), Mar-Apr

"Transforming the FA Battalion for the IBCT—Supporting the Maneuver Commander" (1-37 FA, 3d IBCT, 2d IN Div), Mar-Apr

"2-15 FAR Names Durham Hall" (2-15 FAR, 10th Mtn Div), Mar-Apr

"BFIST: A Sight for Sore Eyes" (1-41 FA, 3d IN Div), Mar-Apr

"Team Fires: Taking Responsibility for TF Mortars" (1-319 AFAR, 82d Abn Div), Mar-Apr

"DOCC: Sustaining Corps Deep Operations Proficiency" (III Corps Artillery), May-Jun

"Reactive Targeting: Firefinder and AFATDS in the Digitized Division" (4th IN Div Arty), May-Jun

"Tuzla to Cortina: From Peacekeeping to Warfighting" (2-15 FAR, 10th Mtn Div) Jul-Aug

"MLRS Live-Fire Qualification Through Multi-Echelon Training" (1-12 FA, 17th FA Bde, III Corps), Jul-Aug

"Fighting With and Against Fires: The Transformation Continues" (4th IN Div Arty), Sep-Oct

"V Corps FECC" (V Corps Arty), Sep-Oct

"45th FA Bde 1st to Field AFATDS" (INC), Sep-Oct

Targeting/TA

"CENTCOM: Targeting in a Unified Command" (Interview with GEN Tommy R. Franks, CINC of US Central Command), May-Jun

"Nonlethal Targeting Revisited—The Kosovo Experience," May-Jun

"Air Functionality in AFATDS," May-Jun

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"Joint Targeting for Time-Sensitive Targets—To Boldly Go Where No Army Has Gone Before," May-Jun

"JTRGS: Common Reference System for Coordinating and Synchronizing Joint Fires," May-Jun

"Q-47 Future Firefinder Radar," May-Jun

"The Role of the GS FA Battalion Targeting Officer," May-Jun

"The Law of War and Fire Support: A Primer for Fire Supporters," May-Jun

"Expanding the Role of the Marine Artillery WOs," May-Jun

"Joint Targeting Doctrine," Sep-Oct

"131A Targeting Technician Program Maturing" (INC), Nov-Dec

"Counterfire for the IBCT," Nov-Dec

Doctrine and TTP

"The Role of the FA and Fire Support in Transformation" (Interview with GEN John N. Abrams, CG of TRADOC), Jan-Feb

"The Field Artillery Battery: Its Past, Present and Future," Jan-Feb

"Digital and More Lethal—The 21st Century Battery," Jan-Feb

"Paladin Platoon Operations versus Battery Operations," Jan-Feb

"The Battery Commander's OPORD," Jan-Feb

"The Battery Commander's AAR: 'Hey, How Did We Do Today?'" Jan-Feb

"Ammunition Management in Battery Operations," Jan-Feb

"Ammunition Management is Everybody's Business," Jan-Feb

"The Senior Fire Support Conference—We Have Work To Do" (FF), Mar-Apr

"BFIST: A Sight for Sore Eyes," Mar-Apr

"Team Fires: Taking Responsibility for TF Mortars," Mar-Apr

"TLP for Light Company Fire Support Planning for the Defense," Mar-Apr

"Planning Fires for Brigade Success—Simple, Well Rehearsed and Violently Executed," Mar-Apr

"DOCC: Sustaining Corps Deep Operations Proficiency," May-Jun

"Artillerizing PIRs," May-Jun

"Air Support Functionality in AFATDS," May-Jun

"The Senior Fire Support Conference and Responsive, Accurate Fires" (FF), May-Jun

"Accurate, Responsive Enemy-Focused Fires" (Interview with LTG Leon J. LaPorte, CG of III Corps and Fort Hood), Sep-Oct

"XVIII Airborne Corps Fires: Fast, Flexible and Effective" (Interview with LTG Dan K. McNeil, CG of the XVIII Airborne Corps and Fort Bragg), Sep-Oct

"MAGTF Fires XXI," Sep-Oct

"V Corp FECC," Sep-Oct

"Fighting With and Against Fires: The Transformation Continues," Sep-Oct

"CAS Battle Drill," Sep-Oct

"The MEF's Force Artillery," Sep-Oct

"Task Force Fire Support Evolution: FIST Employment Concepts," Sep-Oct

"Advice to Field Artillerymen: Making Fires Key to Objective Force Success," Sep-Oct

"Joint Targeting Doctrine," Sep-Oct

"Doctrine for Fire Support: What Comes After AirLand Battle?" Sep-Oct

"Correction to 'TLP for Light Company Fire Support Planning for the Defense'" (INC), Sep-Oct

"FSO Handbook On Line" (INC), Sep-Oct

"Counterfire for the IBCT," Nov-Dec

"Information Operations in Bosnia," Nov-Dec

"Low-Angle Fires for MOUT," Nov-Dec

"Echeloning Fires: Breaking Bad Training Habits," Nov-Dec

"Transformation—The Way Ahead" (UP), Nov-Dec

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"The First Multi-Component Battery: B/2-131 FA—D/2-20 FA," Jan-Feb

"Artillery Surveyors: Nomads of the Battlefield," Jan-Feb

'"Proactive Artillery' for Fast, Responsive Fires" (Interview with LTG James T. Hill, CG of I Corps and Fort Lewis), Mar-Apr

"Transforming Fire Support for the IBCT—Supporting the Maneuver Commander," Mar-Apr

"Transforming the FA Battalion for the IBCT—Supporting the Maneuver Commander," Mar-Apr

"Fixing Fire Support in the GCE—A MAGTF Commander's Perspective," Mar-Apr

"Light Force Modernization—The FA Battalion in the JCF-AWE," Mar-Apr

"Expanding Role of Marine Artillery WOs," May-Jun

"V Corps FECC," Sep-Oct

"The MEF's Force Artillery," Sep-Oct

"131A Targeting Technician Program Maturing" (INC), Nov-Dec

"The Right Fire Supporters in the Right Positions Send the Right Messages" (INC), Nov-Dec

"Fires for the IBCT—A Mobile Infantry-Centric Force" (Interview with COL Steven L. Bailey, Cdrr of the 3d IBCT, 2d IN Div, Fort Lewis), Nov-Dec

"Transforming Fires for the Objective Force," Nov-Dec

"Junior Officers: The Thinning Ranks," Nov-Dec

"Transformation—The Way Ahead" (UP), Nov-Dec

Leadership

"Retaining Quality Leaders for the Objective Force" (FF), Jan-Feb

"Response to 'The Practical Application of Army Values"' (INC), Jan-Feb

"FA CSM Conference at Fort Sill," Jan-Feb

"The Senior Fire Support Conference—We Have Work To Do" (FF), Mar-Apr

"The Role of the NCO in Transformation" (FGL), Mar-Apr

"TLP for Light Company Fire Support Planning for the Defense," Mar-Apr

"Are You on the Train or Still on the Platform?" (FGL), May-Jun

"Leading From The Front and By Example" (FGL), Jul-Aug

"Confessions of a (Once) Artillery Lieutenant," Jul-Aug

"Snow Hall Named for GEN Dutch Kerwin," Jul-Aug

"Strategy for the Future" (UP), Sep-Oct

"New Fort Sill DCG-ARNG Honored," Sep-Oct

"What is an American?" Nov-Dec

History

"Response to 'Fire Support at the Battle Kursk,"' Jan-Feb

"The Field Artillery Battery: It's Past, Present and Future" (INC), Jan-Feb

"Transforming the Force—From Korea to Today" (Interview with MG(R) Robert H. Scales, Jr., Historian and Former Commandant of the Army War College, Carlisle Barracks, PA), Jul-Aug

"World War I: Joint Fires in the East African Campaign," Jul-Aug

"Spanish Civil War: The German Kondor Legion, A Firepower Force Package in Combat," Jul-Aug

"American Civil War: 'The Fatal Blunder of the Day'—The Artillery Fight at the First Battle of Bull Run," Jul-Aug

"Observations of a [1946] Battery Commander," Jul-Aug

"Eyes of the Artillery: The Origins of Modern US Army Aviation in World War II" (RR), Jul-Aug

"Researching FA and DoD—Current and Historical Information," Jul-Aug

"Chief of Staff of the Army's Professional Reading List," Jul-Aug

"Doctrine Under Trial: American Artillery Employment in World War I" (RR), Sep-Oct

"7th FA on D-Day at Omaha Beach—First to Fire," Nov-Dec

Equipment and Technology

'"Proactive Artillery' for Fast, Responsive Fires,"(Interview with LTG James T. Hill, CG of I Corps and Fort Lewis), Mar-Apr

"BFIST: A Sight for Sore Eyes," Mar-Apr

"Fixing Fire Support in the GCE—A MAGTF Commander's Perspective," Mar-Apr

"Light Force Modernization—The FA Battalion in the JCF-AWE," Mar-Apr

"Reactive Targeting: Firefinder and AFATDS in the Digitized Division," May-Jun

"Q-47 Future Firefinder Radar," May-Jun

"Field Artillery—Relevant, Trained and Ready—Two Years Later," Jul-Aug

"MAGTF Fires XXI," Sep-Oct

"Fighting With and Against Fires: The Transformation Continues," Sep-Oct

"Advice to Field Artilleryman: Making Fires Key to Objective Force Success," Sep-Oct

"Response to Major General Stricklin's Farewell Article" (INC), Sep-Oct

"45th FA Bde 1st to Field AFATDS" (INC), Sep-Oct

"Transforming Fires for the Objective Force," Nov-Dec

"Transformation—The Way Ahead" (UP), Nov-Dec

Training

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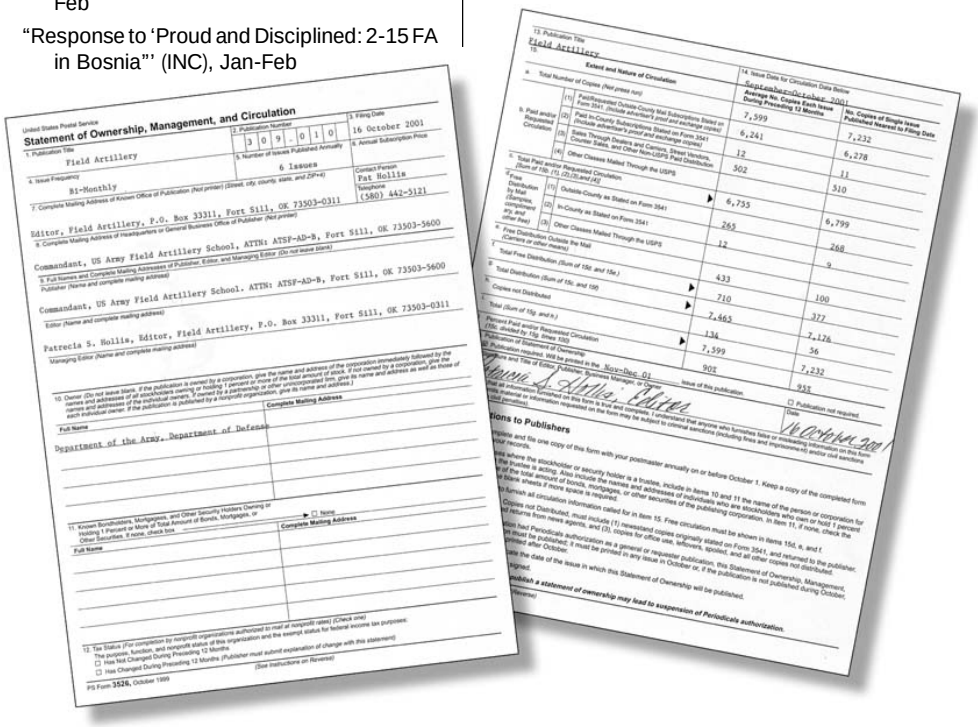
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